Integrated Analysis of Quality Use of Pathology Program (QUPP) Final Reports

A Summary Report for the
Australian Department of Health and Ageing
Medical Benefits Division

Canberra
22 June 2012

Cognitus Pty Ltd
Jane Carstens
# Table of Contents

**Executive Summary** ........................................................................................................................................... 3  
General Findings from the Integrated Analysis ........................................................................................................... 4  
Consistent Themes Identified from the Integrated Analysis ............................................................................................... 5  
Conclusion .................................................................................................................................................................. 6  

**Abbreviations** ............................................................................................................................................................ 8  

**Introduction** ................................................................................................................................................................ 9  
Background .................................................................................................................................................................... 9  
Terms of Reference .......................................................................................................................................................... 10  
Structure of the Document ................................................................................................................................................ 10  

## Promoting Evidence-Based Practice .......................................................................................................................... 12  
Revision of Manual of Use and Interpretation of Pathology Tests (2004) .............................................................................. 17  
An Historical Analysis of Pathology Ordering by General Practitioners between April 1998 and March 2001 from the Bettering the Evaluation and Care of Health (BEACH) Program (2002) ........................................................................ 20  
Evidence-Practice Gap in GP Pathology Test Ordering: A Comparison of BEACH Pathology Data and Recommended Testing (2009).................................................................................................................................................. 22  
A Project to Examine the Utilisation of Pathology Tests in the Investigation of Tiredness in General Practice (2002) ............... 25  
Analysis of Current Laboratory Medicine (Pathology) Teaching Practice in Precocial and General Practitioner Vocational Training (2003) .................................................................................................................................. 30  
A Mechanism for the Development, Implementation and Evaluation of Evidence-Based, Best-Practice Clinical Guidelines to Facilitate Quality Use of Pathology Tests (2003) .................................................................................................................. 34  
Common Sense Pathology (2006) ....................................................................................................................................... 38  
Common Sense Pathology Publication Series (2011) ........................................................................................................... 39  
Improved Pathology Reporting, Education and Practice (IPREP) for Colorectal Cancer (2009) .............................................. 40  
Structured Pathology Reporting Standards for Cancer (2009) ............................................................................................. 41  
Promoting and Expanding Structured Pathology Reporting of Cancer (Stage 2) (Current) ...................................................... 42  
Evidence-Based, Best-Practice Prevention of Blood Borne Virus Transmission in Health Care Settings Program (PBHV) (2009). 43  

## Risk Minimisation ........................................................................................................................................................ 46  
RCPA – Quality Assurance Programs Key Indicator Project (2004) .................................................................................... 47  
Pilot Laboratory Assessment and Peer Review Mechanism for Pathology Key Performance Indicators (2007) ......................... 51  
Performance Monitoring of External Quality Assurance (Current) ............................................................................................ 53  
NATA File Audit – Risk Analysis of Assessment Non Conformances Identified in Pathology Laboratory Assessment Accreditation (Current) .................................................................................................................. 54  
Key Incident Monitoring & Management Systems (Current) .................................................................................................. 55  

## Quality Assurance and Capacity – New Technology .................................................................................................. 59  
Virtual Microscope (2005) .................................................................................................................................................. 60  
Policies, Procedures and Guidelines for Point-of-Care Testing (2011) .................................................................................... 64  
PoCT Training, Certification, Support and Skill Maintenance Program (Australian PoCT Practitioners Network – APPN) (Current) ...................................................................................................................................... 67  
Establishment of a Molecular Genetics Quality Assurance Program (Current) ...................................................................... 67  
MAWSON – An Online Repository of Genetic Data to Aid Reporting of Medical Genetic Tests (Current) .......................... 68  

## eHealth Capability ....................................................................................................................................................... 70  
Pathology Informatics Working Party (2003) ...................................................................................................................... 71  
Development of an On-line Maintenance System for the Australian Pathology Request and Result Code Sets (2003) .......... 73  
Pathology and General Practice Software Integration Project (PaGSHIP) (2003) ...................................................................... 74  
Chain of Information Custody for the Pathology Request-Test-Report Cycle in Australia (Guidelines for Pathology Requesters and Pathology Providers) (2004) ...................................................................................... 76  
Supporting HL7 for Health Informatics Standards (2004) ..................................................................................................... 77  
Application of Pathology Informatics to Reporting of Critical/Abnormal Results for Improved Requester/Provider Communication and Improved Patient Care (2004) ....................................................................................... 82  
Padlok On-line Pathology Ordering System (2005) ................................................................................................................ 83  
Information Extraction from Narrative Pathology Reports on Melanoma (2008) ................................................................. 85  

Integrated Analysis of QUPP Final Reports – 22 June 2012 – v0.3
<table>
<thead>
<tr>
<th>Appendix A – Report Summaries Relevant to Different Themes</th>
<th>181</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pathology Requesting and Reporting – Requester and Consumer Focus</td>
<td>90</td>
</tr>
<tr>
<td>Guidelines for Patient/Consumer Access to Pathology Test Reports (2001)</td>
<td>92</td>
</tr>
<tr>
<td>AUSLAB Retest Interval Trial Project (2003)</td>
<td>94</td>
</tr>
<tr>
<td>AUSLAB Retest Interval Project (2004)</td>
<td>96</td>
</tr>
<tr>
<td>Home Monitoring of Warfarin Therapy in Children using the Coaguchek™ Point of Care INR Monitor (2003)</td>
<td>98</td>
</tr>
<tr>
<td>Improving GP Access to and Use of Retrospective and Current Pathology Data to Increase Detection of Early Diabetes (IGT and IFG) in General Practice (2005)</td>
<td>105</td>
</tr>
<tr>
<td>Quality Use of Pathology Services Education Program (2006)</td>
<td>109</td>
</tr>
<tr>
<td>Investigation into the Reasons for Incorrect or Incomplete Pathology Request Forms (2008)</td>
<td>111</td>
</tr>
<tr>
<td>Enhancing the Quality Use of Pathology for GP Registrars and International Medical Graduates – Assessing the Need (2009)</td>
<td>113</td>
</tr>
<tr>
<td>Effect of a Structured Microbiology Laboratory Report on Antimicrobial Prescribing for Asymptomatic Bacteriuria in Elderly Females (2010)</td>
<td>118</td>
</tr>
<tr>
<td>Identifying how Electronic Decision Support (EDS) in Computerised Pathology Order Entry Systems can Improve Pathology Practice, Rational Ordering and Patient Outcomes (2010)</td>
<td>120</td>
</tr>
<tr>
<td>The Impact of the Implementation of Electronic Ordering of Pathology Requesting and the Quality and Effectiveness of Hospital Pathology Services – Building a Robust Evidence Base and Benefits Framework for Successful e-Health Diffusions (Current)</td>
<td>123</td>
</tr>
<tr>
<td>iNvestigate: Online Patient Simulations for Education in the Rational Use of Investigations – Final Report for Phase 2 (2011)</td>
<td>126</td>
</tr>
<tr>
<td>Encouraging Quality Pathology Ordering in Australia’s Public Hospitals (2011)</td>
<td>128</td>
</tr>
<tr>
<td>Effective Communication of Pathology Results in Requesting Practitioners and Consumers (Current)</td>
<td>133</td>
</tr>
<tr>
<td>Workforce Capacity and Competence</td>
<td>135</td>
</tr>
<tr>
<td>PathWay (2005)</td>
<td>136</td>
</tr>
<tr>
<td>The Australian Pathology Workforce Crisis (2008)</td>
<td>137</td>
</tr>
<tr>
<td>Review of Pathology Specialist Development Pathways (2010)</td>
<td>143</td>
</tr>
<tr>
<td>Impact of Workload of Anatomical Pathologists on Quality and Safety (2011)</td>
<td>147</td>
</tr>
<tr>
<td>Survey of the Pathology Workforce (2011)</td>
<td>150</td>
</tr>
<tr>
<td>Career Structures and Pathways for the Scientific Workforce in Medical Pathology Laboratories (2011)</td>
<td>153</td>
</tr>
<tr>
<td>Consumer Focus and Information Strategies</td>
<td>157</td>
</tr>
<tr>
<td>Quality Use of Pathology Consumer Consultation Project (2010)</td>
<td>157</td>
</tr>
<tr>
<td>Benefits and Risks of Pathology Testing (Current)</td>
<td>159</td>
</tr>
<tr>
<td>Lab Tests Online™ Stage 1 (Current)</td>
<td>160</td>
</tr>
<tr>
<td>Access Initiatives – Raising Awareness</td>
<td>164</td>
</tr>
<tr>
<td>Optimising Health Benefits for Aboriginal People who take Warfarin (2009)</td>
<td>164</td>
</tr>
<tr>
<td>Quality Assurance for Aboriginal Medical Services (QAAMS) (Current)</td>
<td>166</td>
</tr>
<tr>
<td>Quality Assurance for Aboriginal Medical Services (QAAMS) Quality Assurance Program (Current)</td>
<td>169</td>
</tr>
<tr>
<td>Communication Strategy and Stakeholder Engagement</td>
<td>171</td>
</tr>
<tr>
<td>Report from the National Workshop on Safety and Quality in Pathology (2007)</td>
<td>172</td>
</tr>
<tr>
<td>The Second National Workshop on Safety and Quality in Pathology (2008)</td>
<td>174</td>
</tr>
<tr>
<td>Best Practice in Pathology Requesting and Reporting Workshop (2009).</td>
<td>175</td>
</tr>
<tr>
<td>Pathology Workforce Workshop (2011)</td>
<td>177</td>
</tr>
</tbody>
</table>

Integrated Analysis of QUPP Final Reports – 22 June 2012 – v0.3
Executive Summary

The Quality Use of Pathology Program (QUPP) is a well-established program having been established in 1999. Its goal is the continual improvement in health and economic outcomes from the use of pathology in health care through the pursuit of better practice amongst requesters/referrers and providers of pathology services, and through knowledgeable and engaged consumers. It is managed by the Australian Government Department of Health and Ageing (DoHA) in conjunction with the Quality Use of Pathology Committee (QUPC).

The Australian Government Department of Health and Ageing commissioned Cognitus Pty Ltd to undertake an analysis of the projects/initiatives funded under the Quality Use of Pathology Program (QUPP). The objectives of the project were:

- to conduct a comprehensive review of QUPP projects/initiatives, including project results and recommendations; and
- to produce a document that would record the past and present investment and could inform the future strategic direction of the program.

This analysis includes a summary of the QUPP projects/initiatives over the past ten years and also provides an analysis of whether each of the projects/initiatives achieved their aims and objectives and whether there were any key project learnings.

There were 74 project reports analysed, which were further divided into the following nine themes that were based on QUPP areas of focus:

1. Promoting Evidence-Based Practice
2. Risk Minimisation
4. eHealth Capability
5. Pathology Requesting and Reporting – Requester and Consumer Focus
6. Workforce Capacity and Competence
7. Consumer Focus and Information Strategies
8. Access Initiatives – Raising Awareness
The number of reports within each theme is presented in Figure 1.

![Figure 1 – Report numbers by Category](alt='This figure is a graph representing the number of reports under each of the nine themes')

**General Findings from the Analysis**

The QUPP has contributed to the expansion of the knowledge base of pathology practice and to the quality use of pathology services in Australia. There were a number of project recommendations that were strategically followed up in subsequent projects. For example, The Australian Pathology Workforce Crisis report resulted in five other initiatives and projects.

In a broader sense, all of the themes led to a high rate of follow on initiatives and projects as outlined below:

<table>
<thead>
<tr>
<th>Theme</th>
<th>Original projects</th>
<th>Follow on initiatives and projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pathology Requesting &amp; Reporting – Requester and Consumer Focus</td>
<td>17</td>
<td>9</td>
</tr>
<tr>
<td>Promoting Evidence-Based Practice</td>
<td>16</td>
<td>10</td>
</tr>
<tr>
<td>eHealth Capability</td>
<td>12</td>
<td>9</td>
</tr>
<tr>
<td>Quality Assurance and Capacity – New Technology</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>Workforce Capacity and Competence</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>Risk Minimisation</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Communication Strategy and Stakeholder Engagement</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Consumer Focus and Information Strategies</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Access Initiatives – Raising Awareness – 2 out of 3</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>

*Table 1: Summary of Follow On Initiatives and Projects* (alt = ‘This table lists the nine themes, then the number of projects against each theme, then the number of follow on initiatives and projects’)

Integrated Analysis of QUPP Final Reports – 22 June 2012 – v0.3
Areas of significant and rapid change, such as eHealth have been supported to enable investigation into their impact on the quality use of pathology including health and economic outcomes. For example, twelve projects in the area of eHealth have uncovered significant key project learnings such as issues with software installation and capacity, and identified strategies to facilitate the future implementation of eHealth capability.

The QUPP investment into eHealth also enabled pathology reports to integrate into the electronic age by supporting projects to develop software systems to automatically extract information from narrative pathology reports, and to standardise pathology terminology units to facilitate their use in electronic reporting.

Projects to investigate workforce issues in the pathology sector were also funded by this program. These projects identified stakeholder concerns, such as the ageing pathology workforce and the lack of a structured career path for scientists. Of the six projects funded under the Workforce Capacity and Competence theme, ten follow on projects and initiatives have been undertaken to further investigate and address these key issues.

The QUPP also facilitated increased engagement with consumers through workshops which highlighted issues predominantly based on a need for improved communication and engagement, and the need for comprehensive information strategies to address consumer concerns.

From the analysis of QUPP initiatives to date, there are few identified areas that may benefit from some further consideration. These include:

- eHealth information outlining the benefits/risks of pathology results being uploaded onto the National Electronic Health Record System for consumers.
- Standardised request forms and education of all levels of health practitioners about the importance of completing the information on these forms.
- Development of comprehensive guidelines for General Practitioners (GPs) regarding evidence-based pathology requesting.
- Investigate including patient-specific advice for GPs on pathology test results.
- Focus on increasing GPs’ understanding of the pathology testing process.

**Consistent Themes Identified from the Analysis**

From the analysis there appears to be three consistent themes throughout all areas of the pathology spectrum. These are:

1. The need for increased information resources generated by reliable sources about pathology testing for General Practitioners (GPs) that are short, concise and easily accessed. This information should also include procedures for GPs when collecting pathology specimens from their patients, and for GPs to give to their patients for patient-collected samples.
2. Educating medical students during their training and post-graduate years about pathology was consistently viewed as a long term strategy to improve pathology knowledge and practice. This included rotating medical students through pathology laboratories as a component of their medical training.
3. Producing reliable consumer information about pathology testing, and keeping consumers informed about current issues/advances within pathology.

**Conclusion**

The QUPP has enabled projects to investigate and implement improvements in health and economic outcomes for the quality use of pathology. This is evidenced by the high rate of follow on initiatives and projects outlined in Table 1, and by the changes in practice that have resulted from this program's support. For example, the Structured Pathology Reporting of Cancer projects developed cancer protocols for the structured reporting of six types of cancer. This project may lead to the possible development of a standardised reporting format for all major cancers and other major complex reporting topics.

This integrated analysis also highlighted a number of key project learnings from the past ten years of the Quality Use of Pathology Program. It also identified potential areas for future consideration across all of the themes which are presented in the analysis of each theme. This report stands as a record of the valuable investment the program has made to the quality and capacity of the pathology sector to date, and will form the basis for reflection when future programs are investigated and/or supported by this important program.
Abbreviations

AACB  Australasian Association of Clinical Biochemists
AAPP  Australian Association of Pathology Practices
AIHW  Australian Institute of Health and Welfare
APPN  Australian Point of Care Practitioners Network
ACRRM Australian College of Rural and Remote Medicine
AMA  Australian Medical Association
BEACH Bettering the Evaluation and Care of Health
CHF  Consumers Health Forum of Australia
DATIS Drug and Therapeutics Information Service
DoHA Australian Government Department of Health and Ageing
GP General Practitioner
HGSA Human Genetics Society of Australasia
HIC  Health Insurance Commission
HISA Health Informatics Society of Australia
KPI  Key Performance Indicators
LTO  Lab Tests Online
MBS Medicare Benefits Schedule
MTAAC Medical Testing Accreditation Advisory Committee
NATA National Association of Testing Authorities
NeHTA National E-Health Transition Authority
NCOPP National Coalition of Public Pathology
NHMRC National Health and Medical Research Council
NPAAC National Pathology Accreditation Advisory Council
NPS National Prescribing Service
PAC Pathology Associations Council
PFA Pathology Funding Agreement
PoCT Point of Care Testing
QHPSS Queensland Health Pathology & Scientific Services
RACGP Royal Australian College of General Practitioners
RACP Royal Australasian College of Physicians
RACS Royal Australian College of Surgeons
RCNA Royal College of Nursing Australia
RCPA Royal College of Pathologists of Australasia
RCPA QAP RCPA Quality Assurance Programs Pty Ltd
QAAMS Quality Assurance for Aboriginal and Torres Strait Islander Medical Services
QASEC Quality Assurance Scientific and Education Committee
QUPC Quality Use of Pathology Committee
QUPP Quality Use of Pathology Program
WAC Workforce Advisory Committee
Introduction

Background

The Quality Use of Pathology Program (QUPP) was established in 1999 under the auspice of the 2nd pathology Memorandum of Understanding (MoU) with pathology stakeholders, and with up to $2 million notionally allocated per year for the funding of projects and other initiatives relating to improvements in the quality of pathology services.

The program has been managed by the Australian Government Department of Health and Ageing (DoHA) in conjunction with the Quality Use of Pathology Committee (QUPC). The QUPC was originally a sub-committee of the Pathology Consultative Committee (PCC) formed to work with the Australian Government to manage pathology outlays under the MoU. But more recently it has been given a continued focus with the commencement of the five-year Pathology Funding Agreement (PFA) between the Commonwealth Government and key pathology stakeholders in April 2011.

The QUPC provides advice relation to strategic directions and projects and/or initiatives implemented under the program. This committee currently comprises nominees from the pathology profession, general practice, the Royal Australasian College of Physicians, Doctors-in-Training, the Consumers Health Forum of Australia, Medical Deans Australia and New Zealand and representatives from the Department of Health and Ageing.

Funding for the QUPP has been allocated by a combination of open funding rounds and targeted initiatives. The program has operated under overarching principles supported by guiding assumptions developed by DoHA and the QUPC in consultation with the broader pathology stakeholder sector.

National workshops have been held each year since 2007 with the aim of bringing pathology, requester and consumer stakeholders together to discuss pathology quality and safety issues, to inform the QUPP priority setting process and debate the ways in which priority issues could be addressed. In 2005-2006 the QUPP was reviewed and the operation of the program was refined to address strategic issues outlined in the review report. Since the review, project funding has generally been targeted to three sub-programs with the following key objectives:

1. **Quality Consumer Services**: To develop and improve consumer-focused, accessible and coordinated services that promote informed choice and meet consumer needs;

2. **Quality Referrals (Requesting/Ordering)**: To support referral practices that are informed and facilitated by best practice professional relationships and protocols between referrers and providers; that are informed by evidence; that maximise health benefits; and that inform and engage consumers; and
3. **Quality Pathology Practice**: To support professional practice standards that meet consumer and referrer needs and provide evidence-based, best practice, quality-assured services that are safe, cost effective and efficient.

In recent years there has been an increasing focus on the funding of initiatives aimed at developing and testing strategies to minimise error and promote patient safety. This work is relevant to the strategic focus of the National Pathology Accreditation Advisory Council.


**Terms of Reference for the project**

DoHA commissioned Cognitus Pty Ltd to conduct a comprehensive analysis of the Quality Use of Pathology Program project reports. The project objectives were:

- to conduct a comprehensive review of QUPP projects/initiatives to date including project results and recommendations, and

- to produce a document that will form a record of past and present investment and will assist in determining the future strategic direction of the program.

The analysis was to cover the QUPP investment that has occurred over the past ten years which would record the investment to date made on the quality use of pathology. It is expected that this document would also provide a potential basis for any future evaluation of the program.

**Structure of the Report**

This document is structured according to nine themes based on the QUPP’s areas of focus:

1. Promoting Evidence-Based Practice
2. Risk Minimisation
4. eHealth Capability
5. Pathology Requesting and Reporting – Requester and Consumer Focus
6. Workforce Capacity and Competence
7. Consumer Focus and Information Strategies
8. Access Initiatives – Raising Awareness

There were 74 reports analysed for this integrated analysis, with each report assigned to one of the above themes. Each report was set out in the following template:

- Description
- Grant Recipient/s
- Aims and/or Objectives
- Outcomes and/or Findings
• Recommendation/s
• Key Project Learning/s
• Follow on Initiatives and Projects
• Areas for Future Consideration.

Many of the projects listed in this report fall into more than one theme – see
Appendix A – Report Summaries Relevant to Different Themes.

Promoting Evidence-Based Practice

The Quality Use of Pathology Program (QUPP) has investigated ways to promote evidence-based practice of pathology through 16 projects (Table 2). While pathology, by its nature, is an evidence-based discipline, the quality use of pathology is best served when diagnostic decisions by treating practitioners are
also based on sound medical evidence. To devise strategies to promote this outcome, existing databanks of pathology ordering patterns and their impact on patient outcomes must be broken down and analysed, the use of technology to support better diagnostic outcomes explored and the use and awareness of existing resources and best-practice evidence-based information to support diagnostic decisions must be made available to treating practitioners.

Medical schools are also pivotal to evidence-based practice in pathology requesting as new generations of medical practitioners emerge with more information and resources available to inform their practice than their predecessors. This can also be a hindrance to their practice as information ‘overload’, the lack of time to either access or digest this information and clinical mentoring based on established protocols (which may no longer be informed by best-practice evidence) can influence diagnostic and pathology ordering decisions.

Common issues identified through this integrated analysis included:
- ensuring treating practitioners and medical students were aware of existing evidence-based resources and were utilising them to their full capacity
- incorporating laboratory medicine into the curriculum of medical schools in a meaningful and sustainable way.

Based on these issues, areas for future consideration to promote evidence-based practice focus primarily on information dissemination and strategies to incorporate pathology into the curriculum and teaching practices of medical schools. They include:
- Devise a strategy to ‘remind’ doctors about the existence and usefulness of the Royal College of Pathologists of Australasia (RCPA) Manual at specified time intervals.
- Develop guidelines/protocols for pathology tests for common conditions.
- Develop a framework for decision support for general practitioners (GPs) investigating tiredness in general practice based on elements identified in A Project to Examine the Utilisation of Pathology Tests in the Investigation of Tiredness in General Practice (2002) on page 25.
- Focus on improving the education of medical students in undergraduate training institutions (universities and teaching hospitals) across Australia in laboratory medicine.
- Instigate global guidance by pathologists regarding overall diagnostic testing strategies, especially for junior medical officers (JMOs) in the form of clinical pathways and/or via a consensual approach within clinical teams or units.
- Investigate the viability of placing pathologists in hospital wards to mentor JMOs.
- Investigate the viability of providing detailed audit and feedback regarding test-ordering practices.
- Improve the knowledge base of JMOs through targeted education.
- Develop evidence-based, best practice guidelines for the appropriate use of pathology for GPs.
- Commonwealth investment in National Prescribing Service (NPS) academic detailing strategies for diagnostic services.
- Requester education and decision support guidance statements, especially for the use of the full blood count (FBC), thyroid function tests (TFT), multibiochemical analysis and liver function tests in monitoring chronic disease.
- Liaise with National Health and Medical Research Council (NHMRC)/guideline developers regarding:
  - adding an ‘investigations’ section into guidelines
  - standardising pathology terminology
  - including pathology representation on guideline development working groups.
- Explore the use of online tools for training and support of quality pathology.
- Explore how the Royal Australian College of General Practitioners (RACGP) and the Royal College of Pathologists of Australasia (RCPA) can work together to integrate and enhance the utility of the Pathology Decision Support Tools (PDSTs) to the clinical practice of requesters such as an accessible link to the RCPA Manual via GP’s desktops.
- Possible development of a standardised reporting format for all major cancers and other major complex reporting topics

[alt = “The following table lists the sixteen project names and grant recipients under the Promoting Evidence Based Practice theme”]

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Grant Recipient/s</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revision of Manual of Use and Interpretation of Pathology Tests (2004)</td>
<td>Royal College of Pathologists of Australasia (RCPA)</td>
</tr>
<tr>
<td>An Historical Analysis of Pathology Ordering by General Practitioners between April 1998 and March 2001 from the Bettering the Evaluation and Care of Health (BEACH) Program (2002)</td>
<td>University of Sydney</td>
</tr>
<tr>
<td>Evidence-Practice Gap in GP Pathology Test Ordering: A Comparison of BEACH Pathology Data and Recommended Testing (2009)</td>
<td>University of Sydney</td>
</tr>
<tr>
<td>A Project to Examine the Utilisation of Pathology Tests in the Investigation of Tiredness in General Practice (2002)</td>
<td>Luminis Pty Ltd</td>
</tr>
<tr>
<td>Analysis of Current Laboratory Medicine (Pathology) Teaching Practice in Prevocational and General Practitioner Vocational Training (2003)</td>
<td>Healthcare Management Advisors</td>
</tr>
<tr>
<td>Common Sense Pathology (2006)</td>
<td>RCPA</td>
</tr>
</tbody>
</table>
Table 2: Reports summarised for Promoting Evidence-Based Practice

<table>
<thead>
<tr>
<th>Report</th>
<th>Organization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improved Pathology Reporting, Education and Practice (IPREP) for Colorectal Cancer (2009)</td>
<td>University of NSW</td>
</tr>
<tr>
<td>Structured Pathology Reporting Standards for Cancer (2009)</td>
<td>Cancer Institute NSW</td>
</tr>
<tr>
<td>Promoting and Expanding Structured Pathology Reporting of Cancer (Stage 2) (Current)</td>
<td>RCPA</td>
</tr>
<tr>
<td>Evidence-Based, Best-Practice Prevention of Blood Borne Virus Transmission in Health Care Settings Program (PBBV) (2009)</td>
<td>South Eastern Area Laboratory Service (SEALS)</td>
</tr>
</tbody>
</table>


**Description**
This project sought to evaluate the effectiveness of the Manual of Use and Interpretation of Pathology Tests as a resource in Australia. The Manual was first produced in 1990 by the Royal College of Pathologists of Australasia (RCPA) under the newly established Pathology Education Program. Its aim was to provide objective clinical guidance to requesting medical practitioners on the most appropriate tests to use in the diagnosis and/or management of specific medical conditions. The second edition was produced in 1997 (and made available online via the RCPA website – http://www.rcpamanual.edu.au - in 2000) and widely distributed to general practitioners (GPs), interns, residents, registrars and senior medical students. A third edition was released by the RCPA via their website in August 2001.

**Grant Recipient**
Healthcare Management Advisors

**Aims**
- to gather information as to how widely the Manual has been disseminated, and how GPs and other medical practitioners use it in a variety of settings
- to ascertain why GPs may not use the Manual and whether there are more appropriate but alternative means of assisting them to order and interpret pathology tests.

**Objectives**
- to determine the extent to which the Manual was disseminated to GPs, interns, residents, registrars and medical students
- to determine to what extent GPs are aware of the Manual
- to determine the level of use of the Manual in general practice and public and private hospitals
- to determine how GPs use the manual
- to determine the extent of the impact of the Manual on pathology test selection and test volume
- to determine the impact of the Manual on patient care in both metropolitan and rural settings
• to estimate, where possible, the financial impact of the Manual on Medicare and other healthcare costs
• to determine why GPs may not use the manual
• to discover what information GPs require to help them better order and interpret pathology tests as part of clinical care
• to discover how the information should be disseminated.

These aims and objectives were achieved by this project.

Findings
Feedback from 621 GPs (47.8% response rate) indicated that:
• 75% of respondents were aware of the Manual
• most received it from the RCPA in book form
• use of the Manual (by those who were aware of it) was 86.6%
• 86% used it in the previous six months and indicated it was a relevant resource
• the most important factors influencing use was its ready accessibility (51%) and the information was relevant (48%)
• the direct impact of the Manual was very small (0.4% of all pathology tests influenced by the Manual), although it was important for unusual or infrequently ordered tests.

Feedback from 813 hospital doctors (9% response rate) indicated that:
• 61.5% (500) of respondents were aware of the Manual prior to receiving the questionnaire
• awareness by intern year increased from 31% for those who were interns up to 1980, 78% for 1998 (soon after the Manual was released) and 52% in 2001
• 67% of those aware of the Manual indicated they had used it
• the use of the Manual was lowest amongst intern respondents (57.6%) and highest amongst registrars (68.9%) and residents (68.3%)
• of those who used the Manual, 32% did so in the previous three to six months, 23% within the last month and 7% within the last week
• the Manual was used to directly inform 1.5% of all pathology requests
• 86% indicated it did not change the numbers of pathology requests, but it did modify the test profile on about 50% of occasions where it was consulted
• the Manual was seen as an important reference resource in the hospital environment during the formative early working years in a doctor’s career.

• Analysis of ordering patterns via de-identified data from the Health Insurance Commission (HIC) indicated there were three test bundles where the Manual provided specific guidance and allowed analysis:
  1. thyroid function test (TFT)
  2. iron studies versus serum ferritin
  3. extractable nuclear antigen antibodies.

General conclusions were:
• doctors who were aware of the Manual accepted it as an important reference resource and continue to use it
the lack of reprinting/distribution since 1997 resulted in reduced awareness

doctors supported the development of an updated version

the target population needs to be periodically reminded of its existence through appropriate education forums

hospital doctors would benefit by hospitals developing a link to the Manual on the RCPA website via pathology results reporting systems

future Manuals should be distributed to new medical graduates in each year of currency.

**Recommendations**

1. A revised Manual be developed and distributed to GPs and new medical graduates.

2. Future development and release of the Manual (or equivalent resource) should include periodic (at least annual) distribution to graduating/new-graduate doctors and a reminder sent to all relevant doctors about its existence.

3. Sufficient copies of any future Manual should be produced to satisfy demand beyond its initial distribution.

4. Hospitals to be made aware of the RCPA website version of the Manual and encouraged to link it to their pathology reporting system.

5. Appropriate GP education and initiatives should accompany the distribution of future versions of the Manual.

6. The future Manual, or similar resources, should be developed in various formats including book/hardcopy and electronic forms and various strategies for disseminations (including associated educational initiatives) be adopted.

7. Consider linking the development of future versions of the Manual to incorporate the National Association of Testing Authorities (NATA) requirement for laboratories to produce similar resources.

8. Continue to develop future versions of the Manual in conjunction with the RCPA and other appropriate professional colleges.

9. Recommendations for future printed versions included:

- colour code key selections similar to the Medicare Benefits Schedule (MBS) model
- include an index
- include high level cost information
- include basic ‘operational’ information such as tube colours, collection procedures etc.
- include guidelines/protocols for pathology tests for common conditions
- include some information about HIC limitations of tests
- include specific information on tests, test frequency, test bundles and acceptable abbreviations for tests
- include useful supplementary tests and tests not indicated based on the results
- identify ‘normal’ ranges and sensitivity indicators for test results
- include turnaround times
- consideration of producing the Manual since laboratories produce similar resources under the NATA requirement for accreditation.
Key Project Learnings

- The single distribution in 1997 without follow-up reduced awareness levels amongst newly graduated doctors. Only 30% of 2001 interns were aware of and had used the Manual.
- Many hospitals produce their ‘own’ version of the Manual setting out ordering practices expected at that hospital.
- Providing the Manual in either hard copy or electronic format to all medical student graduates ensures access to the Manual.
- The initial component of hospital work (intern and first years post graduation) provided the most important knowledge about pathology ordering as little was incorporated into university education.
- It may be more widely used if provided to each ‘ward’ as opposed to each doctor.

Follow on Initiatives and Projects


Areas for Future Consideration

- Devise a strategy to ‘remind’ doctors about the existence and usefulness of the Manual at specified time intervals.
- Develop guidelines/protocols for pathology tests for common conditions.


Description

This project updated the content of the Manual of Use and Interpretation of Pathology Tests, and made it available via the Royal College of Pathologists of Australasia (RCPA) website (http://www.rcpamanual.edu.au/) in a format facilitating searching, downloading and incorporation into other software.

Grant Recipient

RCPA

Aim

- to provide recommendations for future directions including a business plan for future updating and distribution of the Manual independent of government funding.

This aim was achieved by this project.

Findings

- The Manual is quite a unique publication both within Australia and internationally, and the absence of competitor publications offers scope for limited sales within Australia and potentially overseas.
- The Manual has the potential to generate income from distribution in several formats:
There is significant demand for print and CD versions of the Manual from general practitioners (GPs), but significant resistance from them to paying for it.

There appears to be an awareness amongst GPs that the Manual is being used by the Commonwealth as a behaviour change intervention to change pathology ordering, and introducing strong Digital Rights Management (DRM) provisions creates the possibility of a negative reaction from GP groups.

**Recommendations**

1. Future versions of the Manual continue to be developed by the RCPA in conjunction with other appropriate professional colleges.
2. The Internet and PDA versions of the Manual continue to be available at no cost and through unrestricted access via the Internet site.
3. A registration process and differential licensing arrangements be undertaken for the following formats of the Manual:
   - CD version – non-commercial and commercial on CD and downloadable
   - print on demand hard copy version
   - subscription version (CD, download and print)
   - international distribution
   - individual laboratory requirements subscription.
4. A dual licensing system should be examined for the Manual.
5. The following forms of licensing be implemented for the Manual:
   - non-commercial use
   - single purchase CD or hard copy book
   - commercial use licences
   - subscription licence
   - international licensing.

**Key Project Learning**

- The Manual itself continues to be recognised as an important resource for assisting pathology ordering and interpretation, and to be used by the majority of those surveyed.

**Follow on Initiatives and Projects**


**RCPA Manual Transformation Project (2010)**

**Description**

This project sought to update and transform the Royal College of Pathologists of Australasia (RCPA) Manual to reinforce its position as the pre-eminent source of pathology information for health care practitioners, and develop a series of
evidence-based Pathology Decision Support Tools (PDSTs) to guide referring practitioners in requesting pathology tests for the diagnosis and ongoing management and monitoring of their patients.

**Grant Recipient**
RCPA

**Aims and Objectives**
1. to convene a Steering Group to oversee the upgrade of the Manual and provide advice, make decisions and comment on any amendments to the existing Manual
2. to revise and update the content of the current RCPA Manual
3. to upgrade the formatting of the RCPA Manual so it is comparable to Lab Tests Online (LTOAU), and also to create a link between the two websites so the two products are associated
4. to develop PDSTs and upload the tools into the RCPA Manual.

*These aims and objectives were achieved by this project although a link to LTOAU could not be established due to the underlying technical format of the respective websites, as well as the way the content was set out. However, an external link to the LTOAU website was included on the RCPA Manual website.*

**Outcomes**
- At the time of the report, 43 PDSTs were completed and placed on the RCPA Manual website.
- The Manual has been redeveloped to make the website more user-friendly.
- The RCPA’s internal web developer was continuing to attend to ongoing maintenance of the website.
- Between 22 April 2010 and 13 December 2010, 38,470 unique visitors had visited the RCPA Manual 67,756 times and viewed 288,474 pages. It also received about 5,000 unique visitors, 8,500 visits and 36,000 page views monthly.

**Finding**
- The RCPA Manual continues to be used by general practitioners (GPs) and other referring doctors throughout Australia, and provides a handy reference material for medical students.

**Recommendation**
1. Future work to the Manual website may include:
   - developing a special version for hand held devices such as an iPhone or Blackberry
   - promoting the website internationally
   - maintenance
   - backup
   - regular content revision based on new information
   - integration with the software used by the GPs and the other doctors (e.g. Royal Australian College of General Practitioners [RACGP] Primary Care Side Bar).
**Key Project Learning**

- The final formatting by the RCPA’s internal web developer took considerable time due to technical issues before the PDSTs were transferred onto the live RCPA website.

**Areas for Future Consideration**

- Explore the use of online tools for training and support of quality pathology.
- Explore how the RACGP and the RCPA can work together to integrate and enhance the utility of the PDSTs to the clinical practice of requesters such as an accessible link to the RCPA Manual via GP’s desktops.

**An Historical Analysis of Pathology Ordering by General Practitioners between April 1998 and March 2001 from the Bettering the Evaluation and Care of Health (BEACH) Program (2002)**

**Description**

This project sought to analyse changes in pathology ordering patterns in general practice between 1998 and 2001 and the possible causal relationships between any identified changes and other factors by undertaking an analysis of the Bettering the Evaluation and Care of Health (BEACH) data between April 1998 and March 2001.

**Grant Recipient**

University of Sydney

**Aims and Objectives**

- to investigate changes in pathology ordering patterns in general practice between April 1998-99 and March 2000-01, and the possible relationships between any identified changes and other factors

Specifically:

- to investigate changes in pathology ordering patterns over three years
- to investigate the extent to which characteristics of general practitioners (GPs) have changed over the three years of the program
- to investigate the relationships between:
  - changes in pathology ordering and in GP characteristics (particularly GP age)
  - pathology ordering and morbidity under management
  - pathology ordering and length of consultation
  - pathology ordering and prescribing behaviour, imaging ordered, therapeutic procedures undertaken and clinical treatments provided
- to investigate the factors that together significantly contribute to pathology ordering behaviour.

*These aims and objectives were achieved by this project.*

**Findings**

- There has been a significant increase in pathology test order rates by GPs between 1998-99 and 2000-01.
• There has only been a small increase in the proportion of problems for which pathology is ordered, but there has been a very strong move away from ordering a single test per problem to ordering three or more tests per episode.

• The major increase was for requests for chemical pathology (+22.6%), with other areas showing smaller increases; Immunology (+20.1%), haematology (+13.5%), tissue pathology (+10.7%), microbiology (+5.5%), cytogenetics (+0.5%), infertility/pregnancy tests (+1.5%). There was a decrease in the number of simple basic tests (-11%) and cytopathology (-1.2%).

• The overall pathology order rate increased by approximately 22%.

• There was an inverse relationship between pathology test ordering and pharmaceutical prescribing, and a positive relationship between pathology test ordering and imaging test orders, but their impact on overall rates of other clinical activities was minimal.

• The increases are reflected in pathology ordered for all purposes, particularly for diagnostic and preventative care and other pathology, and to a lesser extent in monitoring pathology.

• The proven relationship between consultation length and pathology ordering did not have any impact on the changes in total pathology tests ordered over time.

• While order rates are significantly related to GP characteristics, there has been no change in the characteristics of GPs so this relationship cannot be the cause of increased pathology test orders.

• Some of the increase can be explained by increased management rates of a few common conditions, however, the majority of the measured increase cannot be explained by factors measured in this study.

• External influences such as changes in the Medicare Benefits Schedule (MBS), system changes such as increased computerisation, and possibly increased fear of litigation must be considered as possible influences on pathology order rates of GPs over the period of this study.

• Higher ordering rates were associated with:
  o larger practices
  o rural and remote practices
  o higher proportions of working-age adult patients (aged 15-64 years)
  o higher management rates of problems associated with the blood and blood-forming organs, the endocrine and metabolic systems, the circulatory system, pregnancy and family planning and urinogenital problems
  o high rates of Medicare Level C (long) consultations.

• Factors which may have been influential in altering the patterns of ordering include changes to guidelines which promote more intensive monitoring of patients, a move to computerised ordering, medical indemnity concerns and increasing emphasis on managing chronic diseases.

**Key Project Learnings**

• The increases in the number and costs of pathology tests as recorded by the Health Insurance Commission (HIC) data did not necessarily reflect the true ordering patterns of GPs.

• Independent of the effect of variables associated with higher ordering rates, pathology order rates increased with time.
A significant increase in pathology test order rates by GPs could not be completely explained by factors measured in this study.

Follow on Initiatives and Projects

- A second stage of this project was undertaken as Evidence-Practice Gap in GP Pathology Test Ordering: A Comparison of BEACH Pathology Data and Recommended Testing (2009).

Evidence-Practice Gap in GP Pathology Test Ordering: A Comparison of BEACH Pathology Data and Recommended Testing (2009)

Description

This study sought to identify GP pathology ordering patterns from Bettering the Evaluation And Care of Health (BEACH) Program data 2000-2007 for high cost, high use and inappropriate items to enable analysis of the patterns against published best-practice guidelines. It also sought to examine general practice (GP) pathology ordering patterns in the BEACH data for problems managed in general practice:

- which were a National Health Priority Area
- if pathology ordering was common in the management of the condition
- if the pathology ordering behaviour of GPs had changed for the management of the problem between 2000-2002 and 2006-2008 (the duration of the study).

On this basis, Type 2 diabetes, hypertension, lipid disorders, weakness/tiredness, ‘health checks’ and overweight/obesity were selected for investigation. ‘Health checks’ problems included check-ups recorded by GPs at encounters with patients aged 15 years and over, and overweight/obesity includes problems managed that were labelled by a GP as ‘obesity’ or ‘overweight’ for patients aged 18 years and over.

All of the six problems investigated in this study accounted for 12.1% of all problems managed in 2000-08, and for more than one-quarter (25.7%) of the total pathology tests/batteries recorded by GPs.

Grant Recipient

University of Sydney

Aims and Objectives

- to investigate the extent to which GPs’ pathology-ordering behaviour for selected problems aligns with recommendations made in national and international guidelines for the management of these problems (data used was from a BEACH study over eight years from April 2000 to March 2008)
- to identify whether changes have occurred in the pathology ordered for the selected problems over the last eight years, and whether any measured change reflects a change to be ‘more’ or ‘less’ in line with guidelines recommendations
- to identify the extent to which measured changes have been the result of changes in:
  - the management rate of the problem and/or
the likelihood of pathology being ordered in the management of the problem and/or
explore the number of pathology tests/batteries of tests being ordered.

These aims and objectives were achieved by this project.

Findings

- The pathology test orders increased significantly for all six problems over the period of this study. These increases were independent of changes in the management rate of the problem and accounted for about 31% of the national increase in pathology tests ordered for all problems from 2000-2002 and 2006-2008.
- Increases in the pathology order rates for Type 2 diabetes and hypertension were due to an increase in the likelihood of at least one test being ordered, and an increase in the number of tests ordered per tested contact.
- Only the likelihood of testing increased for weakness/tiredness and overweight/obesity.
- Only the number of tests ordered per tested contact increased for lipid disorders/health checks.
- GP ordering behaviour aligned well with guideline recommendations for lipid disorders (75.5% of pathology tests/batteries supported), weakness/tiredness (71.7%), Type 2 diabetes (72%) and hypertension (65%). The level of support for lipid disorders and hypertension is likely to be over-estimated as tests were primarily recommended for initial assessment of newly diagnosed cases whereas the majority of pathology ordered for these problems was for ongoing management.
- Pathology tests/batteries ordered by GPs for ‘health checks’ and overweight/obesity did not align well with recommended testing. Only 24.3% of pathology tests/batteries recorded for ‘health checks’ and 50.9% for overweight/obesity were recommended in the guidelines.
- The number of tests ordered by GPs per tested problem increased over the period of this study and potentially further compounded the issue of deciphering true positive results (real change) from false positive results. For example, full blood counts (FBCs) were one of the most frequently ordered tests but it was only recommended in the management of weakness/tiredness and in the initial investigation of hypertension. Therefore, the results suggest GPs may have been opportunistically/routinely-ordering FBCs when ordering blood tests.
- The guidelines reviewed were morbidity-based and could not provide guidance that is applicable for all patients, especially those with multiple chronic conditions.

Recommendations

1. Providing guidance on the variance of results in long term monitoring (coefficient of variance) and likelihood of abnormal test results when multiple tests are ordered may improve the interpretation and appropriate ordering of pathology tests in primary care.
2. The limitations of this study meant the level of support could not be determined for 10-24% of pathology tests ordered for each morbidity. Either
tests were recommended for a specific clinical situation that could not be evaluated with BEACH data, or GPs ordered batteries of tests (e.g. multibiochemical analysis) for which support could not be determined. Further research is needed to determine whether the use of these tests is supported.

3. Guidelines and guidance regarding pathology tests could be improved by:
   - providing adequate advice on the pathology tests required in the ongoing management of each condition (e.g. recommendations regarding monitoring long term medication) including detail on the frequency and duration for which testing is required
   - providing advice on the pretest probability of disease, particularly when recommending investigation of possible causes of secondary disease
   - informing GPs of the likelihood of intra-individual variation when monitoring long-term conditions. Using medical record software to provide graphical presentation of results of repeated pathology tests with markers to indicate the coefficient of variation may be useful
   - educating GPs on the likelihood of false positives when ordering multiple pathology tests, particularly in the context of low pretest probability of disease
   - standardising terminology used to refer to pathology testing to help GPs locate information regarding pathology testing within guidelines.

4. The clinical indications for ordering FBCs, thyroid function tests (TFTs), multibiochemical analysis and liver function tests(LFTs) in the long-term monitoring of chronic conditions needs clarification. Further research or review of literature to determine the pretest probability of underlying disease may be useful in developing guidance on the use of these tests.

5. Ensuring GPs can access results of previously ordered pathology tests (regardless of who ordered the test), and that results are easily accessible within the electronic health record may decrease the rate of repeated pathology testing.

6. The length of guidelines was perhaps the biggest barrier to GPs using them, particularly as a quick reference point to locate information about best practice for pathology ordering, and when they are not applicable in the clinical context of multiple morbidities for one patient. Therefore, developing other avenues to provide guidance to GPs about pathology ordering may be useful such as short problem-orientated statements of recommended pathology tests relevant to the stage of management (initial diagnosis or longer-term management).

7. Advice on testing in long-term management needs to include information on expected intra-individual variation (biological and analytical), interval to retest and duration for which monitoring is needed. Information on the likelihood of false positive results when ordering multiple pathology tests should also be provided.

8. Where there is no evidence available, problem-based consensus statements should be developed with involvement of practicing GPs. These new guidance statements could be incorporated into decision support systems within electronic health records, linked at the point of the decision to order pathology tests for that problem and at the point of receipt of results.
Key Project Learnings

- Locating relevant Australian guidelines was not a straightforward process. There was no central listing of the available evidence-based guidelines, and the organisation creating the guideline/guidance document varies depending on the morbidity. The National Institute of Clinical Studies, which is part of the National Health and Medical Research Council (NHMRC), was developing a national clinical practice guidelines portal at the time of the report.

- Guidelines are usually not designed for GPs. They are often very long documents (often 200+ pages long) and it is unrealistic to expect GPs to read long documents for all the morbidity types they manage.

- Information regarding recommended pathology testing was often difficult to locate in guidelines as there was often no specific section that addressed investigations to be done. There was also mixed terminology used within the guidelines to refer to testing such as ‘diagnostic testing’, ‘laboratory investigations’, as well as in the specific test name or the disease to be tested for.

- Recommendations regarding pathology testing in the long-term management of conditions were often not provided in guidelines.

- The variation of test results was often not discussed in guidelines or other sources of GP guidance, with most guidelines providing a ‘target level’ without providing further detail.

Follow on Initiatives and Projects

- The development of the NHMRC clinical guidelines around obesity.

Areas for Future Consideration

- Requester education and decision support guidance statements, especially for the use of FBC, TFTs, multibiochemical analysis and LFTs in monitoring chronic disease.

- Liaise with NHMRC/guideline developers regarding:
  - adding an ‘investigations’ section in guidelines
  - standardising pathology terminology
  - including pathology representation on guideline development working groups.

A Project to Examine the Utilisation of Pathology Tests in the Investigation of Tiredness in General Practice (2002)

Description

This study sought to examine the utilisation of pathology tests in general practice when investigating tiredness. The clinical records selected for the project encompassed a seven-year time frame from 1 April 1994 to 25 April 2001. The sample was randomly sorted and 345 patients were validated.

Grant Recipient

Luminis Pty Ltd
Aim

- to examine the utilisation of pathology tests in the investigation of tiredness in general practice.

Objectives

- to demonstrate the indications of pathology in the investigation of tiredness in general practice
- to identify and follow a sample of patients with tiredness and review the management processes at these encounters
- to assess patient health outcomes
- to develop and pilot computer-based guidelines for general practitioners (GPs) investigating tiredness.

The aim and most objectives were achieved by this project. The final objective was partially met, with the study providing information that will enable progress to be made in the area of decision support.

Findings

- Significantly more females than males visit the GP with tiredness.
- Older patients (>44 years) compared to younger patients (<44 years) visit the GP more than once with tiredness.
- There was a mean number of 3.12 tests requested per patient.
- The most common tests ordered by GPs were:
  - full blood count examination (27%)
  - urea, electrolytes and creatinine (18%)
  - thyroid function tests (11.8%)
  - liver function test (10.8%)
  - tests for diabetes (9.2%)
  - erythrocyte sedimentation rate (8.7%).
- Tests less commonly requested were:
  - iron studies (7%)
  - folate tests (3%).
- More females (56%) than males (46%) had at least one pathology test ordered, with older patients having significantly more pathology tests ordered.
- 14% of pathology tests were returned abnormal, and only 3% of these patients had a significant outcome based on an abnormal pathology test result.
- Patients with a history of depression were significantly more likely to be tired after six months compared to a patient without a history of depression.
- As age increases, the likelihood of having a pathology test increases.
- As the number of visits increases then the probability of having a pathology tests also increases.
- As age increases, the probability of having an abnormal pathology result increases.
- As ‘no problem’ changes to ‘physical’ there is an increased chance of an abnormal result, and changes from physical to psychosocial also increases the chance of an abnormal result.
• Tiredness lasting greater than four to six months is more frequently associated with psychological conditions.

Recommendations
1. A complete blood picture, and possible fasting blood sugar level, may be the appropriate and only initial pathology required to investigate tiredness.
2. GPs should always conduct a clinical review to determine if there is evidence of depression or other psychological condition, review the patient’s life circumstances to decide whether stresses in work, home or relationships could be a factor, and a physical examination to determine if laboratory tests are necessary.
3. A pilot decision support study utilising the findings of this study has significant potential to move GPs to more appropriate pathology ordering and better patient management.

Key Project Learnings
• The evidence for pathology tests confirming a diagnosis related to tiredness is limited.
• Evidence-based guidelines for investigating adult patients with fatigue of less than six months duration were developed in Ontario.

Areas for Future Consideration
• Develop a framework for decision support for GPs investigating tiredness in general practice based on elements identified in the study.


Description
This project investigated laboratory medicine (pathology) teaching practice and curriculum in undergraduate training institutions (universities and teaching hospitals) across Australia.

Grant Recipient
Healthcare Management Advisors

Aims and Objectives
• to determine what is currently being taught in regard to laboratory medicine in the medical curriculum
• to identify:
  o if curricula content complies with current evidence and best practice
  o if curricula address the patterns and/or prevalence of clinical presentations that occur within various practice environments
  o what, where and if applicable, why gaps or inconsistencies are occurring in the current teaching of laboratory medicine
  o any barriers to the effective teaching of laboratory medicine
  o incidences where laboratory medicine teaching programs are currently working well
• to ascertain who is teaching laboratory medicine
• to ascertain the overseas experience in teaching laboratory medicine to medical students
• to provide recommendations to the Australian Government Department of Health and Ageing (DoHA) on ways to improve the teaching of laboratory medicine to enable medical students to develop better pathology ordering and interpreting skills to assist in managing their patients.

These aims and objectives were achieved by the project.

Findings
• Pathology and laboratory medicine is introduced in the first year of primarily Problem Based Learning (PBL) courses, and in the middle of more traditionally structured courses.
• The number of contact hours for pathology and laboratory medicine is estimated at between 250 and 300 across all curricula.
• Ethics and medico-legal issues are incorporated into all curricula.
• The value of ordering tests for population screening is covered in all curricula.
• The basic knowledge underpinning laboratory medicine is largely taught through lectures, tutorials and practicals.
• The role of laboratory sessions is declining across all medical schools.
• All curricula provide for students to gain experience in the use of basic point of care tests and collection of specimens during clinical rotations.
• Computers are used extensively in medical curricula with schools developing a wide range of resources to support student learning.
• There is a strong emphasis on developing clinical reasoning in the new curricula.
• The focus of teaching laboratory medicine is increasingly on disease presentation.
• There were limited cases where the financial aspects of testing were considered.
• A range of texts were used.
• There was some variation in the involvement of pathologists in teaching with anatomical pathologists the most represented in academic departments.
• Clinicians are extensively involved in teaching students in their clinical rotations.
• A number of issues related to barriers and opportunities for improved teaching of laboratory medicine to undergraduates were identified.
• Service demands in public laboratories and hospitals were noted as a barrier to greater pathologist involvement in teaching roles.
• There is a danger that good habits learned in undergraduate programs can be unlearned shortly after graduation as graduates undertake training within clinical teams in public hospitals.
• If current teaching of laboratory medicine in Australia is to effectively prepare students to use pathology tests appropriately in their future practice, the literature suggests that teaching approaches should:
  a. provide a firm grounding in basic biomedical sciences and pathology in the early part of the curriculum
  b. develop an understanding of the link between pathology and clinical presentation
c. facilitate the development of sound clinical reasoning

d. provide students with an understanding of the application of pathology tests as a component of teaching at the beginning of their clinical training.

**Recommendations**

1. Create a fractional, temporary position in each medical school to provide support and assistance in various areas, and evaluate the impact of such positions after about two years.

2. Commission a study to identify issues or situations that present difficulties for students and recent graduates in appropriately ordering and interpreting pathology tests and present them to a workshop.

3. Commission an analysis of laboratory medicine education in postgraduate years one and two.

4. Circulate the core curriculum developed by the heads of academic pathology departments, in collaboration with the Royal College of Pathologists of Australasia (RCPA), to medical schools as a guide for future development of curricula.

5. Develop a version of the Manual of Use and Interpretation of Pathology Tests that can be stored and accessed on hand held systems such as Palm®, and an abridged pocket version of this Manual be developed covering tests that are likely to be used on a regular basis.

6. Provide students with more opportunity to visit working laboratories to improve their understanding of the process by which specimens are managed and on how reports are prepared.

7. Specifically targeted teaching focusing on areas which undergraduate students and recent graduates find difficult would be beneficial.

8. Support clinical teachers to model good practice in the use and interpretation of pathology tests to improve test ordering and interpretation practices among students.

9. Expand the range of clinical environments in which students receive their education, training and experience to enable them to develop skills appropriate for managing the chronic and sub acute conditions they will encounter in their professional practice in the community.

**Follow on Initiatives and Projects**


**Areas for Future Consideration**

- Focus on improving the education of medical students in undergraduate training institutions (universities and teaching hospitals) across Australia in laboratory medicine as per the above recommendations.
Analysis of Current Laboratory Medicine (Pathology) Teaching Practice in Prevocational and General Practitioner Vocational Training (2003)

Description
This project sought to undertake an analysis of current Laboratory Medicine (Pathology) teaching practice in pre-vocation and general practitioner (GP) vocational training.

Grant Recipient
Healthcare Management Advisors

Aims and Objectives
- to provide a comprehensive analysis of how laboratory medicine is currently taught during pre-vocational and vocational GP training
- to identify where gaps exist in the current teaching of laboratory medicine in pre-vocational and vocational GP training
- to identify options for teaching laboratory medicine more effectively in pre-vocational and vocational GP training.

These aims and objectives were achieved by this project.

Findings

Pre-vocational and Vocational GP Training
- The reliance of clinical teaching has meant pre-vocational and vocational training are closely related to the patterns and prevalence of conditions within the practice environment.
- The overall approach to pre-vocational training in Australia is comparable to that in other English speaking counties, with an emphasis on ward-based teaching.
- The curriculum content for Junior Medical Officers (JMOs) varies considerably within and across jurisdictions, as does the extent to which pathology test ordering is incorporated within the curriculum.
- The content of teaching is dependent on the clinical rotation and the views and practices of the consultant, and of the clinical team more generally.
- Where financial accountability was the responsibility of clinical units (at least to some extent), the use of pathology was incorporated into ward meetings and feedback provided to JMOs.
- The prominence of bedside or ward-based teaching in the curricula for JMOs contributes to a high degree of variation between hospital sites, and between clinical units within a single institution. This increases the importance of the practice of senior clinicians.

Gaps in the Current Teaching of Laboratory Medicine
- There is limited involvement of university medical schools in vocational training compared to other English-speaking countries.
- The use and interpretation of pathology tests has a limited focus within the training program for GP registrars.
- There are different priorities with general practice compared to teaching hospital practice.
The involvement of pathologists in clinical teaching and review of cases is limited, partly due to the limited numbers of pathologists and the demands placed on modern laboratories. There was also minimal global guidance by pathologists regarding overall diagnostic testing strategies.

Most attention is focused on tests JMOs did not order rather than on the tests ordered. The reported lack of consensus among senior clinicians was identified by JMOs as a factor that limited their ability to gain an understanding of appropriate practice.

A JMO is unlikely to question or challenge the practice of a senior colleague in the existing culture in the medical profession which is characterised by autonomy, competitiveness and hierarchy. For example, JMOs order tests that particular consultants always request to avoid the risk of embarrassment during ward rounds. There is also examination and feedback regarding what was ‘not’ ordered, so over ordering is practiced to avoid embarrassment.

JMOs have limited access to or experience in a laboratory, but there is variation across sites with greater access to both pathologists and the laboratory in rural sites.

**Barriers to improving how JMOs learn about the ordering and interpretation of pathology tests include:**
- the lack of incentives for laboratories to reduce ordering
- the lack of consensus amongst consultants
- medico legal concerns
- making pathology teaching relevant and interesting
- the balance between staff specialists and visiting medical officers
- increasing sub-specialisation
- the view of the laboratory as a “black box”
- changed working hours for JMOs have reduced the range of cases they see and the extent to which they are involved
- the shortage of pathologists.

**Options For Teaching Laboratory Medicine**
- Interventions which target only one factor contributing to test ordering are likely to have a limited impact. The linkage between education of JMOs, feedback to consultant staff and building consensus around an accepted evidence base appears to present a comprehensive approach to changing practice.
- A key consideration on the validation of knowledge within the medical profession relates to the location of the source within a professional hierarchy.
- Personal preferences and knowledge, the environment in which practice occurs and the feedback provided within that environment affects the approach taken to ordering tests by individual medical officers.
- Given the reliance on clinical teaching, both prevocational and vocational training are closely related to the patterns and prevalence of conditions within the practice environment.
- Where hospitals have introduced protocols for the utilisation of high cost tests, JMOs indicated they were useful in informing them of appropriate
practice, and diminishing the risk of finding themselves taking a position that may be in conflict with their consultant.

- Interns and residents identified registrars as a major source of information guidance and teaching.

**General Findings**

- There is a high level of contact maintained (usually by telephone) with pathologists in relation to tests ordered and their interpretation.
- Registrars typically order considerably less tests when they move from hospital-based practice to community-based general practice.
- Patient expectations can influence the decision to order pathology tests.
- There are limited incentives to develop more effective approaches to the use of pathology as savings were diverted to other areas of the hospital operation. Initiatives to reduce volume of tests or costs should focus on a whole system approach rather than on a specific unit or sector of a hospital.

**Barriers to change include:**

- patient expectations
- concern regarding possible litigation
- environment in which prevocational training occurs
- potential conflict of interest for pathologists employed in the private sector
- perception of government source information and material
- lack of direct costs.

**Recommendations**

1. The Australian Government Department of Health and Ageing (DoHA) should consider allocating resources to support the expansion of the Rational Investigation Ordering (RIO) collaborative.
2. DoHA should convene a working group with representatives of the States and Territories to gain support for a requirement that a component of savings resulting from the RIO collaborative be allocated to support increased involvement of pathologists in the training of JMOs.
3. A criterion for the support of individual proposals to the RIO collaborative include a project component to emphasise the value and importance of clinical assessment including history taking and physical examination.
4. Funding should be allocated to support the Royal College of Pathologists of Australasia (RCPA) to develop a Manual for Use and Interpretation of Pathology Tests as a module of current GP practice management systems.
5. A working group involving Diagnostics and Technology Branch, Royal Australian College of General Practitioners (RACGP) and the RCPA should be established to develop a publicity program raising awareness that ordering pathology tests is not an indicator of the quality of medical care being provided.
6. The Commonwealth should support the RACGP and RCPA to prepare a pathology audit package for GPs.
7. The Commonwealth, in seeking to support the broader implementation of the RIO program, negotiates with State and Territory Health Authorities for allocation of a specific proportion of savings generated to provide time for pathologists to be located on wards in major teaching hospitals in all jurisdictions.
8. Comprehensive approaches to provide opportunities to enhance the learning achieved by JMOs should be developed by:
   - improving the knowledge base of JMOs through targeted education
   - providing detailed audit and feedback regarding test ordering practices
   - developing consensus regarding the appropriate application of pathology.

9. Opportunities for improving how JMOs learn about the ordering and interpretation of pathology tests include:
   - the establishment of protocols reflecting consensus regarding appropriate test ordering
   - the implementation of the RIO program more generally
   - the focus on high volume, low cost tests
   - the application of savings generated through pathology
   - the increased role of pathologists on the wards
   - including GP and community rotations in JMO training
   - utilising computer technology to reduce duplication and inappropriate ordering
   - increasing the emphasis on good clinical history taking.

10. Opportunities for improving training learning and practice related to pathology test ordering and interpretation for GPs undergoing vocational include:
    - a focus on prevocational training
    - inclusion of the Manual for Use and Interpretation of Pathology Tests on software such as Medical Director
    - establishment of an independent advisory service
    - education of patients to modify expectations
    - development of a national module related to pathology testing
    - development of a supported Continuing Professional Development (CPD) audit package for GPs
    - focus on communication skills
    - input by pathologists to keep them up-to-date.

Follow on Initiatives and Projects

- Benefits and Risks of Pathology Testing (Current) on page 159.

Areas for Future Consideration

- Instigate global guidance by pathologists regarding overall diagnostic testing strategies, especially for JMOs, in the form of clinical pathways and/or via a consensual approach within clinical teams or units.
- Investigate the viability of placing pathologists in hospital wards to mentor JMOs.
- Investigate the viability of providing detailed audit and feedback regarding test ordering practices.
- Improve the knowledge base of JMOs through targeted education.

Description
This report focused on inappropriate pathology testing in health care and how best to facilitate evidence-based best practice in the face of rapidly expanding knowledge, rising consumer expectations and government concerns about unsustainable increases in health costs.

Grant Recipient
Therapeutic Guidelines Ltd

Aim
• to recommend a mechanism for the development, implementation and evaluation of evidence-based, best practice clinical guidelines to facilitate quality use of pathology.

This aim was achieved by this project.

Findings
• The literature review revealed that guidelines alone are usually unsuccessful in implementing practice change.
• A mechanism is required to coordinate and link pathology guidelines development, software vendors and educational service providers.
• Clinicians and consumers want integrated and consistent knowledge resources (pathology and/or radiological examinations, therapeutic and/or preventative management and patient education), not a number of overlapping and inconsistent resources in different formats lacking a common clinical problem index.
• Core clinical guidelines resources should be:
  o accessible from the health worker’s electronic desktop (general practice [GP] and hospital practice)
  o entered through a common clinical problem (including common synonyms)
  o displayed in a similar format
  o ideally have a two to five second response time
  o be linked to related resources
  o ultimately be capable of assisting recommended actions.
• Various levels of computerised decision support are possible.
• Consumers want better communication with their health providers about diagnostic tests, and many would appreciate the opportunity to access consumer friendly information about tests recommended, including their limitations and implications of likely results.
• There are varied views about the content and format of best practice clinical guidelines for the ordering of pathology tests.
• It is difficult for GPs to distil evidence-based, best practice recommendations from the increasing volumes of scientific literature.
• An important consideration is the limited research base when it comes to the appropriate use of pathology and best practice.
• A number of studies reported a reduction in pathology testing rates after guidelines were introduced into Australian hospitals.

Recommendations
1. Develop a mechanism for the development of pathology guidelines.
2. Develop an appropriate format for the guidelines.
3. Disseminate and implement the guidelines.
4. Incorporate the guidelines into computer decision support systems.
5. Assess practitioner acceptance of the guidelines.
6. Assess the effectiveness of guidelines in influencing patient outcomes.
7. Develop related patient educational material.

Principles guiding this report’s recommendations were:
• The mechanism should ensure that pathology guidelines are produced according to best-practice principles.
• The mechanism should bring together key information providers who currently provide recommendations concerning pathology tests in order to facilitate consistency of recommendations and avoid unnecessary duplication of effort.
• The mechanisms should facilitate (over a longer time-frame) the integration of electronic pathology guidelines into more comprehensive, machine readable, electronic information resources to enable computerised point-of-care decision support and practice evaluation. This will require bringing together pathology and other professionals to achieve this.
• The mechanism needs to augment print and electronic pathology guidelines with holistic, multi-dimensional education programs to achieve change.

Areas for Future Consideration
• Develop evidence-based, best practice guidelines for the appropriate use of pathology for GPs.


Description
This project sought to demonstrate proof-of-concept for a national program for more informed use of the Prostate Specific Antigen (PSA) test by Australian practitioners, and to further investigate the usefulness of academic detailing (AD) for support of better outcomes from the use of diagnostic technologies. This was an extension of work on the Commonwealth of Australia’s proof-of-concept project for a national program for more informed use of the PSA test by Australian General Practitioners (GPs): 1 February 2001 to 31 August 2003. It also incorporated information from the study on colorectal cancer and Helicobacter pylori (H. Pylori) visiting programmes.

Grant Recipient
Drug and Therapeutics Information Service (DATIS)
Aims and Objectives

- to demonstrate proof-of-concept for a national program for more informed use of the PSA test by Australian practitioners
- to further investigate usefulness of academic detailing for support of better outcomes from the use of diagnostic technologies.

*These aims and objectives were achieved by this project.*

Findings

**PSA Screening**

- Approximately 50% of GPs (n=162) surveyed in Melbourne adhered to the current Australian guidelines with respect to PSA screening.
- Many GPs did not support the idea of PSA screening for a variety of reasons although they view early knowledge of prostate cancer as beneficial, regardless of what the guidelines or evidence propose.
- Many GPs are still likely to be influenced by their own anecdotal experience.
- Many GPs are confused regarding the controversy and potential risks and benefits of PSA screening, and there was uncertainty about ‘which way to go’ when faced with a patient request for PSA screening.
- Only a very small number of GPs were interested in alternative PSA measurements (e.g. free to total PSA, PSA velocity), or in the concepts of sensitivity, specificity and positive predictive value (PPV).
- Medico-legal issues are a major influence on GPs fulfilling patient requests for PSA screening. The potential long-term influence of this is the standard of care offered by GPs may ultimately be determined by fear of medico-legal repercussions rather than being based on best practice.
- GPs with younger patients tended to order fewer PSA tests, while GPs with older patients tended to order more.
- Many GPs supported shared decision-making and recognised the importance of helping patients understand the benefits and risks of PSA screening.
- Many GPs found written material advantageous in assisting with shared decision making, while the electronic delivery mode of information was not an important issue.
- A high proportion of GPs commented favourably on the Mr. PHIP materials.
- Many GPs wanted to retain the visual detailing cards from the prostate cancer topic.
- Many GPs affirmed that in the current medico-legal climate regarding PSA testing it was more important than ever to be aware of the evidence and to remain ‘balanced and sensible’ about the screening issue.
- It took three or four visits by DATIS to change GP behaviour or attitude to PSA screening (recorded during colorectal cancer screening visits).

**Colorectal Cancer Screening**

- There was mixed used of colorectal screening amongst GPs.
- There was increased interest in colorectal screening, especially the faecal occult blood test (FOBT) after the DATIS visits.
- There were mixed concerns about the different screening methods in terms of patient experience and barriers to using them e.g. diet restrictions, handling stools.
- A small proportion of GPs asked to keep the DATIS detailing aids.
- There was mixed responses to the Mr PHIP materials.

*H. Pylori*
- There was interest amongst GPs about *H. pylori* and clinical management strategies.
- Gastro-oesophageal reflux disease (GORD), non-ulcer dyspepsia (NUD) and non-steroidal anti-inflammatory drugs (NSAIDS) were issues related to *H. pylori* that GPs were uncertain about.
- Many GPs used proton pump inhibitors (PPIs) as an initial strategy for uninvestigated non-GORD dyspepsia.
- The most established and frequently used non-invasive *H. pylori* test was the urea breath test (UBT).
- There was mixed reactions to the “test & treat” or “search & treat” strategies for long-term PPI users.
- Many GPs agreed that PPIs were overused and short-term use can lead to long-term use.
- Many GPs viewed serology favourably on the second DATIS visit.

*Overall*
(Only the findings relevant to pathology have been included as opposed to findings specifically related to the DATIS service.)
- The DATIS academic detailing program on the topics of pathology tests in prostate cancer, colorectal cancer, type 2 diabetes (not included in this report) and *H. Pylori* infection has a high acceptability amongst GP in different Australian States and was effective in improving GP’s knowledge and self-reported practice.
- Participating GPs highly valued the DATIS educational visits and materials. A common thread in feedback from GPs was they valued the information provided in terms of its impartiality, clinical relevance, practicality, thorough research and method of presentation.

**Recommendations**
1. A national strategy for achieving more informed choices between GPs and their patients with respect to prostate cancer issues is urgently needed in contemporary Australia.
2. DATIS service-oriented-AD is a methodology suitable to be used as a foundation within a needed national strategy. It has been shown to be effective in the 1998-99 study relative to cheaper approaches which were found to be ineffective.
3. A number of uncertainties about DATIS service-oriented-AD in this context need to be examined before experimentally derived evidence about the effectiveness of DATIS methods could reasonably be translated into public health policy action.

**Key Project Learnings**
- Medico-legal aspects of PSA screening were a major issue for the majority of GPs visited, and perhaps the greatest single motivator as to why GPs fulfill patient requests for the PSA test.
- Many GPs feel vulnerable and unconfident when dealing with the issues and controversy surround prostate cancer screening.
Follow on Initiatives and Projects

- Commonwealth investment in National Prescribing Service (NPS) academic detailing strategies for diagnostic services.

Common Sense Pathology (2006)

Description
Common Sense Pathology (CSP) was a publication series produced primarily to assist GPs in determining appropriate pathology tests. It ran for six editions, comprised a separately bound eight-page A4 supplement with graphic artwork and/or photos appropriate to the topic and was included in the *Australian Doctor* magazine. All editions were posted on the Royal College of Pathologists of Australasia (RCPA) website (http://www.rcpa.edu.au) within one month of publication.

Grant Recipient
RCPA

Aim
- to improve rational and cost-effective utilisation of pathology tests.

*It is not clear if this aim was achieved although general practitioners (GPs), other doctors and medical students indicated the CSP articles were a valuable source of information.*

Outcomes
[alt = “The following table lists the edition of the *Australian Doctor* magazine, against the CSP article and the author/s”]

<table>
<thead>
<tr>
<th>EDITION</th>
<th>ARTICLE</th>
<th>AUTHOR/S</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 April 2006</td>
<td>Malabsorption</td>
<td>Dr Danny Stiel and Dr Paul O’Farrell</td>
</tr>
<tr>
<td>2 June 2006</td>
<td>Viral Hepatitis</td>
<td>Prof Yvonne Cossart</td>
</tr>
<tr>
<td>7 July 2006</td>
<td>Micro Urine</td>
<td>Prof Syd Bell and Dr Alex Outhred</td>
</tr>
<tr>
<td>4 August 2006</td>
<td>Genital Infection</td>
<td>Dr Andrew Daley and Dr Suzanne Garland</td>
</tr>
<tr>
<td>1 September 2006</td>
<td>Lipids</td>
<td>Dr David Sullivan and Dr David Tognarini</td>
</tr>
<tr>
<td>3 November 2006</td>
<td>Iron Studies</td>
<td>Dr Alan R McNeil and Emeritus Prof Jack Metz</td>
</tr>
</tbody>
</table>

- CSP articles on the RCPA website received 340 'hits' by the end of December 2006.
- The RCPA covered all its administrative costs, and the authors of the CSP articles were not paid, and nor was the CSP Editor, as these roles were honorary.

Findings
- An *Australian Doctor* general reader survey found that CSP was a valuable source of information for GPs.
- Pathologists were keen to contribute to the publication as authors as they considered it to be an effective communication tool, were helping GPs and involving them in the pathology process.
• CSP helps prevent unnecessary testing resulting in cost savings and avoidance of invasive tests that are not warranted.
• CSP promotes good patient care and cost effective patient management by helping to prevent potential misdiagnoses that may occur by omitting important tests.
• CSP saves costs of health care as management can be instigated at an earlier stage of disease.

Recommendation
1. Dr Matthew Meerkin, RCPA CSP Editor, suggested that a compilation of the last 24 issues would be a useful addition to the library of GPs, pathologists and medical students.

Key Project Learnings
• As the pathologists writing the articles donated their time, the issue of time lines was managed by:
  o securing an author's agreement to write the articles well in advance wherever possible
  o providing regular reminders for deadlines
  o shortening deadlines for delivery of articles to the RCPA to allow for unforeseen delays.
• To ensure the tone was appropriate for the intended audience:
  o authors were asked in their letter of invitation to write at a level which will educate GPs with explanatory guidelines provided
  o the RCPA CSP Editor sometimes requested sending the article to a GP with an interest in the specific topic before publication to test its effectiveness.
• Difficulties with early articles exceeding the word limit imposed by the publisher did not recur, and these limits were clearly defined in correspondence to prospective authors. Time was also built into deadlines to enable articles that were too long to be revised.

Follow on Initiatives and Projects
Common Sense Pathology Publication Series (2011).

Common Sense Pathology Publication Series (2011)
Description
The Common Sense Pathology (CSP) publication series for general practitioners (GPs) highlights areas that are topical or problematic in diagnosis or management. The topics are chosen after consideration of feedback from Australian Doctor magazine research about topics of interest, as well as via feedback from pathologists about areas of their pathology specialty that appear to be confusing, controversial or frequently misunderstood by GPs.

CSP was delivered with Australian Doctor magazine to 21,000 recipients (which essentially encompassed every practicing GP in Australia). All 2010/11 editions were posted on the Royal College of Pathologists of Australasia (RCPA) website (http://www.rcpa.edu.au/) within one month of publication. Issues dating back
to 2002 were also available on the *Australian Doctor* website (http://www.australiandoctor.com.au/).

**Grant Recipient**

RCPA

**Aims and Objectives**

- to produce a series of articles on areas that are topical or known to be problematic when it comes to diagnosis and management by GPs
- to provide practical, relevant information about appropriate pathology ordering for GPs.

These aims and objectives were achieved by this project.

**Outcomes**

[alt = “The following table lists the edition of the *Australian Doctor* magazine, against the CSP article and the author/s”]

<table>
<thead>
<tr>
<th>NUMBER</th>
<th>EDITION</th>
<th>ARTICLE</th>
<th>AUTHOR/S</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>29 October 2010</td>
<td>Tired All the Time</td>
<td>Dr Steve Flecknoe-Brown</td>
</tr>
<tr>
<td>2</td>
<td>18 February 2011</td>
<td>Genetic Investigation of Children</td>
<td>Dr Sui Yu &amp; Dr Nicola Poplawski</td>
</tr>
<tr>
<td>3</td>
<td>1 April 2011</td>
<td>Vitamin D</td>
<td>Dr Margaret Janu</td>
</tr>
<tr>
<td>4</td>
<td>3 June 2011</td>
<td>Coeliac Disease</td>
<td>Dr David Gillis</td>
</tr>
</tbody>
</table>

**Findings**

- *Australian Doctors’ own research has shown that clinical information is the most popular area of the publication with research suggesting over 85% of all GPs are reading sections entirely focused on clinical topics.*
- Reed Publishing advised they believe CSP served as a useful adjunct to the promotion of appropriate ordering, interpretation and follow-up of pathology testing by Australian GPs.

**Improved Pathology Reporting, Education and Practice (IPREP) for Colorectal Cancer (2009)**

**Description**

This project sought to identify, design and pilot the use of synoptic forms and reporting protocols for colorectal cancer.

**Grant Recipient**

University of New South Wales

**Aims and Objectives**

- to identify, design and pilot the use of synoptic forms and the implementation of protocols that will reduce report variability and promote consistency and reliability of pathology reporting in colorectal cancer
- the IPREP team will consult with pathologists, surgeons and oncologists to promote communication, collaboration and dissemination of knowledge regarding best practice guidelines and evidence-based reporting.
These aims and objectives were achieved by this project.

Outcomes

- The synoptic surgical request form and synoptic surgical request report were designed for the reporting of colorectal cancer cases along with a set of accompanying guidelines.
- These documents were distributed in their current form to all individual pathologists and pathology laboratories which serviced the South Eastern and Illawarra Area Health Service (SEIAHS). They were distributed via face-to-face meetings with a contact pathologist in each laboratory.
- Additional electronic copies of the documents were circulated via email and could be downloaded from the Colorectal Cancer Research Consortium (CCRC) website.
- The documents were also distributed to oncologists and surgeons through attendance at multidisciplinary team meetings at each hospital.
- A review of pathology reports from each pathology laboratory within the SEIAHS was conducted at three different time points to validate the practical use of the synoptic documents and guidelines.
- National consensus and expert opinion was to be sought for the colorectal synoptic reports and guidelines.
- Colorectal working party meetings were conducted on:
  - 24 October 2008 in a face-to-face forum
  - 18 December 2008 via teleconference
  - 12 February 2009 via teleconference.
  This working party included medical specialists from the fields of pathology, surgery and oncology, as well as the project managers of the IPREP and Cancer Institute NSW (CINSW) Structured Pathology Reporting Standards for Cancer (2009) project.
- The IPREP project manager attended bi-monthly working party meetings with the CINSW project manager and representatives from the Royal College of Pathologists of Australasia (RCPA) and Cancer Australia to finalise the guidelines for ratification from both of these bodies, and for submission of the guidelines for approval from the National E-Health Transition Authority (NeHTA).

Follow on Initiatives and Projects

- Structured Pathology Reporting Standards for Cancer (2009).

Structured Pathology Reporting Standards for Cancer (2009)

Description
This project sought to lead the development of an agreed method and structure for developing, disseminating and maintaining guidelines for structured pathology reporting of cancer.

Grant Recipient
Cancer Institute NSW
Aim

- to lead the development of an agreed method and structure for developing, disseminating and maintaining guidelines for structured pathology reporting of cancer.

_This aim was achieved by this project._

Outcomes

- The six protocols developed were: melanoma, prostate (radical prostatectomy), lung, colorectal and lymphoma based on the Framework documents. The National Breast and Ovarian Consortium (NBOCC) agreed to reformat their guidelines to the developed framework.
- Work was also in progress to develop Health Level Seven (HL7) messaging standards and archetypes in conjunction with the National E-Health Transition Authority (NEHTA)

Key Project Learnings

- A key part of this project was developing the Framework for Developing Protocols which was then used to develop six cancer specific protocols.
- Feedback from public consultation on five of the six protocols highlighted a number of points on the general structure and approach of the protocols which enabled the Framework committee to revise the documents. This will assist developers of future protocols.

Follow on Initiatives and Projects

- Promoting and Expanding Structured Pathology Reporting of Cancer (Stage 2) (Current).

**Promoting and Expanding Structured Pathology Reporting of Cancer (Stage 2) (Current)**

Description

This project is seeking to promote and expand the use of structured reporting of cancer. The final report is due on 16 June 2012.

Grant Recipient

Royal College of Pathologists of Australasia (RCPA)

Aims and Objectives

- to undertake a national program of education on the previously developed cancer protocols (breast, melanoma, lung, lymphoma, colorectal and prostate)
- to develop further protocols in conjunction with international bodies
- to undertake a literature review of pathology cancer reports to provide information on best practice reporting formats that enhance their understanding and readability with the aim of contributing to improved patient care and safety
• to share the findings of the literature review to provide advice and feedback and participate as a member of the Collaborative Management Group and as a partner with the University of Melbourne and Dianella Community Health on the project Effective Communication of Pathology Results in Requesting Practitioners and Consumers (Current) on page 133
• to work collaboratively with Professor Jon Patrick at the University of Sydney to develop a model to automatically review protocol content and develop a baseline for the structured reporting of colorectal cancer.

_This project is current and the aims and objectives are in the process of being achieved._

**Outcomes**

The project's aims and objectives are being achieved in the following stages:

• Establish governance for the project.
• Establish ongoing maintenance and update protocols including publication and media release.
• Develop additional protocols and a format for reporting structured information. In addition, work with other organisations to enable the use of the protocols.
• Develop additional protocols available for other common cancers in collaboration with international organisations.
• Report on updating and publication of protocols and commence a literature review of pathology cancer reports.
• Audit of colorectal structured reporting in association with the Clinical Language Processor Engine project.
• Completion of the project and provision of a Final Report.

**Areas for Future Consideration**

• Possible development of a standardised reporting format for all major cancers and other major complex reporting topics.

**Evidence-Based, Best-Practice Prevention of Blood Borne Virus Transmission in Health Care Settings Program (PBBV) (2009)**

**Description**

This project sought to develop specific laboratory guidelines and recommended procedures (the Guidelines) to ensure best practice in dealing with suspected cases of Blood Borne Virus (BBV) transmission in health care settings and thus reduce the likelihood and impact of BBV transmission.

**Grant Recipient**

South Eastern Area Laboratory Services (SEALS)

**Aims and Objectives**

• to develop specific laboratory guidelines and recommended procedures to ensure best practice in dealing with suspected cases of BBV transmission
• to create an Australia-wide forum for discussion of the guidelines
• to identify facilities in each State for molecular epidemiology investigation studies
• to advise public health professionals, pathologists (including the Royal College of Pathologists of Australasias [RCPA]) and policy makers on the best-practice evidence-based laboratory procedures in dealing with these cases
• to interface with health care workers and the community at large on basic information on BBV transmission via consultation, website and collaboration.

These aims and objectives appear to have been achieved. The report states some were still in progress of when it was tabled, specifically to continue developing guidelines and methods for testing and investigation, and to develop evidence-based models and analysis of protective factors for BBV infection.

Outcomes
• Laboratory guidelines were developed comprising five sections:
  1. principles for outbreak investigations
  2. specimen handling, transport and storage
  3. testing protocols for BBV investigations
  4. BBV genotyping and sequencing
  5. laboratory requirements for BBV investigations.
• A draft of the BBV website was instigated which is an educational blog designed to provide an open forum for discussion on community issues related to BBV, particularly in the area of laboratory testing.
• Specific BBV facilities were identified in four major States for molecular epidemiology investigation studies.
• Development of an educational website for health care workers and the community on basic information on BBV transmission. This was under construction at the time of the report at: http://www.bloodborneviruses.org.au/.

Recommendations
1. Continue development of guidelines and methods for testing and investigation, including reverse transcription polymerase chain reaction (RT-PCR) and sequencing protocols for the molecular epidemiology of BBVs to maintain these BBV facilities as a model of best practice in the investigation and prevention of BBV transmission.
2. Develop evidence-based models and analysis of protective factors for BBV infection. This will result in the development of practical policies for BBV transmission and prevention in health care settings (liaison had already been established with PathWest, Victorian Infectious Disease Reference Laboratory [VIDRL] and NSW Health).

Key Project Learning
• The main difficulty was meeting deadlines set by the Australian Government Department of Health and Ageing due to the swine flu pandemic. Most virology experts and infectious diseases committees were unavailable due to urgent issues related to the pandemic.

Follow on Initiatives and Projects
• Integration of protocols to National BBV Testing Policies.
Risk Minimisation

Risk minimisation in pathology practice, from collection of a sample to reporting the results, is paramount to the quality use of pathology. The Quality Use of Pathology Program (QUPP) has sought to augment the solid basis in risk minimisation built by multiple stakeholders such as the Royal College of Pathologists of Australasia (RCPA), the RCPA Quality Assurance Programs Pty Ltd (RCPA QAP) and the National Association of Testing Authorities (NATA) through five projects (Table 3).

Key areas in risk minimisation include identifying early warning signs that can identify poorly performing laboratories, and assisting pathology laboratories to identify, measure, monitor and investigate potential or actual errors which may pose a potential risk to patient safety. These projects also highlighted some key project learnings regarding strategies to monitor, measure and assess laboratory performance, and highlighted the significant challenge that the majority of errors (75%) in pathology occur outside of the pathology laboratories’ control.

Based on these learnings, areas for future consideration from all reports summarised in this chapter include:
- Standardise key definitions and terms for incident monitoring and reporting.
- Consider strategies to address the issue of errors occurring when a non-pathology person collects a pathology sample.

[alt = “The following table lists the five project names and grant recipients under the Risk Minimisation theme”]

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Grant Recipient/s</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 RCPA – Quality Assurance Programs Key Indicator Project (2004)</td>
<td>Royal College of Pathologists of Australasia Quality Assurance Programs Pty Ltd (RCPA QAP)</td>
</tr>
<tr>
<td>2 Pilot Laboratory Assessment and Peer Review Mechanism for Pathology Key Performance Indicators (2007)</td>
<td>RCPA QAP</td>
</tr>
<tr>
<td>3 Performance Monitoring of External Quality Assurance (Current)</td>
<td>RCPA QAP</td>
</tr>
<tr>
<td>4 NATA File Audit – Risk Analysis of Assessment Non Conformances Identified in Pathology Laboratory Assessment Accreditation (Current)</td>
<td>National Association of Testing Authorities (NATA)</td>
</tr>
<tr>
<td>5 Key Incident Monitoring &amp; Management Systems (Current)</td>
<td>RCPA QAP</td>
</tr>
</tbody>
</table>

Table 3: Reports summarised for Risk Minimisation
RCPA – Quality Assurance Programs Key Indicator Project
(2004)

Description
This pilot project developed a mechanism to identify poorly performing laboratories on a continuing basis. It arose from recommendation 5.1 of the Corrs Chambers Westgarth report titled *The Evaluation of Australian Pathology Laboratory Accreditation Arrangements* for the Australian Government Department of Health and Ageing 2002 (Corrs Chambers Westgarth Lawyers) which states:

that the DHA and the HIC seek the cooperation of the RCPA QAP to establish explicit external quality assurance performance criteria, initially in chemical pathology and gynaecological cytology, and a mechanism for the RCPA QAP to identify relatively poorly performing laboratories.

This pilot was the first stage in this process and developed Key Performance Indicators (KPIs) for chemical pathology and cytopathology that could potentially be used to identify an early warning alert system of poor laboratory performance.

Grant Recipient
Royal College of Pathologists of Australasia Quality Assurance Programs Pty Ltd (RCPA QAP)

Aims and Objectives
- to determine whether quality assurance data can be used as an early indicator of poorly performing laboratories
- to develop a model or indicator that will select the laboratories most probably needing review
- to determine whether the same or a similar model or indicator can apply to all disciplines of pathology.

*These aims and objectives were achieved by this project.*

Outcomes
- A National Pathology Accreditation Advisory Council (NPAAC) Steering Committee was established to oversee the project, and two KPI working groups for each discipline (chemical pathology and cytopathology) were established to assist the project.
- The project groups and Steering Committee determined the methodology for the pilot should be based on a 'peer review process' rather than a 'standards' approach.
- Laboratories were reviewed individually to ensure their assessment included only relevant data in the following four step process:
  1. Selection of the peer group of the laboratory under review.
  2. Selection of the assessment process.
  3. Process the laboratory's data, their peers and ranking performance.
  4. Consolidate all data to obtain a KPI.
- It was considered that a need existed to develop a more detailed feedback of quality assurance (QA) performance to help laboratories improve. It was
envisaged the Peer Review Committee (PRC) would address this issue. Most laboratories would also be complemented on good performance, with this program identifying potential problems earlier, but also providing practical and useful guidance to participants.

**Chemical Pathology Program**

- The Chemical Pathology Program compared a laboratory’s performance with all laboratories in their peer group (those that did the same testing) and then ranked their performance against each other.
- The Quality Assurance Program (QAP) data was modeled using various statistical tests. The best tool to develop the KPI ranking across the whole laboratory for all analytes was considered to be the Coefficient of Variation (CV%).
- A number of key/critical analytes were identified and ranked for each laboratory using ‘Total Error’.
- All laboratories would receive a report of their performance.
- The set of assessment criteria recommended for Chemical Pathology was:
  - a KPI<0.05
  - a participation rate in the QAP of <80%
  - a late result rate of >10%
  - a result correction rate of >5%
- If the laboratory met these criteria they would be referred to the PRC to assess if there was a problem.
- The program required some further minor refinements, but was anticipated to be implemented on a trial basis in 2005.

**Cytopathology KPI Program**

- A similar process to the Chemical Pathology Program was developed with each laboratory ranked against its peers.
- It was only modeled in Gynaecological Cytopathology, and required further refinement over the following 12 months.
- The recommended assessment criteria for Cytopathology laboratories was:
  - a KPI rank in the lowest 10th percentile of their peer group
  - more than two major errors in any program
  - less than 75% of results submitted
  - more than 50% of results submitted after the deadline.
- If a laboratory was identified as falling inside the assessment cutoff ranges they would be referred to a PRC.
- Four scores were created for ranking laboratories determined from a set of 20 slides. A diagnosis was supplied by the laboratory for each slide which was scored depending on whether the target response (10), an acceptable response (9) an unacceptable response (4) or a major error (-1) was reported.
- Review of the value of the scores may be required to ensure they provided the required discrimination of performance. Further attention may be required in the classification of acceptable, unacceptable responses and those considered major errors.
- It was suggested that as cytopathology would not have sufficient data for analysis in a six-month timeframe, that rolling 12 month data be reviewed every six months.
• These guidelines will be extended and modified as required for non-gynaecological cytology.

**Peer Review Committee**

• The Peer Review Committee (PRC) was to be established for each discipline and would form a sub-committee of the Medical Testing Accreditation Advisory Committee (MTAAC) of the National Association of Testing Authorities (NATA).

• The PRC was to be made up of:
  - two RCPA Fellows from the relevant disciplines
  - two other relevant professionals
  - two representatives from the relevant QA Office, one being the current chairperson
  - one NATA representative
  - one Government representative.

• The PRC’s structure was to be trialed in the next stage of the Pilot Project, with no pecuniary action taken until the process had been agreed to by the Australian Government Department of Health and Ageing (DoHA).

• It was the responsibility of the PRC to determine if the laboratories referred to it were performing badly, or if they were at the bottom of a very high performing group of laboratories. If there was a concern they would be referred to NATA for an accreditation visit or desk audit.

• If a laboratory is enrolled in a non-RCPA QAP quality assurance program, they should still be required to submit reports similar to those provided by RCPA QAP Pty Ltd to the MTAAC Peer Review Subcommittees.

**Findings**

• There are tests that are generally done well by all laboratories and tests that are not done well by any laboratories. This is due to the development stage or level of the test. Poor performance of a laboratory should be based on the laboratory, and not on the analyte. Based on this information, laboratory performance should be measured by the tests that are generally performed well by all laboratories.

• KPIs are a tool to assist in identifying laboratories that may need review. No computer program has the subtlety to unerringly indicate a mandatory laboratory review. There is acceptance that even after the peer review process had suggested there was a problem, the KPI would only be used as a flag to notify NATA that the laboratory required some form of review, whether as a formal visit, paper audit or somewhere in between.

• The Chemical Pathology quality assurance program (QAP) analysis and report appeared to have a high level of acceptance by the profession and participants.

• The Cytopathology KPI Program was more difficult to develop because it is a qualitative (opinion-based) specialty rather than a quantitative (measurable) specialty.

• The implementation of the Cytopathology KPI Program required a cultural shift amongst cytologists, and may require a review of the QAP. Previous QAPs have been viewed as a “test and teach” rather than measuring performance.
Due to the small number of cytologists in any laboratory, KPI testing may be viewed as an individual assessment rather than a laboratory assessment. Considering the ‘pilot’ nature of the program, this has caused concerns with some laboratories.

Cytopathology suffers from the difficulties of providing suitable test materials in the quantities and variety that create equitable assessment among laboratories due to the qualitative nature of the testing process. Some of the difficulties may be rectified in the future with the introduction of virtual microscopy.

Careful interpretation of the KPI data is essential. Poor performance must be comprehensively assessed and it is possible that in some cases the poorest performers may still be satisfactory for patient care.

**Recommendations**
1. Extend the project to other disciplines, with blood-banking the next recommended area to undergo this process.
2. Funding options beyond the pilot program should be investigated.
3. Educate the profession about the project and further refinement over time of the KPI process.
4. Inform other QA providers of this initiative.
5. Further studies would be invaluable as the process proceeds, particularly for:
   a. ‘critical’ analytes
   b. size of laboratory
   c. methods to identify ‘gaming and collusion’
   d. year-to-year consistency.
7. Process and distribute January to June 2004 data.

**Key Project Learnings**

- It was felt that while graphical reporting was initially useful in ranking laboratories, the KPI plot should not be reported back to the laboratories to avoid the potential to promote their ‘ranking’ for commercial advantage. As the purpose is primarily to identify potentially poorly performing laboratories, the added information regarding relative rankings was considered irrelevant and may raise additional concerns.
- Determining the cut-off point for ‘poorly performing’ laboratories was not an easy task. They were subjected to several models and several rounds of evaluation.
- The RCPA QAP needed to obtain legal advice regarding the feasibility of a waiver with respect to liability for laboratories that signed up for participation in this project. This is because laboratories whose KPI reports were submitted to the PRC, followed by a subsequent inspection by NATA and any other steps in the process, may otherwise resort to suing the RCPA QAP for economic loss.

**Follow on Initiatives and Projects**
Pilot Laboratory Assessment and Peer Review Mechanism for Pathology Key Performance Indicators (2007).
Pilot Laboratory Assessment and Peer Review Mechanism for Pathology Key Performance Indicators (2007)

Description
This project arose from recommendation 5.1 of the Corrs Chambers Westgarth report titled *The Evaluation of Australian Pathology Laboratory Accreditation Arrangements* for the Australian Government Department of Health and Ageing 2002 (Corrs Chambers Westgarth Lawyers) which states:

that the DHA and the HIC seek the cooperation of the RCPA QAP to establish explicit external quality assurance performance criteria, initially in chemical pathology and gynaecological cytology, and a mechanism for the RCPA QAP to identify relatively poorly performing laboratories.

The first stage of this project developed Key Performance Indicators (KPIs) for Chemical Pathology and Cytopathology that could potentially be used to identify an early warning alert system of poor laboratory performance. It was identified that a further step was required in the development of KPIs to assess if they were a valid tool for this purpose. This resulted in the project’s second stage as represented by this project.

Grant Recipient
Royal College of Pathologists of Australasia Quality Assurance Programs Pty Ltd (RCPA QAP)

Aims and Objectives
- establishment of Peer Review Committees (PRCs) for Chemical Pathology and gynaecological Cytopathology
- pilot extension of the KPI assessment and review process as developed in the initial project
- address the issue of the National Pathology Accreditation Advisory Council (NPAAC) producing a standard or other document to provide legislative backing to the process
- funding option for the KPI assessment and review process in the long term to be investigated
- the RCPA QAP needs to obtain legal advice regarding the feasibility of a waiver with respect to liability for laboratories that sign up for participation
- education of laboratory participants on the KPI assessment and review process
- potential further refinement of the KPIs is recognised as being a logical development of the program and beneficial to the improvement of diagnostic capabilities.

*These aims and objectives were achieved by this project.*

Outcome
- This project demonstrated the need for an appropriate professional review of the proposed mechanisms for the development of an effective early warning system to detect potentially poorly performing laboratories.
Findings

- The results of the pilot project to evaluate the use of KPIs to identify poorly performing laboratories has meant the Steering Committee could not recommend the use of KPIs as a formal monitoring process for poorly performing laboratories as part of NPAAC.
- The Chemical Pathology KPIs have been identified as a useful internal quality tool for laboratories to use.
- The power of the KPI methodology is very dependent on the amount of data that can be analysed, and as a consequence, the KPIs have been more useful in Chemical Pathology than in Cytopathology.
- The information to hand suggests that KPIs and the PRC process can identify laboratories with poor External Quality Assessment (EQA) performance, but this does not necessarily equate to poor ratings at an on-site assessment.
- The lowest KPI laboratories were not distinguished by more adverse assessment outcomes when compared with the highest KPI group.
- The methodologies used suggested the current KPIs were not a sensitive test of overall laboratory performance when compared to assessment findings.
- The correlation of the KPIs and National Association of Testing Authorities (NATA) assessments did not support their use as an ‘early warning system.’
- The KPIs as calculated for this project were based solely on quality assurance program (QAP) performance. Their name infers this correlates with actual laboratory performance, however, this does not appear to be the case.

Recommendations

1. The frequency of the KPI review for Chemical Pathology should be every six months.
2. Cytopathology does not have sufficient data for a six-month review, so it should have an overlapping 12 month review every six months.
3. KPIs are not a valid tool to use for identifying poorly performing Gynaecological Cytopathology Laboratories, and as a consequence the Steering Committee recommends that they NOT be implemented in the existing format.
4. The KPIs for Chemical Pathology appeared to be of some use in identifying poorly performing laboratories and are well accepted by laboratories as a useful internal quality tool. However, due to the poor correlation between laboratories known to be poorly performing and the KPI, the Steering Committee could NOT recommend the introduction of KPIs in Chemical Pathology as a formal tool enshrined in NPAAC Standards to help identify poorly performing laboratories. However, because of the usefulness of the KPI in Chemistry to evaluate performance based on quality assurance (QA) data, and potentially useful in ranking laboratories overall performance, the RCPA QAP will continue producing the KPIs for Chemical Pathology and this will be included within the services it offers to its participants.
5. The Steering Committee considered it appropriate to continue a Peer Review Mechanism for Chemistry on a trial basis.
6. The Steering Committee considered developing KPIs in Blood Transfusions on a pilot basis as useful.
7. QAP data in Cytology expressed as KPIs has not proven useful as a predictor of “poorly performing” laboratories, although a large number of major errors (e.g. greater than three) in a QAP may still be a useful trigger for review.
8. Examination of the relationship of Performance Measures to NATA Assessment findings should be the subject of a further study.
9. The role and membership of the PRC and its Terms of Reference need to be explored further.
10. Legal advice to the RCPA QAP regarding feasibility of a waiver with respect to liability for laboratories that signed up for participation included the recommendation that identifying information never be released to the PRC in general, but only to NATA. They also advised seeking a legal agreement with NATA to ensure that NATA never discloses the identifying information to a third party, and that their actions be limited to an accelerated review of the laboratory in question.
11. Ongoing funding for any further projects needs to be considered.
12. Potential further refinement of the KPIs was recognised as being a logical development of the program and beneficial to the improvement of diagnostic capabilities.
13. The work undertaken at Pacific Laboratory Medicine Services (PaLMs) regarding KPIs for quantitative pathology work could form the basis for further analysis of their findings to provide the scientific community with a clear understanding of which tests need to be concentrated on in terms of further development and quality improvement.

Key Project Learning
- There were delays completing the project related to KPI software and the workforce crisis in pathology meaning the time pathologists could give to this project on a voluntary basis was restricted. It also sometimes took long periods of time to get the Committee together to review data which also delayed the project.

Follow on Initiatives and Projects
- Performance Monitoring of External Quality Assurance (Current)
- NATA File Audit – Risk Analysis of Assessment Non Conformances Identified in Pathology Laboratory Assessment Accreditation (Current).

Performance Monitoring of External Quality Assurance (Current)

Description
This project is investigating if an early warning system can be established to help minimise risk to patients and assist laboratories in addressing external quality assurance (EQA) concerns early. The Royal College of Pathologists of Australasia Quality Assurance Programs Pty Ltd (RCPA QAP) previously ran a RCPA – Quality Assurance Programs Key Indicator Project trial which will be revisited for chemical pathology (data had been collected over four years). KPIs are now being developed for other pathology disciplines, notably anatomical pathology and transfusion serology, and evaluated as indicators. This project will harmonise with current Key Incident Monitory & Management Systems (KIMMS) initiatives.
Grant Recipient
RCPA QAP

Aim
- to develop pathology laboratory performance from a number of perspectives.

Objectives
- to examine pathology laboratory performance from a number of perspectives
- to establish a working party with the Therapeutic Goods Administration (TGA) to develop ways to identify sub-standard tests and kits that can have a direct effect on pathology laboratory performance
- to review four years of KPI data and correlate with National Association of Testing Authorities (NATA) accreditation visits
- to establish KPI systems and develop software for transfusion serology and anatomical pathology
- to set benchmarks for each KPI discipline
- to develop novel protocols to use ongoing EQA results to monitor performance
- to establish mechanisms to use EQA data to help monitor quality of tests.

This project is current and the aim and objectives are in the process of being achieved.

Outcomes
As at December 2011 the following had been achieved:
- KPI systems and benchmarks for acceptable performance had been developed and finalised for transfusion medicine, cytopathology and anatomical pathology
- a second round consultation phase on the project’s draft framework had been completed
- software development included definition of overall project specification documentation, scoping of anatomical, transfusion and cytopathology program specifications and production of project design documentation
- finalisation of the design of Performance Summary Reports for anatomical pathology, cytopathology and transfusion medicine
- a cumulative score for transfusion medicine developed to reflect performance over six surveys
- the RCPA QAP is currently exploring the issue of sending participant reports directly to NATA.

NATA File Audit – Risk Analysis of Assessment Non Conformances Identified in Pathology Laboratory Assessment Accreditation (Current)

Description
The National Association of Testing Authorities (NATA) is conducting an analysis of non-conformances identified during its assessments of pathology laboratories against the accreditation materials over the past three to six years. This project
complements other QUPP funded initiatives, such as the Performance Monitoring of External Quality Assurance projects, as part of the pathology risk minimisation strategies to improve patient safety following the 2009 Budget initiative to continue the development of key performance indicators and other risk identifiers in pathology service provision.

Grant Recipient
NATA

Aims and Objectives
- to identify common issues and trends in pathology laboratory assessment
- to establish trends and patterns in poorly performing pathology laboratories
- to examine corrective actions that are currently being undertaken by laboratories to address deficiencies documented in assessment reports
- to develop a basis to articulate strategies that will address causes of poor performance.

This project is current and these aims and objectives are in the process of being achieved.

Outcome
- NATA has developed risk matrices to assist with their examination of common issues and trends in poorly performing laboratories, and is continuing to progress their review of files.

Key Incident Monitoring & Management Systems (Current)

Description
The Key Incident Monitoring and Management Systems (KIMMS) of Pathology Laboratories assist pathology laboratories to identify, measure, monitor and investigate incidents in pathology which have the potential to cause harm, and investigate the root cause of these incidents so they are minimised, which in turn will minimise potential harm to patients. It also addresses the quality assurance (QA) issues in the areas of both analytical and non-analytical errors. The pre-analytical phase focuses on identification/labeling of the sample and the sample rejection rates, while the post-analytical of testing examines results corrected because of laboratory error and results reported to the wrong doctor. The project analysed the 2007-2008 KIMMS pilot data collection.

Grant Recipient
Royal College of Pathologists of Australasia Quality Assurance Programs Pty Ltd (RCPA QAP)

Objectives
- to assist laboratories to measure and monitor incidents in the pre-and post-analytical phases in the pathology request-test-report cycle
- to provide data collection and reporting in four areas:
  1. pre- and post-analytical phases
  2. how each incident was identified (by the laboratory or by a complaint)
  3. the outcome of the incident (actual or potential patient harm)
4. overall incident rate as a percentage of workload each quarter
   - to raise awareness of safe work practices which will in turn reduce errors and increase patient safety
   - to reduce the number of incidents in pathology laboratories which will directly impact on patient safety.

*These objectives were achieved by this project, although the final objective is a longer-term deliverable.*

**Outcomes**

- The RCPA QAP made a submission under Part VC of the Australian Health Insurance Act 1973 for the KIMMS program to be formally declared as a Quality Activity to protect laboratories from litigation due to data collection on adverse incidents, especially those who voluntarily disclose this information.
- The RCPA QAP has employed three Information Technology (IT) staff to move software development in house. The new software developed will be housed on RCPA QAP servers under RCPA QAP control, and will be a repository for the aggregated KIMMS data.
- KIMMS data will raise awareness of unsafe work practices and provide information to the relevant sections of the medical community so targeted solutions can be implemented to improve patient safety.
- KIMMS will introduce graded classification of patient harm in 2010.
- KIMMS data can be utilised to set achievable national benchmarks for good pathology practice.

**Findings**

- KIMMS data confirmed their quality system captures most incidents (97%) allowing the pathology service to correct the problem before they cause patient harm.
- KIMMS 2007 & 2008 pilot showed that between 70-80% of sample misidentification problems were due to specimens not meeting minimum labeling requirement of providing two identifiers (e.g. name and date of birth).
- The overall incident rate was 0.7% in 2007 (fourth cycle) and 0.9% in 2008. Although these rates are low, the numbers (114,000 incidents annually from only 24 laboratories is a small fraction of Australian pathology) indicate the staggering resources used to stop non-laboratory errors affecting patient safety. These simple errors are all preventable.
- Overall, pre-analytical incidents accounted for the majority of incidents (85-90% in 2008) which is consistent with the literature.
- Post-analytical phase of testing incident rates were 0.01% of all accessions. These include results retracted due to an error by the laboratory and then re-issued, and very low levels where results were sent to the wrong doctor.
- The incident rates in the pre- and post-analytical phase of testing is under-reported as many laboratories do not currently record these incidents in a way that allows easy consolidated reporting.
- The absolute rate at which pre-analytical problems occurred exceeded the rate at which analytical problems occurred as measured in the details framework for quality assurance programs (QAPs).
• There is a need to address poor sample collection technique.
• Incident rates increased during this study as participants improved data extraction and capture techniques, but should eventually start to fall as:
  o pathology services improved their processes
  o KIMMS raised awareness of problems
  o various sections of the medical community are educated in safe work practices.
• Laboratory information systems (LIS) needed to be configured to capture the data at the time of entry of patient information into the system.

**Recommendations**
1. Standardising key definitions and terms for incident monitoring and reporting is an issue that needs to be addressed to accommodate comparison of data.
2. Contact LIS providers to discuss incorporating KIMMS data requirements into future versions of LIS software.

**Key Project Learnings**
• The significant challenge that pathology services experience is the majority of errors (75%) are not caused by pathology. Most occur when a sample is collected by a non-pathology person and are due to patient misidentification, incorrect sample collection and the sample being mislabeled. These inappropriate practices can jeopardise patient safety, particularly for irreplaceable samples (neonates, biopsy material and spinal fluids) where the laboratory has no option but to process the sample and provide a (qualified) result.
• Many participants in the pilot study disliked the KIMMS classification of actual and potential harm to patients.
• Feedback suggested a more accurate measure for sample recollections would be sample rejections as laboratories could capture this data.
• Evaluating the outcome of an incident caused confusion and concern for many participants.
• The pilot phase of this project highlighted the difficulty laboratories experienced in extracting or collecting of data from current LIS which are not set up to record and report/extract this data. A 2006 questionnaire sent to all pilot participants highlighted that 45% or participants collected incident data manually (in an exercise book) and a further 30% recorded data in a spreadsheet or a database.
• Both pilot data and feedback indicated that pathology services were not systematically collecting data on incidents, while others who do were not doing so in a manner that allowed comparison or peer review.

**Follow on Initiatives and Projects**
• Promotion of successful strategies on the RCPA QAP website.

**Areas for Future Consideration**
• Standardise key definitions and terms for incident monitoring and reporting.
• Consider strategies to address the issue of errors occurring when a non-pathology person collects a pathology sample.
Quality Assurance and Capacity – New Technology

Technology is becoming an integral part of health care and has the capacity to augment diagnostic capabilities at both the point of care (Point of Care Testing [PoCT]) and in the laboratory/hospital setting. Quality assurance (QA) issues are paramount to ensure new technology will produce reliable results, especially in the emerging areas of PoCT and genetics. Ensuring technology also has the capacity to deliver quality outcomes into the future before an investment is made is also an ongoing issue in health care.

The Quality Use of Pathology Program (QUPP) enabled projects to develop, define and educate stakeholders about the quality assurance and capacity of new technology. Eight projects (Table 4) covered areas from genetics to PoCT, with a major issue arising being QA issues associated with PoCT.

The emerging area of genetics was also targeted with projects that sought to define and inform stakeholders about best practice and QA issues in this area. PoCT and genetics are also dynamic areas with information and capability increasing rapidly, sometimes from month to month. These areas underpin the areas for future consideration including:

- Further possible work by the Genetics Working Party set up under the Pathology Funding Agreement.
- Investigate and define QA issues for PoCT.

[alt = “The following table lists the eight project names and grant recipients under the Quality Assurance and Capacity – New Technology theme”]

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Grant Recipient/s</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Virtual Microscope (2005)</td>
<td>Royal College of Pathologists of Australasia (RCPA)</td>
</tr>
<tr>
<td>2 High Resolution Scanning Microscopy for Quality Assurance and Educational</td>
<td>Royal College of Pathologists of Australasia Quality Assurance Programs Pty Ltd</td>
</tr>
<tr>
<td>3 Development of a Quality Assurance Module for Human Papilloma Virus Testing</td>
<td>RCPA QAP</td>
</tr>
<tr>
<td>4 Preparing for Genomic Medicine: National Audit and Development of a Best</td>
<td>RCPA</td>
</tr>
<tr>
<td>5 Policies, Procedures and Guidelines for Point-of-Care Testing (2011)</td>
<td>RCPA QAP</td>
</tr>
<tr>
<td>6 PoCT Training, Certification, Support and Skill Maintenance Program (Australian PoCT Practitioners Network – APPN) (Current)</td>
<td>Australasian Association of Clinical Biochemists (AACB)</td>
</tr>
<tr>
<td>7 Establishment of a Molecular Genetics Quality Assurance Program (Current)</td>
<td>RCPA QAP</td>
</tr>
<tr>
<td>8 MAWSON – An Online Repository of Genetic Data to Aid Reporting of Medical</td>
<td>University of South Australia</td>
</tr>
<tr>
<td>9</td>
<td></td>
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Table 4: Reports summarised for Quality Assurance and Capacity – New Technology
Virtual Microscope (2005)

Description
The Virtual Microscope (VM) is a computer system consisting of both software and hardware for scanning microscopic images of cells, tissues and body fluids and converting them into a digital image. The technology allows the images to be transferred to a CD and to the Internet, and is particularly beneficial for quality assurance, training and educational purposes.

The Australian Government Department of Health and Ageing (DoHA) provided funding to the Royal College of Pathologists of Australasia (RCPA) for this project and the VM was installed on 2 August 2004. The project timeframe was 1 March 2004 to 31 January 2005, with regular updates submitted for the life of the asset until 2009.

Grant Recipient
RCPA

Aims and Objectives
- to introduce virtual microscope technology as a means of delivering high quality images to laboratories in the Royal College of Pathologists of Australasia Quality Assurance Programs Pty Ltd (RCPA QAP) and other quality assurance programs
- to use virtual microscopy technology to develop education packages for Trainees and Fellows
- to collaborate with University Medical Schools and other pathology organisations to provide digital images for educational programs to benefit registrars, medical practitioners and medical scientists
- to coordinate the use of the virtual microscopy technology for other pathology related organisations with quality assurance programs.

These aims and objectives were achieved by this project.

Outcomes
- Pilot surveys were undertaken in 2007 and 2009, with CD delivery of images rated higher than online delivery.
- Survey results were presented as a poster at the International Society for Laboratory Hematology (ISLH) conference in May 2009.
- A scanning service was established by the RCPA Haematology Quality Assurance Program (QAP) for clients within and outside the RCPA.
- Candidates for the RCPA Haematology Fellowship participated in mock examination sessions for the preparation of their rigorous morphology examination.
- Slide scanning has been provided to the University of Tasmania for their education materials.
Findings

• Virtual microscopy cannot yet completely replace glass slide surveys because some laboratories have difficulties with downloading due to restrictive policies for software installation or slow Internet connection. However, it is a useful adjunct to the current RCPA QAP glass slide haematology morphology program with participants choosing to receive the digital images online or on CDs.

• High resolution virtual slides of blood and bone marrow smears are practical alternatives to glass slide sets for education and training in haematology morphology.

Key Project Learning

• One challenge was ongoing technical problems with the original system. It was completely replaced by the manufacturer in March 2006 under the warranty agreement.

Follow on Initiatives and Projects


High Resolution Scanning Microscopy for Quality Assurance and Educational Applications (2009)

Description

This project sought to expand of the use of the Virtual Microscope purchased in 2004 for the Virtual Microscope project by providing high quality digital slides for education, training and quality assurance activities.

Grant Recipient

Royal College of Pathologists of Australasia Quality Assurance Programs Pty Ltd (RCPA QAP)

Aims and Objectives

• to establish a key resource in digital microscopy
• to provide high quality digital images for quality assurance, education and training purposes.

These aims and objectives were achieved by this project.

Outcomes

• All diagnostic modules of the Anatomical Pathology Quality Assurance Program contained some virtual microscope images in 2007.
• Two new modules were established using virtual microscope images only.
• Virtual microscope images have been prepared on behalf of The Australian Animal Proficiency Standards Program for inclusion in their quality assurance program.
• A training program was developed to respond to new HER2 positive breast cancer targeted therapy.
• An initial pilot program using web-based software was undertaken in 2006 consisting of a number of questions and digital images for interpretation.
Slides from composite blocks were provided for laboratory testing with each individual submitting interpretation of the HER2 CISH staining through Digital Slidebox.

- Approximately 3500 slides have been scanned since 18 March 2008 for education and training purposes.
- Various organisations and institutions have used the slide scanning technology for slide seminars and educational purposes. A project on behalf of Animal Health Australia has digitalised a large reference set of veterinary slides for the education of veterinary pathologists.
- Virtual images of glass slides cases were put on the Anatomical Pathology website for participants to review when responding to surveys and reviewing results.
- Slides from the Cytopathology QAP have been scanned for pilot surveys in their program.
- A large collection of slides from the Prince of Wales Medical Research Institute has been scanned for the production of rat brain atlases.


**Description**
The project sought to develop a quality assurance program (QAP) for the testing of human papilloma virus (HPV) DNA by pathology laboratories. Two pilot studies were proposed, but only the results of Pilot Study One were included in this report.

**Grant Recipient**
Royal College of Pathologists of Australasia Quality Assurance Programs Pty Ltd (RCPA QAP)

**Aims and Objectives**
- to establish the best material and preparation method for specimens to issue to laboratories as a means of assessing laboratory testing performance for HPV DNA
- to prepare two pilot studies so that the most suitable medium for HPV DNA specimens could be fully evaluated (Dry Swab and PreservCyt specimens)
- to implement stability studies during the pilot study stage
- to enlist 20 participants for each pilot study who were committed to providing feedback and suggestions to improve with each survey
- to enlist further members of the HPV DNA committee so that each stage of the process in developing a quality assurance (QA) module could be fully evaluated.
- to develop an appropriate questionnaire and website data entry screens that would be modified/adjusted in response to participant feedback/suggestions.

*Most aims and objectives were achieved by this project, although it did not specifically address the best material and preparation method for specimens to*
issue to laboratories as per the first point above. Stability studies to confirm that shipping specimens at ambient temperature did not affect the integrity of the specimens were also ongoing.

Outcomes
Feedback for the website data entry included:

- The number of digits for entering numbers needed to be extended (this was fixed immediately).
- There was some confusion with the unit options available and being used by participants. This was reflected in the results downloaded at the conclusion of the survey and would be addressed for Pilot Study Two.
- The use of multiple participant numbers for those receiving both the PreservCyt and Dry Swab specimens caused some confusion. This is unique to the pilot studies and will be simplified once the specimen type has been decided and implemented after Pilot Study One.

Findings

- Pilot Study One showed the utility of a quality assurance program for the testing of HPV DNA.
- The number of participants testing the Dry Swab panel was lower than for the PreservCyt specimens and direct comparison between testing these samples may not be appropriate.
- The returned results suggest there is greater variability among participants using amplification methods than those using Hybrid Capture.

Recommendations

1. Possible survey results could be used during the next revision of National Pathology Accreditation Advisory Council (NPAAC) Guidelines.
2. The formulation of a second pilot study should continue taking into account the copy number evaluated and inconsistencies noted between participants with values and units reported for the Hybrid Capture methodology.


Description
This project involved an audit of genetic testing activity, development of an online catalogue of gene tests and genetic laboratories to assist clinicians, development of guidelines for reporting of genetic tests to medical practitioners and a national evaluation of molecular genetic quality assurance programs (QAPs) in Australia.

Grant Recipient
Royal College of Pathologists of Australasia (RCPA)

Aims and Objectives
- to integrate current genetic entries in the RCPA Manual Online with the new listing being developed
- to complete the review of submitted data from laboratories
• to conduct a comprehensive test run using submitted data from laboratories
• to review and edit submitted own-data by each laboratory
• the review of resources by the RCPA Manual Online editorial committee.

These aims and objectives were achieved by this project.

Outcomes
• The first national survey of genetic testing activity across all service providers and regions that can inform policy decisions.
• The first national online and updated catalogue of gene tests and genetic laboratories to assist clinicians to find which laboratory is offering a test.
• The first national guidelines for the reporting of genetic tests to medical practitioners, including a structure for synoptic reporting. This is being incorporated into the revision of the relevant National Pathology Accreditation Advisory Council (NPAAC) standards.
• The first international standard dealing with sample requirements in genetic testing.

Follow on Initiatives and Projects

The catalogue of genes, genetic tests and genetic laboratories was established as a component within the

Areas for Future Consideration
• Further possible work by the Genetics Working Party set up under the Pathology Funding Agreement.

Policies, Procedures and Guidelines for Point-of-Care Testing (2011)

Description
This project was a comprehensive review and analysis of national and international point-of-care testing (PoCT) quality management regulation policies and protocols.

Grant Recipient
Royal College of Pathologists of Australasia Quality Assurance Programs Pty Ltd (RCPA QAP)

Aims and Objectives
• to review the current regulatory requirements and professional opinion with regard to the implementation and quality management of PoCT
• to summarise currently available international standards, regulatory procedures, government policy, evidence-based guidelines and/or authoritative guidelines or statements from professional colleges or associations which describe procedures under which PoCT may be performed in general practice or the community.
These aims and objectives were achieved by this project.

Findings
(Only findings applicable to Australia have been identified; for international findings please refer to the original report.)

Use and Implementation of PoCT Devices
- PoCT is not a single unified entity and different circumstances may require different solutions.
- A principal conclusion arising from the quality management aspect of the Australian Government funded multi-centre Point-of-Care Testing in General Practice Trial ([http://www.health.gov.au/internet/main/publishing.nsf/Content/health-pathology-poctt-index.htm](http://www.health.gov.au/internet/main/publishing.nsf/Content/health-pathology-poctt-index.htm)) found the trial model provided a framework that worked within the current regulatory environment. This framework could form the basis for the implementation of PoCT in general practice more broadly.
- Point-of-Care drug testing is generally designed to screen for the presence of designated drugs or groups of drugs.

Quality Assurance
- In order for equivalent clinical decisions to be made, the accuracy and reliability of laboratory testing, including PoCT, should not be site dependent.
- The advantages of PoCT testing largely depend on proof of acceptable analytical performance. This concept dominates policy statements from government agencies of many jurisdictions, articles published in peer-reviewed journals and statements made by international professional commentators on PoCT.
- There are many ‘official’ and professionally based standards and guidelines which define the manner in which PoCT should be implemented, managed and the performance quality checked and maintained. Most, if not all, professionally based guidelines follow a similar template and provide similar information which includes specific reference to quality control and quality assurance.
- Regardless of the particular assay or method, PoCT, in common with all laboratory testing, requires regular quality control and external quality assessment (EQA) to assure acceptable performance. There is also a growing literature describing the potential and actual errors arising from poorly controlled PoCT while inspection and accreditation processes have been very successful in achieving the goal of reducing PoCT error.
- The required analytical performance of a test (fitness for purpose) is determined by its intended clinical use and not by the location where testing occurs. The accuracy and reliability of laboratory testing, including PoCT, should be equivalent irrespective of the testing site for equivalent clinical decisions to be made.
- The Point-of-Care Testing in General Practice Trial provided confirmation that quality management practices are required for PoCT.
- For PoCT to provide value in the general practice setting, an effective quality management system is essential. Clinicians need reassurance that their
decisions are based on reliable, accurate and precise results to ensure patient safety is not compromised.

- Actual clinical trials or large-scale reviews to assess the effectiveness of PoCT are much less numerous than publications which describe the potential risks associated with PoCT and issues with specific devices or with specific tests.

Cost Issues
- The innovation and functionality of PoCT brings many challenges for health care funding authorities, particularly the value it may bring to the patient care process.
- Payment for most types of PoCT is available through Medicare provided such testing is undertaken by an accredited pathology service (laboratory).
- With the exception of special funding arrangements (such as Quality Assurance for Aboriginal and Torres Strait Islander Medical Services [QAAMSI]) or State Government sponsored public hospital PoCT testing, only accredited PoCT laboratories may receive Government reimbursement or (Medicare) testing fees.
- When costs of implementing a quality system are raised, the real question to ask is how much is poor quality going to cost or how much is it costing now? The principal issue, particularly when discussing health economics, is the influence of “cost shifting”, in terms of poor quality of one sector of the health systems adds costs to another sector as increased resource requirements. Poor quality in laboratory and PoCT often results in increased doctor visits, additional unnecessary test procedures, inappropriately changed medication or additional unnecessary medication and/or hospitalisation. The real cost of not identifying testing problems, or unnecessary repeat testing and poor patient outcomes, is often hidden until a quality system has been implemented.

Follow on Initiatives and Projects
- It is anticipated that this work will be promoted in a scientific journal.
- PoCT Training, Certification, Support and Skill Maintenance Program (Australian PoCT Practitioners Network – APPN) (Current).

Areas for Future Consideration
- Investigate the framework for PoCT in General Practice recommended by the Point-of-Care Testing in General Practice Trial (http://www.health.gov.au/internet/main/publishing.nsf/Content/health-pathology-poctt-index.htm.)
- Investigate and define QA issues for PoCT.
**PoCT Training, Certification, Support and Skill Maintenance Program (Australian PoCT Practitioners Network – APPN) (Current)**

**Description**
This project is seeking to establish a training, competency assessment and ongoing education infrastructure for Point-of-Care Testing (PoCT) device operators known as the Australian Point of Care Practitioners Network (APPN)

**Grant Recipient**
Australasian Association of Clinical Biochemists (AACB)

**Aim**
- to provide access to a training and support service that will allow PoCT devices to be operated by health personnel to adequate clinical standards.

*This project is current and this aim is in the process of being achieved.*

**Outcomes**
- Core education and assessment modules have been established for competency in the operation and maintenance of PoCT devices in settings outside laboratories (such as general practices) which can be delivered by Registered Training Organisations and used under relevant accreditation frameworks as a basis for competency assessment.
- The Diabetes Modules have been approved by the Royal Australian College of General Practitioners (RACGP), the Australian College of Rural and Remote Medicine (ACRRM) and the Royal College of Nursing Australia (RCNA) as counting points for their continuing personal development programs.
- The INR (International Normalised Ratio) Anticoagulation Module has been approved by the ACRRM.
- The Lipids Module is complete with modules for PoCT for cardiac markers and cardiopulmonary resuscitation (CPR) currently in development.
- Guidelines, where available, have been included into the content of the modules.
- In December 2011 almost 800 people were registered as APPN members and over 620 competency assessments had been performed with the proportion of competency tests passed continuing to increase as the material content increased.

**Establishment of a Molecular Genetics Quality Assurance Program (Current)**

**Description**
This project is seeking to improve existing and new quality assurance (QA) modules for external assessment of molecular genetic tests.

**Grant Recipient**
RCPA Quality Assurance Programs Pty Ltd (RCPA QAP)
Aim

- to improve the quality of genetic testing in Australian laboratories by establishing a stand-alone program for the external quality assessment of molecular genetics within the current quality assurance program provided by RCPA Quality Assurance Programs Pty Ltd.

Objectives

- to establish an expanded methods-based external quality assessment of molecular genetic program for incorporation into the Molecular Genetics Quality Assurance Program (MGQAP) which will be trialed in the latter part of 2009 for introduction as a formal RCPA QAP Program in 2010
- to change administration of the existing Human Genetics Society of Australasia (HGSA) Program into the established RCPA QAP with joint administration by the RCPA QAP and HGSA
- to develop new technical modules for the external quality assessment of molecular genetics
- to develop procedures and documentation to allow International Laboratory Accreditation Cooperation G13:2000 standard accreditation
- to establish the procedures and documentation to allow MGQAP to operate as a self-funded stand-alone program after the completion of the project.

This project is current and the aim and objectives are in the process of being achieved.

Outcomes

- Nine MGQAP modules have been developed.
- A laboratory has been established to enable accurate preparation of genomic DNA samples for quality assurance and sample exchange modules, together with a DNA bank which is currently expanding with additional samples.
- Work has commenced in preparation for the accreditation of the MGQAP including holding discussions with the National Association of Testing Authorities (NATA) for a planned assessment in June 2012.
- A sample exchange registry has been established for smaller test numbers where no formal quality assurance program (QAP) currently exists to assist laboratories in comparing test results.
- A basic informative website is planned for early 2012 with a more comprehensive site planned for a mid year release.

MAWSON – An Online Repository of Genetic Data to Aid Reporting of Medical Genetic Tests (Current)

Description

This project is developing a database (the MAWSON Database) to hold genetic data collected semi-automatically from participating Australian genetic laboratories for use as a reference tool to enable best-practice reporting of genetic testing. The database can be handed over to a suitable organisation to allow it to operate as a self-funded stand-alone program after the completion of
the project with the intent of maximising participation. Data will also be uploaded from the MAWSON Database to the International Human Variome Project (HVP). More information can be found at: http://www.mawsonproject.com.

Grant Recipient
University of South Australia

Aim
- to develop a database (the MAWSON Database) that will retain genetic data collected semi-automatically from participating laboratories. These data will be accessible to a group of collaborating medical genetic laboratories in the form of a “virtual lab meeting” to enable the development of best practice reporting of genetic testing. The program will initially establish a database repository with familial breast cancer mutations (BRCA1 and BRCA2 genes) from genetic laboratories throughout Australia.

This project is current and this aim is in the process of being achieved.

Outcomes
- The project has successfully tested the prototype at Flinders Medical Centre, SA, with publication of the source code for laboratory access (Mawson Client).
- Undertaking further testing of the prototype at other laboratories has delayed the project. The Familial Cancer Service at Westmead Hospital NSW, and the Molecular Genetics Laboratory at Pathology Queensland-Central Laboratory has agreed to test the prototype
- Initial discussions have been undertaken with the RCPA Quality Assurance Programs Pty Ltd (RCPA QAP) regarding the ongoing maintenance and possible commercialisation of the database when the project has been completed
- A formal agreement has been negotiated with the HVP to collect eligible data in SA and convey it to the HVP database to allow data comparison.

Areas for Future Consideration
- Further possible work by the Genetics Working Party set up under the Pathology Funding Agreement.
eHealth Capability

The Quality Use of Pathology Program (QUPP) has enabled various eHealth capabilities through 12 projects (Table 5). The rise of the Internet and the rapid changes in the scope and capacity of Information Technology (IT) provided extra challenges to many of these projects as evidenced by the expansive Key Project Learnings for a number of these initiatives. These learnings also provided a valuable source of information and insight about conducting future projects within the eHealth paradigm.

The advent of the ability to order pathology tests electronically also required analysis to investigate any impacts on the ordering patterns of pathology. Receiving results electronically was also investigated, especially for narrative reports.

Key issues to emerge for eHealth capability included:
- software installation issues delaying project timelines
- the varied levels of IT proficiency and knowledge among treating practitioners
- finding a balance between IT solutions and treating practitioner's time and motivation to implement these solutions
- different pathology terminology on pathology reports.

The following areas for future consideration in eHealth Capability were based around these issues. They include:
- Identify the evidence of benefits and incentives for the electronic transmission of pathology requests.
- Optional automated decision support, and standard terms for requests and results.
- Standards for alerts and abnormal results (addressed in Application of Pathology Informatics to Reporting of Critical/Abnormal Results for Improved Requester/Provider Communication and Improved Patient Care on page 82) and standards that would allow for clinical data analysis.
- General Practitioners (GPs) would like more patient-specific advice and are happy for this to be on pathology reports. For requesting it must be at the time of making the request.
- Marketing the Royal College of Pathologists of Australasia (RCPA) Manual for Pathology Testing to GPs.
- Address questions from A Study of the Impact of the Use of General Practice Computer Systems on the Ordering of Pathology on page 78 which include:
  - What are the relative ranks of the perceived reasons for observed increases in tests ordered per episode?
  - Does computer prompting help or hinder good practice in pathology ordering?
  - What is the relative value of pathology in GP practice?
  - How much testing is ordered and not done?
  - How much testing is perceived to be repeated unnecessarily?
- Bedside access to IT for multiple purposes (laboratory, radiology, discharge summaries etc.).
• Collect a larger corpora for disease categories that are more complex in their pathology testing and descriptions for synoptic reports from narrative pathology reports.

[alt = “The following table lists the twelve project names and grant recipients under the eHealth Capability theme”]

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Grant Recipient/s</th>
</tr>
</thead>
<tbody>
<tr>
<td>3. Pathology and General Practice Software Integration Project (PaG SIP) (2003)</td>
<td>University of Ballarat and Queensland Medical Laboratory</td>
</tr>
<tr>
<td>6. A Study of the Impact of the Use of General Practice Computer Systems on the Ordering of Pathology (2004)</td>
<td>Michael Legg &amp; Assoc; IRIS Research; University of Wollongong; Dr Ian Cheong</td>
</tr>
<tr>
<td>7. Application of Pathology Informatics to Reporting of Critical/Abnormal Results for Improved Requester/Provider Communication and Improved Patient Care (2004)</td>
<td>Mater Misericordiae Health Services Brisbane Limited</td>
</tr>
<tr>
<td>9. Information Extraction from Narrative Pathology Reports on Melanoma (2008)</td>
<td>University of Sydney</td>
</tr>
<tr>
<td>10. Automatic Compilation of Synoptic Reports from Narrative Pathology Reports (Stage 2) (2010 Submitted with the title: The Pathology Reporter)</td>
<td>University of Sydney</td>
</tr>
<tr>
<td>11. Automatic Population of Synoptic Reports from Narrative Pathology Reports (Stage 3) (Current)</td>
<td>University of Sydney</td>
</tr>
<tr>
<td>12. Standardisation of Pathology Terminology and Units (Current)</td>
<td>RCPA</td>
</tr>
</tbody>
</table>

Table 5: Projects summarised for eHealth Capability


**Description**

The Pathology Informatics Working Party (PIWP) was established in 2003 to develop a policy to assist in the implementation of health informatics for pathology. The Australian Government Department of Health and Ageing (DoHA) funded its first year of operation, and the Royal College of Pathologists of Australasia (RCPA) funded its second year of operation. The Information and Communications Division within DoHA subsequently took over all e-Health activities.
Grant Recipient
RCPA

Aims and Objectives
• to develop an RCPA-endorsed policy for informatics
• to publish useful websites for pathologists in several editions of Pathology Today
• to develop Pathology Informatics education packages for Trainees and Fellows to assist in the dissemination and uptake of Health Online initiatives
• to promote Health Informatics at Pathology Update conferences
• to develop a discussion paper on the role of informatics and the pathologist in patient care
• to represent the RCPA on various committees
• to participate in the activities of HealthConnect through various projects being carried out by Federal and State Health Departments.

These objectives were either achieved or in the final stage of completion when the report was tabled. The PIWP also submitted a Laboratory Decision Support System proposal which was unsuccessful. The RCPA subsequently developed an electronic updated version of the Manual of the Use and Interpretation of Pathology Tests (see Follow On Initiatives and Projects below).

Outcomes
• PIWP was promoted in various ways.
• A discussion paper on the role of informatics and the pathologist in patient care was in development and due to be completed by the new working party when it was constituted.
• Informatics training was to be integrated into the trainees’ specialty curriculum although topics of interest to all trainees will be presented to the group.
• The Chain of Information Custody for the Pathology Request-Test-Report Cycle in Australia (Guidelines for Pathology Requesters and Pathology Providers) report was nearing completion by the RCPA. This report was funded by the Quality Use of Pathology Program (QUPP) but not endorsed by the Quality Use of Pathology Committee (QUPC) as they noted it required further refinement.

Findings
• Informatics and electronic health records are an important and integral part of the future of the Australian healthcare system.
• New approaches to technology will be more readily accepted by a profession if they are introduced as an adjunct to existing professional practice rather than as a new and unfamiliar discipline with its own philosophy and language.
• Incorporating an appropriate level of informatics skill and expertise into the practice of pathology will be facilitated if the contribution of informatics is couched in terms of existing pathology practice.
Follow on Initiatives and Projects

- Revision of Manual of Use and Interpretation of Pathology Tests on page 17 to update its content and make it available via the RCPA website in a format facilitating searching, downloading and incorporation into other software.
- The Chain of Information Custody for the Pathology Request-Test-Report Cycle in Australia (Guidelines for Pathology Requesters and Pathology Providers) report on page 76.


Description
This project sought to develop an on-line maintenance system for pathology request and result code sets. It followed work by Standards Australia to provide a common set of request codes for use by software manufacturers in building systems for the electronic ordering of pathology.

Grant Recipient
University of Sydney

Aims and Objectives
- to review the code set produced by Standards Australia
- to update references to the Pathology Services Table (PST) to allow the code set to be incorporated into the Medicare Benefits Schedule (MBS)
- to build an online facility to cater for multiple purposes
- to use the same platform for other code sets
- to undertake additional work to accommodate pathology result codes.

Secondary objectives were:
- to provide a reference terminology for the coding of pathology requests for research
- to provide a maintained list of “abbreviations” to be used on pathology accounts to meet the requirement of the Australian Health Insurance Act in the identification of the billed procedure.

These aims and objectives were achieved by this project.

Outcomes
- Phase 1 - Conduct a desktop audit to check each code entry in the table set out in the Standards Australia Report against its reference in the Pathology Services Table.
- Phase 2 – Develop an on-line maintenance system for the Pathology Request Code set.
- Phase 3 – Conduct additional work to the on-line maintenance system.
- Phase 4 - Commence hosting the On-line Maintenance Systems (developed in phases two and three of the project) by the University of Wollongong.
• The On-line Maintenance System for the Report Code Set was demonstrated and handed over to Standards Australia IT-14-6-5 for their use in commencing with the maintenance of the for their use to begin the maintenance of AUSPRP the Australian Pathology Report Code set on 7 November 2003.

**Recommendations**

1. Encourage implementation of the lists by pathology practices and the medical software industry.
2. Ensure the use of the code sets in Government projects such as HealthConnect.
3. Incorporate Request Code Set into the MBS.

**Key Project Learning**

• There was more difficulty in getting adequate test code lists than building the web site.

**Follow on Initiatives and Projects**

• Integration with National E-Health Transition Authority (NeHTA) work program.
• Version 1.04 of the Request Code set was incorporated into the update of the AS4700.2 Implementation of Health Level Seven (HL7), Version 2.3.1 Part 2: Pathology orders and results.

**Pathology and General Practice Software Integration Project (PaGSIP) (2003)**

**Description**

This project sought to implement the electronic transfer of pathology orders from general practitioners (GPs), and pathology results back to GPs, using Health Level Seven (HL7) messaging standards and Public Key Infrastructure (PKI) security. The Commonwealth wanted these projects based on the “Australian Handbook on Pathology Messaging using HL7 Version 2.3.1” as published by Standards Australia.

**Grant Recipients**

University of Ballarat; Queensland Medical Laboratory

**Aims and Objectives**

• demonstrate timesaving, effective and consistent ordering of pathology orders
• demonstrate timesaving, effective and consistent transfer of pathology results
• demonstrate an infrastructure and GP desktop processes that enable pathology data to be better handled by the GP
• demonstrate improved accuracy of data capture, facilitate improved pathology workflow and increase accuracy of matching results to orders.
These aims and objectives were only partially achieved due to delays in getting the messaging system installed and working satisfactorily. This resulted in only one GP practice in Ballarat effectively sending and receiving pathology HL7 messages.

Findings
- Code sets would play a useful part in further pathology orders/reports projects.
- The ease of use of the process for ordering pathology tests, and the ability to track ordering of pathology tests, were advantages of this messaging system.
- Delays in the installation process caused some unrest with GPs, however, once the trial commenced and the benefits of the system were demonstrated there was acceptance of the system.

Recommendations
1. The use of HL7 messaging capabilities HL7 2.3.1 should be encouraged within general practice pathology information system providers to facilitate further trials.
2. Incorporate the specified changes to the ‘Pathology Handbook’ as identified in this project.
3. Conduct a workshop for all pathology information systems providers and practice management providers to encourage them to develop HL7 message capabilities to HL7 2.3.1 as a minimum.
4. Conduct a second trial with a laboratory to receive electronic pathology requests and send electronic pathology results. Run the trial over an extended period of time to demonstrate the effectiveness of electronic messaging on practice and laboratory workflow and improved patient care.
5. Use pathology order codes in the ACT Health Information Network Pilot to streamline ordering pathology tests.
6. Implement and trial the use of atomised data to underpin electronic decision support in GP software.
7. Conduct costing of benefits of electronic request processing to pathology practices.

Key Project Learnings
- Procedural issues were many and varied and ranged from those specifically related to the GP practice management software, the laboratory information system, PKI implementations and Argus software.
- The process for obtaining HeSA/PKI location certificates should be streamlined.
- A thorough risk analysis to examine the hardware and software infrastructure of the practice, and a complete review of current work practices, should have been implemented at the commencement of the project.
- At least one GP should have participated in steering committee meetings.
- There should have been closer involvement of Division information technology (IT) staff with Collaborative Centre for eHealth (CCeH) IT staff through the development and installation phases of the project.
- There should have been a closer liaison with GP practice staff, Division IT staff and CCeH IT staff to determine the most efficient method of getting software installed, tested and working satisfactorily.
• Working with general practice in future projects requires considerably more interaction with GPs and their practice staff. This involves complete involvement of practice staff in the project processes, including participation at steering committee level, thorough pre-trial analysis of all workflows, hardware and software configurations and software usage.

• Access to GP practices is problematic due to their very specific times of low activity which were during lunch times and after hours. However, after hours access was difficult to negotiate due to security and confidentiality issues around patient data. This left lunch times as the main access opportunity which resulted in a longer than anticipated installation process.

• Pathology laboratories receive hundreds of specimens daily for processing, and any installations must aim for minimal operational delays.

• Ensure thorough and complete testing is carried out in a laboratory environment prior to installation at test sites. Once testing has been completed, sign off by the appropriate stakeholders is required.

• Implementation of software in future trials needs rigorous testing so that once installed it is operating correctly and risks of software failure are minimised. This is to ensure minimal impact on practice/laboratory workflows and maximum opportunity to achieve stated project outcomes.

• The original project timeframe of six months was too short to achieve the required outcomes. The process of getting all parties to produce the necessary components of the project was more complicated and lengthy than originally estimated. A 12 month timeframe would have given adequate time to engage all stakeholders and have all software working correctly. It would have also given a longer time to run the trial and hence more weight to the evaluation process.

• The trial size and period did not yield large numbers of pathology results and requests being transmitted. This meant the statistical breakdown did not yield sufficient numbers to be useful.

**Follow on Initiatives and Projects**

• Integration of relevant elements into National Pathology Accreditation Advisory Council (NPAAC) requirements and guidelines.

**Areas for Future Consideration**

• Identify the evidence of benefits and incentives for the electronic transmission of pathology requests.

**Chain of Information Custody for the Pathology Request-Test-Report Cycle in Australia (Guidelines for Pathology Requesters and Pathology Providers) (2004)**

**Description**

This project developed guidelines for use by medical practitioners when requesting pathology tests, and for use by pathology providers operating in both public and private practice. They are not prescriptive.

**Grant Recipient**

Royal College of Pathologists of Australasia (RCPA)
Aims
The Guidelines aim to:
- identify who is responsible for ensuring the correct procedures for information integrity and transfer and related processes are followed at each stage of the Request-Test-Report Cycle
- encourage the implementation of sound management systems that monitor the information processes comprising the Request-Test-Report Cycle to ensure the highest standards of patient care are maintained at all times
- ensure patient consent is obtained and privacy is respected
- create a system that provides for quality and safety of healthcare and contributes to improved patient outcomes.

These aims were achieved by this project.

Outcome
- This report was completed with funding by the Quality Use of Pathology Program (QUPP), but was not endorsed by the Quality Use of Pathology Committee (QUPC), as they noted it required further refinement.

Follow on Initiatives and Projects
- Integration of relevant elements into relevant National Pathology Accreditation Advisory Council (NPAAC) requirements and guidelines.

Supporting HL7 for Health Informatics Standards (2004)

Description
Health Level Seven (HL7) Australia requested and was granted funding to organise the selection and attendance of one delegate to participate in the Orders and Observations Technical Committee of HL7 Inc.

Grant Recipient
HL7 Australasia User Group Incorporated

Aims and Objectives
- to ensure a person of appropriate expertise attends the international meetings of HL7 Inc.
- to convey the work being done in Australia and represent Australian interests
- to facilitate the development of draft standards in HL7 messaging for Pathology
- to present new requirements arising from the development of the Standards Australia Implementation Guide (see findings and recommendations below).

These aims and objectives were achieved by this project.

Outcomes
- Mr Richard Harding was chosen as the delegate to attend international meetings of HL7 Inc although his qualifications were not identified in the report.
• Australian pathology or clinical practices, particularly when they varied from US and British practices, were described by Mr Harding during the discussion opportunities at meetings.
• Mr Harding participated in a range of meetings, working groups and teleconferences.

Finding
• It was reported that the V3 Pathology Specification would have an impact on the Australian standards. Some laboratories and hospitals were already flagging their interest in moving to V3 for their pathology messages.

Follow on Initiatives and Projects
• Possible follow up activities through the eHealth and pathology focus in the Pathology Funding Agreement.


Description
There had been an overall increase at the national level in the ordering of pathology tests and in the ratio of pathology tests ordered, between January 1999 and December 2001. This study sought to determine the extent to which the observed increase in the content of an episode could be explained by the increased use of computer systems for the production of pathology requests.

Grant Recipients
Michael Legg & Associates; IRIS Research; University of Wollongong; Dr Ian Cheong.

Aim
• to determine the extent to which the observed increase in the content of an episode could be explained by the increased use of computer systems for the production of pathology requests.

This aim was achieved by this project.

Outcomes
Phase 1
• A qualitative assessment based on focus groups to determine the perception of a change in behaviour and attitudes about pathology ordering. These were held in Brisbane, Sydney and Melbourne in 2001 with participants recruited using local networks of general practitioners (GPs) interested in informatics, or through mass communication by Divisions of General Practice. Participants received a fee of $100 for their contribution.

Phase 2
• A quantitative survey of preference, attitude and stated behaviours of GPs around pathology ordering. Incentives were provided to participate and a high response rate of 41% (613) was achieved. Of these, 91% (557)
consented to the release of Health Insurance Commission (HIC) data for the
time series analysis (Phase 3) which represented an overall response rate of
37%.

Phase 3

- A retrospective time-series analysis of Medicare statistics for two cohorts –
those known to be using computer produced pathology requests and those
using handwritten requests. Pathology requesting data relevant to 532 GPs,
who gave consent for the release of their requesting data as part of the Phase
2 survey, was analysed for the period January 1999 to December 2001.

Phase 4

- A prospective study design around GP computer systems and pathology
requesting recommended in the report is a blinded crossover study to
investigate how GP computer systems might influence pathology requesting
toward best practice.

Findings

Phase 1

- The strongest concerns influencing pathology ordering, apart from clinical
indications, were medico-legal consequences and patient demand.
- Pathology reporting and requesting ranked highly among useful functions.
- GPs commonly learned to use a computer from “trailblazing” GP mentors
who tended to carry a significant burden for their practices.
- GPs learn what they need to give them the best “bang for the buck”.
- Despite the widespread usage of electronic pathology reporting and
requesting, many GPs were not yet prepared to forgo paper.
- Pathology test ordering was influenced by many factors.
- Optional automated decision support and standard terms for requests and
results are seen as desirable.

Phase 2

- 66% of GPs utilise some form of computerised ordering to request pathology,
with 55% using Medical Director (83% of the sub-sample). Many other
statistics were noted in the report, however, the two highlighted were:
  - 75% of respondents reported they ordered neither more nor less
    when using a computerised ordering system, 17% indicated they
    ordered more and only 4% indicated they ordered less.
  - 70% of GPs reported improved patient management arising from the
    use of computerised pathology requesting; 52% reported the level of
    this to be significant.
- Aside from managing patient care, respondents ranked the following factors
from highest to lowest according to the perceived impact on their requesting
behaviour:
  1. medico-legal considerations
  2. patient demand
  3. health bureaucracy and administrative requirements
  4. promotion or advice from pathology practices
  5. business and marketing considerations
  6. ease of ordering.
• There are differences in reported behaviour between practice types: sole practitioners reported being more influenced by pathology practices and health bureaucracy, while those from larger practices reported establishing proficiency earlier.

Phase 3
• There was little evidence that the computerisation of doctor’s pathology ordering systems led to an increase in the numbers of pathology tests ordered per patient incident.
• There was a tendency for some doctors to change their pathology ordering habits during the observation period. This change was not uniform in direction and does not explain the overall increase in ordering noted.
• Changes in ordering rates were inconsistent between the various States and Territories.
• There is no statistically significant difference nationally in the rate of change in pathology tests per episode between those doctors who did not use a computerised system, and those who computerised during the study period.
• The findings from the analysis of Medicare utilisation data did not support the views expressed by GPs in phases one and two.
• It is possible the observed increase in services per episode were caused by some change in the reporting system, such as how the data on services associated with an episode is constructed, or there had been a change in medical practice over this period, or a change to the population being tested such as its relative ageing.

Phase 4
• A blinded crossover study design was provided in the report to investigate how GP computer systems might influence pathology requesting toward best practice. The study design gives the opportunity to further investigate pathology utilisation data and expand on the observed trend of increased services per pathology episode.

General
• GPs find using their computer to request pathology easier than writing, and believe it improves patient care.
• Paperless electronic requests did not seem to be a high priority for GPS since they felt patients still required a piece of paper to take away.
• While the factors influencing pathology ordering (apart from clinical factors) were many and varied, there was general agreement that the strongest were concern for medico-legal consequences and patient demand.
• Software interface design must allow for quick, easy and accurate information entry. Keyboard entry is preferred by those who can type because information can be entered while interviewing the patient.
• Implementation of systems needs to be phased and led by a local champion and mentor.
• GPs find using their computer to request pathology easier than writing, and believe it improves patient care.
• GPs generally don’t understand the importance of clinical notes for pathology practices, and some believe they are not used by the pathology practices.
The greatest uptake of computerised management systems occurs at the beginning of the new calendar year, and at the end of the financial year.

The generation of test groups and panels requires familiarity and higher proficiency with practice management software and is therefore likely to increase over time.

Sole practitioners indicated that promotion or advice from pathology practices has a high impact on pathology requests.

GPs want more analysis of their data and are frustrated with their current system’s capacity to do this.

GPs want their system to prompt actions where appropriate.

**Recommendation**

1. The blinded cross-over study design provided to investigate how GP computer systems might influence pathology requesting towards best practice gives the opportunity to further investigate pathology utilisation data and to shed more light on the observed trend of increased services per pathology episode.

**Key Project Learning**

- Recruitment in the first phase of the study was difficult. Significant support from the Divisions of GPs was required, and perhaps directly from the study organisers, to obtain adequate survey numbers.

**Areas for Future Consideration**

- Optional automated decision support, and standard terms for requests and results, were seen as desirable by GPs.

- Standards for alerts and abnormal results (addressed in Application of Pathology Informatics to Reporting of Critical/Abnormal Results for Improved Requester/Provider Communication and Improved Patient Care on page 82) and standards that would allow for clinical data analysis, were also seen as desirable by GPs.

- GPs would like more patient-specific advice and are happy for this to be on pathology reports. For requesting it must be at the time of making the request.

- Marketing the Royal College of Pathologists of Australasia (RCPA) Manual for Pathology Testing to GPs since most indicated they did not use it, or know of its existence.

- Questions to be addressed from this study include:
  - What are the relative ranks of the perceived reasons for observed increase in tests ordered per episode?
  - Does computer prompting help or hinder good practice in pathology ordering?
  - What is the relative value of pathology in GP practice?
  - How much testing is ordered and not done?
  - How much testing is perceived to be repeated unnecessarily?
**Application of Pathology Informatics to Reporting of Critical/Abnormal Results for Improved Requester/Provider Communication and Improved Patient Care (2004)**

**Description**
This project sought to consider appropriate, effective and timely reporting of critical/abnormal pathology results to providers. This involved communication to the requester or designated physician, and was vital primarily for optimum patient care and for the important issue of avoiding costly litigation. The basis of the approach was to use the functions of the Laboratory Information Management System (LIMS) to incorporate as much of the functionality required as possible.

**Grant Recipient**
Mater Misericordiae Health Services Brisbane Limited

**Aims and Objectives**
- to develop the process initially started in clinical chemistry (Mater Pathology updated their policy on reporting critical/abnormal results 12 months before this project started) to be more sophisticated and reduce the risk of “automatic” acceptance of the notification of an abnormal/critical result
- to introduce the new process into haematology for full blood counts to initially develop and monitor
- to introduce the new process into clinical chemistry for the general chemistries and therapeutic drugs once general acceptance has been obtained in haematology
- to develop critical process for coagulation studies in haematology
- to introduce the use of “phone code” in haematology and monitor
- to introduce “phone code” use into clinical chemistry if successful in Haematology
- to consider introducing into other divisions as time permits
- to reduce the number of critical/abnormal results being missed due to number saturation of the scientists. It would also help ensure continuity when staff changes occur and a requesting doctor or delegate had not been able to be contacted (as can occur during meal breaks or shift changes).

*These aims and objectives were achieved by this project.*

**Outcomes**
- The critical/abnormal results process was due to be commenced in blood bank and immunology at the time of the report.
- The process did not proceed in Cord Blood Bank because of a lack of input into the system, but it was flagged to happen when the information was available and there was time to implement it.
- Very good audit trails were recorded on-line stating who had been contacted, when they were contacted and how often.
- Clinical staff positively noted the increased telephone calls due to the critical result flagging process.
- The rate of success of contacting a responsible person to deliver critical/abnormal results increased from 94% to 97%.
- The system improved the work practices of staff as they developed greater confidence in the flagging system.

**Finding**
- The use of the phone code in microbiology did not produce a significant benefit. This was due to Microbiologists recording their notes in a “silent” field in the actual report which is not finally authorised until all telephone messages and other operations have been completed. The telephone notification system remained the recommended process for ad hoc result reporting.

**Recommendations**
1. Flags set in reports may be used in the future with the laboratory’s Clinical Information System as a means of highlighting the critical results as part of a results management process in the clinical areas.
2. The project would continue in the laboratory in the foreseeable future as the rules and associated processes are refined further.

**Key Project Learnings**
- This project was time-consuming but worthwhile.
- As the project gained momentum, and hardware systems changed for the better, it became more acceptable.
- Determining the percentage of critical/abnormal results reported to the requester was not possible to achieve as a retrospective study.
- It was not possible to measure the impact on patient care in a quantitative manner.

**Padlok On-line Pathology Ordering System (2005)**

**Description**
This project sought to improve laboratory request form documentation.

**Grant Recipient**
Fremantle Hospital

**Aims and Objectives**
- to maximise use of the on-line pathology request system by medical staff
- to demonstrate that use of the on-line system reduces test request errors
- to obtain feedback from users for further development of the application
- to trial and evaluate various ‘add on’ decision support features such as embedded guidelines/warnings
- to investigate useful ways of monitoring test ordering patterns to enable feedback to clinicians
- to determine the adequacy of access to networked personal computers (PCs) in patient areas and the influence this has on use of the pathology request system

*These aims and objectives were achieved by this project.*
Outcomes

- The project achieved a 50% rate of use at the completion of the trial.
- The Padlok post-implementation user survey was conducted in June 2004, and a number of features incorporated into the application as a result.
- In the first nine months of operation the project team concentrated its efforts on two major decision support features in the areas of:
  - inappropriate test requests
  - duplicate/additional forms.
- General physicians were provided with a confidential three-month audit on the average number of tests and the de-identified rates for other physicians. This audit was to be conducted monthly for a number of months to determine if this feedback had an effect on requesting patterns. Test-costs were subsequently provided as well.
- Padlok-only workstations were installed in selected clinical areas and in doctors’ common rooms.

Findings

Advantages

- The main advantage of Padlok is its responsiveness to the requirements of users as they become apparent.
- The study found that if all doctors used Padlok the completion rate of request forms would be close to 100%.

Use

- The use of Padlok tended to periodically drop for about two weeks when junior medical staff rotations occurred, and rose again when new staff were trained to use Padlok.
- Testing was not reduced, although data indicated that inappropriate testing had been reduced.
- Padlok is the preferred method in clinical settings where there is a regular phlebotomy service, while it was quicker and easier to use a hand-written request form in other clinical settings.
- Padlok was used extensively in the Intensive Care Unit where many test requests were routine and repetitive.
- Padlok offered significant timesaving benefits for clinicians who did not have to source patient information themselves, and for the laboratory in terms of rapidly processing requests. Illegibility was also eradicated.
- Padlok was used to a lesser extent in the Emergency Department due to the fast-paced nature of the work not being conducive to doctors leaving their patients to log on to a computer.
- Padlok was used in the wards with most requests being for blood tests collected during routine phlebotomy service rounds.
- The Padlok post-implementation survey revealed only 9% of respondents had trouble accessing computers to use Padlok.

Issues

- There were concerns that making the requesting process easier might have resulted in higher rates of testing and increased numbers of tests per patient, but this did not appear to be the case.
• Clinical staff reverted to requesting on paper forms when access to computers was poor or unavailable.
• There were technical issues with the configuration of Padlok-only workstations. Hospital staff also required access to other hospital systems concurrently when using Padlok, and medical staff preferred workstations with access to multiple systems.
• The installation and maintenance of dedicated pathology test requesting workstations resulted in additional technical and maintenance difficulties for the IT Department.
• The project helped identify practices which were inefficient or unsafe and improved documentation and audit processes.

Recommendations
1. Provide a clinical liaison and programmers/trainers positions.
2. Provide a budget for equipment for maintenance of the system.
3. Padlok could be developed into a paperless system in one year, and nursing elements could be developed concurrently.
4. Explore the means by which doctors can be positively influenced during the requesting process to reduce redundancy, and increase appropriate testing.

Key Project Learnings
• Key to the success of the project was a programmer with a clinical background in nursing and a medical registrar to act as clinical champion.
• Finding a medical registrar for the role of clinical champion was very difficult.
• There were problems with timelines due to various IT-related issues.
• Problems in Specimen Reception were not foreseen, and a laboratory Project Officer was employed towards the end of the project to address these matters.
• Problems in the phlebotomy area were not foreseen, particularly the management of staff with no familiarity of computers.
• The need for nursing staff involvement in the development of Padlok was not recognised until late in the project.
• Doctors were requesting assays for drugs to be given in the future.
• All problems were satisfactorily addressed with working group meetings.

Areas for Future Consideration
• Bedside access to IT for multiple purposes (laboratory, radiology, discharge summaries etc.) is the kind of initiative that will lead to more extensive use of on-line pathology requesting in the future.

Information Extraction from Narrative Pathology Reports on Melanoma (2008)

Description
This pilot study sought to demonstrate that key elements of one type of pathology report (melanoma) could be defined in a structured format. It also sought to demonstrate that hard copy pathology reports could be accurately annotated by trained linguists to indicate the correct structured report elements to support the automatic extraction of those elements.
Grant Recipient
University of Sydney

Aims and Objectives
No specific aims or objectives were included in the report although the executive summary noted:

An analysis has been conducted on pathology reports of melanoma with the purpose of determining if human annotators can reliably identify the contents appropriate for devising methods for the automatic extraction of pathology concepts needed to populate structured reports.

The report’s authors stated all project objectives were achieved, although these objectives were not included in the report.

Findings
- Linguists can reliably produce more consistency than pathologists in annotating a large corpus* of pathology reports.
- The reliability of linguists between each other is consistently higher than between the pathologists, or between a linguist and a pathologist.
- Linguists miss about 6% of the tags annotated by the pathologist, and the pathologists miss about three to five as many assigned by the linguists.
- The findings suggest that once linguists are trained to understand the linguistic features and extent of pathology concepts, they can reliably annotate information to aid the automatic extraction of these concepts in structured pathology reports.
- The study showed only three tags were interpretative and the other 19 tags were directly defined by content. This indicates they may be reliably extracted by automatic computation although it will take further research to establish this is the case.
- The study also highlighted problematic areas of annotating such a large corpus.
- Further refinement of the training process should significantly improve the performance of the linguists to have far fewer misses, and reduce the error rate below 3%.

*corpus/corpora: a collection of naturally occurring language text chosen to characterise a state or variety of language

Recommendation
1. Further research is required to establish the reliability to which these concepts can be defined and therefore annotated correctly.

Key Project Learnings
- More structured meetings between linguists and pathologists would have been beneficial to revise the concept set before annotation of all reports.
- A more structured schedule of concept tag-set revisions would have reduced confusion and improved tag development.
- The study identified issues about the original pathology reports that could prove useful in the education of professional pathologists for their report writing.
Follow on Initiatives and Projects

- A second stage for this project was undertaken to develop software to automatically compile the synoptic reports (Automatic Compilation of Synoptic Reports from Narrative Pathology Reports (Stage 2) (2010 Submitted with the title: The Pathology Reporter))

Automatic Compilation of Synoptic Reports from Narrative Pathology Reports (Stage 2) (2010 Submitted with the title: The Pathology Reporter)

Description

This study sought to develop a software system to automatically extract information from pathology reports for three types of cancers to display information in a synoptic reporting format. It was designed around three report categories: melanoma, skin cancer and lymphoma.

Grant Recipient

University of Sydney

Aims and Objectives

These were not specifically outlined in the report however the following points were extracted from the introduction:

- to complete the construction of an information extraction engine for melanoma
- to annotate skin cancer and lymphoma reports
- to build an extraction engine for skin cancer and lymphoma
- to create a website where anyone could use the extraction engine for testing their own reports.

These aims and objectives were achieved by this project.

Outcome

- The website where anyone could use the extraction engine for testing their own reports has been operating since February 2010 and is available at: http://hitrl.it.usyd.edu.au/~KDKRWorkbench/spr/cgi-bin/spr.py.

Findings

- Lymphoma was more difficult to annotate and was more complex in its description of particular features resulting in slightly lower accuracy for the automatic processing.
- The results highlighted problematic areas of annotating pathology corpora*.
- The effort of recognising the SNOMED CT codes for diagnoses, and the population of the structured report for melanoma, show this work has the potential for improving the automatic processing of prose reports.

Recommendation

1. It will take further research to establish the reliability to which these concepts can be defined and therefore annotated correctly.
**Key Project Learning**
- The gains from this approach are likely to come from disease reports that have a high frequency and are most amenable to producing structured reports.

**Follow on Initiatives and Projects**
- The third stage of this project is currently being undertaken (Automatic Population of Synoptic Reports from Narrative Pathology Reports (Stage 3)).

**Areas for Future Consideration**
- A larger corpora* needs to be collected for disease categories that are more complex in their pathology testing and descriptions.

*corpus/corpora: a collection of naturally occurring language text chosen to characterise a state or variety of language

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**Automatic Population of Synoptic Reports from Narrative Pathology Reports (Stage 3) (Current)**

**Description**
This project builds on the work of the first two stages and aims to build natural language processors that will automatically extract pertinent information and populate a structured cancer report. This system will enable the analysis of narrative reports to identify and extract key content.

**Grant Recipient**
University of Sydney

**Aims and Objectives**
- to build processors for the set of melanoma, skin cancers and lymphoma that can automatically populate the formally defined, structured report
- to add to the system the SNOMED CT encoding of the structured report elements.

*This project is current and the aims and objectives are in the process of being achieved.*

**Recommendation**
1. Due to the results to date which show a less than successful performance for lymphoma, work on lymphoma should be of secondary consideration in progressing this project. The extent of further work on lymphoma will need to be discussed with the Royal College of Pathologists of Australasia (RCPA) and the Quality Use of Pathology Committee (QUPC).
Standardisation of Pathology Terminology and Units (Current)

Description
This project is developing a reference set of standardised pathology terminology with guidelines for their use, and standards for units of measure, to minimise the risks of variation in their use between health professionals and patients. The developed terminology, units and measures will be able to be represented electronically.

Grant Recipient
Royal College of Pathologists of Australasia (RCPA)

Aims and Objectives
- to develop and approve a revised set of standard units of measure to be represented electronically (Standard for Units of Measure)
- to develop and approve standard terminology sets (SNOMED CT, LOINC etc.), including advice for their use (Australian Pathology Terminology Sets)
- to develop a fully specified terminology for the reporting of ‘common’ biochemistry items used in clinical decision support, including advice for its use (standardisation of common biochemistry items)
- to review the protocols for cancer reporting and ensure terminology is available, consistent and able to be used in electronic decision support, including advice for their use (terminology for structured cancer reports).
Pathology Requesting and Reporting – Requester and Consumer Focus

Requesting and reporting are key components of the pathology process and impact on the quality use of pathology. This chapter includes 17 projects (Table 6) which sought to enable medical students and treating practitioners to augment their knowledge and practice of pathology requesting and improve consumer outcomes. Improved reporting methodologies were also explored, and a flow-on benefit in many cases was cost savings.

One of the issues encountered with the successful implementation of a number of these projects was a resistance to change entrenched practices and a lack of funding to provide sustainability to the projects in the longer term. Identifying ‘champions’ who should ideally hold senior medical positions was one consistent strategy identified in this integrated analysis to change entrenched practices.

Other issues encountered in this area include:
- projects involving information technology (IT) were prone to technical problems which increased project timeframes
- lack of pathology training in medical schools
- lack of understanding by pathology requesters regarding the importance of completing pathology request form information.

These projects also collectively identified information, issues and strategies that contributed to an overall knowledge base to promote change and improve future practice. Some projects with successful outcomes but were not sustainable at the time of their implementation may benefit from being revisited as their findings and outcomes are still applicable in the current environment, especially as technology becomes more acceptable as a legitimate health care tool. Other areas for future consideration include:
- Review the AUSLAB projects (pages 94 and 96) with a view to implementing them in states outside of Queensland.
- Explore the options for Personal Digital Assistant (PDA) system implementation in hospital environments.
- Investigate the areas Practice Nurses can assist with information regarding pathology testing and patient education.
- Assess the viability of re-establishing the Quality Use of Pathology Services Education Program (on page 109) in rural medical schools.
- Review the format and content of pathology request forms.
- Investigate implementing an education program which targets the most important errors or omissions on request forms.
- Possible development of a training program/modules to be provided to General Practitioner (GP) Registrars and International Medical Graduates (IMGs), and the need for a training module/s.
- Produce fact sheets covering the area’s highlighted in recommendation no. 6 of the report Enhancing the Quality Use of Pathology for GP Registrars and International Medical Graduates – Assessing the Need on page 113.
- Produce a fact sheet on antibiotic use and bacteriuria for all levels of medical staff, including nurses, to empower them to develop confidence in withholding antibiotics for asymptomatic patients.
- Identify further potential users for *iNvestigate*.
- Develop a standard national definition of ‘appropriate’ pathology use.

[alt = “The following table lists the seventeen project names and grant recipients under the Pathology Requesting and Reporting – Requester and Consumer Focus theme”]

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Grant Recipient/s</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Guidelines for Patient/Consumer Access to Pathology Test Reports (2001)</td>
<td>Quality Use of Pathology Committee (QUPC)</td>
</tr>
<tr>
<td>2 AUSLAB Retest Interval Trial Project (2003)</td>
<td>Queensland Health Pathology &amp; Scientific Services</td>
</tr>
<tr>
<td>3 AUSLAB Retest Interval Project (2004)</td>
<td>Queensland Health Pathology &amp; Scientific Services</td>
</tr>
<tr>
<td>4 Home Monitoring of Warfarin Therapy in Children using the Coaguchek™ Point of Care INR Monitor (2003)</td>
<td>The Royal Women’s Hospital and the Royal Children’s Hospital</td>
</tr>
<tr>
<td>5 Facilitating Best Practice Pathology Utilisation by the Use of Hand-Held Decision Support Devices (2004)</td>
<td>Flinders Medical Centre</td>
</tr>
<tr>
<td>6 Improving GP Access to and Use of Retrospective and Current Pathology Data to Increase Detection of Early Diabetes (IGT and IFG) in General Practice (2005)</td>
<td>Fremantle Regional GP Network</td>
</tr>
<tr>
<td>7 Quality Use of Pathology Services Education Program (2006)</td>
<td>University of Sydney</td>
</tr>
<tr>
<td>8 Investigation into the Reasons for Incorrect or Incomplete Pathology Request Forms (2008)</td>
<td>Royal North Shore Hospital</td>
</tr>
<tr>
<td>9 Enhancing the Quality Use of Pathology for GP Registrars and International Medical Graduates – Assessing the Need (2009)</td>
<td>University of Adelaide</td>
</tr>
<tr>
<td>10 Effect of a Structured Microbiology Laboratory Report on Antimicrobial Prescribing for Asymptomatic Bacteriuria in Elderly Females (2010)</td>
<td>Flinders Medical Centre; South Australia Pathology</td>
</tr>
<tr>
<td>11 Identifying how Electronic Decision Support (EDS) in Computerised Pathology Order Entry Systems can Improve Pathology Practice, Rational Ordering and Patient Outcomes (2010)</td>
<td>University of Sydney</td>
</tr>
<tr>
<td>12 The Impact of the Implementation of Electronic Ordering of Pathology Requesting and the Quality and Effectiveness of Hospital Pathology Services – Building a Robust Evidence Base and Benefits Framework for Successful e-Health Diffusions (Current)</td>
<td>University of New South Wales</td>
</tr>
<tr>
<td>14 <em>iNvestigate</em>: Online Patient Simulations for Education in the Rational Use of Investigations – Final Report for Phase 2 (2011)</td>
<td>University of New South Wales</td>
</tr>
<tr>
<td>15 <em>iNvestigate</em>: Online Patient Simulations for Education in the Rational Use of Investigations (Current)</td>
<td>University of New South Wales</td>
</tr>
<tr>
<td>16 Encouraging Quality Pathology Ordering in Australia’s Public Hospitals (2011)</td>
<td>National Coalition of Public Pathology (NCOPP)</td>
</tr>
</tbody>
</table>
Guidelines for Patient/Consumer Access to Pathology Test Reports (2001)

Description
This paper sets out guidelines for pathologists where a consumer/patient decides to seek access to pathology test reports directly from the pathology provider. They were written in response to amendments to the Commonwealth Privacy Act 1988 which came into force on 21 December 2001. These amendments allowed a Commonwealth statutory basis for patients/consumers to request and obtain access to health information by themselves that is held by organisations, including from pathologists. They extended this to the private sector as legislation was already in place in some States and Territories for providing access to medical records. Each organisation holding personal information was therefore required under the legislation to have procedures in place to accommodate these new requirements.

Grant Recipient
Quality Use of Pathology Committee (QUPC)

Aim
• to provide guidelines for pathologists where a consumer/patient decides to seek access to pathology test reports directly from the pathology provider.

This aim was achieved by this project.

Findings
• The QUPC supports the general principle that patients/consumers should consult with their treating practitioner before directly approaching the pathology provider for access to pathology test reports.
• The QUPC recognises that the primary advice relationship is between the patient/consumer and the requesting practitioner who is in the best position to interpret the pathology test reports within the context of the patient’s/consumer’s history, and all other information including other diagnostic procedures.
• In circumstances where the patient/consumer decides to seek (obtain) direct access to pathology test reports, the QUPC encourages pathology providers and requesters to follow the process set out in recommendations two to five below.

Recommendations
1. The patient/consumer should always, in the first instance, approach the requesting practitioner for access to their pathology test report.
2. Subject to the policy and procedures which it has put in place to deal with the
new legislative requirements, where the patient/consumer contacts the
pathology provider directly for access to the pathology test report, the
pathology provider should recommend that the patient/consumer contact
the requesting practitioner. In most instances, the requesting practitioner
will provide a copy of the pathology test report to the patient/consumer with
an appropriate interpretation.

3. If the patient/consumer requests access to the pathology test report from the
pathology provider, then the pathology provider should consult with the
requesting practitioner to ascertain whether or not a copy of the pathology
test report should be provided by the pathology provider directly.
   - If the requesting practitioner agrees that the pathology provider should
     provide a copy of the report, then it is recommended that the pathologist
gives a printed copy of the report to the patient/consumer and sends a
copy to the requesting practitioner with a dated notation that a copy of
the report has been provided to the patient/consumer.
   - The pathologist should keep documentation of the discussion with the
     patient/consumer. If the patient has any questions concerning their test
results, the pathologist should direct the patient/consumer to raise these
issues with the requesting practitioner.
   - If, after discussion with the requesting practitioner, the pathologist
determines the results should not be provided, then the pathologist
should advise the patient/consumer that the results are being withheld.
The reasons for not providing the pathology test report directly to the
patient/consumer should be conveyed to the patient/consumer, preferably in writing and signed by the pathologist. Reasons for
withholding health information, including pathology results, as provided
for in the Privacy Act, include:
   - a serious risk to the life or health of the individual
   - that the privacy of others may be affected
   - that the request is frivolous or vexed
   - existing or anticipated legal proceedings
   - that access would be unlawful
   - that denying access is required or authorised by or under the law
   - law enforcement and national security reasons
   - commercially sensitive evaluative information.

4. If the pathology provider determines that the pathology test report should
not be released directly to the patient/consumer, for reasons the pathology
provider considers to be in accord with the Privacy Act and any other
relevant legislation, and the patient/consumer still desires a copy of the test
results, then the pathologist should advise the patient/consumer to submit a
written request to the requesting practitioner. (This is recommended on the
basis that the requesting practitioner is likely to be the best person to
determine whether the provision of the pathology test report to the
patient/consumer would constitute a serious threat to the life or health of the
individual).

5. If the pathology provider and the requesting practitioner refuse to provide a
copy of the pathology test report to the patient/consumer, the
patient/consumer can seek redress through the Health Care Complaints
Commission or the complaint mechanism provided under the new privacy legislation.

**AUSLAB Retest Interval Trial Project (2003)**

**Description**
The AUSLAB laboratory information system is implemented in 34 public pathology laboratories across Queensland. Over 20,000 tests are ordered per day on this system. Certain tests are frequently repeated on the same patient within an inappropriately short time period, mostly because the requesting doctor does not realise the test has already been requested/performed. The Retest Interval functionality in AUSLAB was trialed and activated for three months at Rockhampton Base Hospital and Logan Base Hospital for the following tests judged to be the most suitable for this intervention:
- antinuclear antibodies (ANA)
- folate
- glycosylated haemoglobin (HbA1c)
- Hepatitis C antibody (HCV Ab)
- iron studies
- lipids (cholesterol, triglycerides, +/- HDL)
- syphilis serology (RPR, TPHA)
- thrombophilia screen
- Thyroid function tests (TFTs)
- Vitamin B12.

**Grant Recipient**
Queensland Health Pathology & Scientific Services (QHPSS)

**Aims**
- to implement the retest interval functionality in AUSLAB to prevent over ordering of pathology requests
- to notify medical staff if their pathology request is contraindicated due to recent previous test.

*The first aim was achieved by this project although the report did not specifically state if medical staff were notified if their pathology request was contraindicated.*

**Outcomes**
- The project saved $4,494.90 over three months by rejecting pathology tests that had already been ordered.
- The project was very successful in stopping pathology re-ordering for tests already ordered within a pre-determined time frame.
- The most common pathology tests rejected using the interval were:
  - TFTs 5.8%
  - HbA1c 12.0%
  - lipid profiles 8.9%.
- The benefits realised were:
  - a 6.2% decrease in the amount of inappropriate ordering of the pathology tests selected in the trial.
• improved communication resulting in increased awareness between requestors and pathologists
• changes to pathology ordering patterns by senior clinicians
• alteration to chemistry pathology ordering criteria of renal patients at Rockhampton Base Hospital.
• significant additional requests for supplementary tests to be added to the intervals.

- The number of “Retests” decreased over the three months of the trial at both Logan Base Hospital and Rockhampton Base Hospital.
- There were two reported cases of medical staff phoning the laboratory and requesting additional testing on a sample that had originally been rejected by the retest algorithm at Logan.

Findings
• Using the current test codes in the retest project would save an estimated $18,000 per year in unnecessary pathology ordering at Rockhampton and Logan district health services in 2003. An estimated $360,000 per year would be saved in unnecessary pathology ordering if these were expanded to the whole of Queensland Health. If extra test code intervals were added the potential saving could be greater than $500,000 per year.
• The reasons tests were re-ordered can be summarised in three main areas:
  o medical staff were unaware the test had already been ordered by another clinician due to not having access to AUSLAB terminals, the information was not recorded in the patient’s chart and the lack of clinical information system or ward ordering system
  o junior medical staff attempting to be sure they had ordered ALL tests required by their consultant. This may be due to a culture in some clinical environments were junior medical staff are reprimanded for not ordering the appropriate pathology tests
  o clinical practices that order “default ordering” in certain areas. For example, renal patients have lipids ordered when any other chemistry test is ordered.

Recommendations
1. A subsequent project is supported to implement the AUSLAB Retest Interval functionality at all QHPSS laboratories.
2. Investigate the option of expanding the range of tests.
3. A review of the project at Logan Base Hospital identified the following requests (subject to finding for a project officer to expand the retest algorithm) by medical staff:
   a. additional testing length’s be added to the test codes used in the trial
   b. additional tests be added to the AUSLAB algorithm
   c. a central contact be provided for managing changes and new requests.

Key Project Learnings
• Senior clinical staff at Rockhampton and Logan applauded the trial.
• There were five requests by other districts to implement this function.
• There was no significant impact on other QHPSS laboratories.

Follow on Initiatives and Projects
AUSLAB Retest Interval Project (2004)

Description
This project extended the AUSLAB retest interval trial project to 33 Queensland Health laboratories with over 25,000 tests ordered per day on this system.

Grant Recipient
Queensland Health Pathology & Scientific Services (QHPSS)

Aim
- to implement a process for intercepting inappropriate pathology.

This aim was achieved by this project.

Outcomes
- QHPSS implemented the RETEST interval system in all 33 laboratories, and as a result all public Queensland Health requests for tests targeted by the project were subjected to the RETEST algorithm.
- Additional tests codes to the RETEST interval algorithm were implemented.
- An accepted and approved method for the interception of inappropriate pathology orders has been implemented across Queensland Health.
- The RETEST algorithm is now an accepted business process for QHPSS in every hospital across Queensland Health.
- Development of a best practice process for selection of pathology tests by medical staff.
- Development of a laboratory procedure for tests that are subject to a RETEST Interval in AUSLAB including a process to assess and analyse the tests that haven’t been ordered within the acceptable retest interval.
- Development of a survey tool to measure the extent of unnecessary repeat ordering across the state.
- Awareness and training in appropriate pathology ordering and testing for QHPSS and medical staff.
- Extraction of data that measures the utilisation of public pathology services.
- Presentations have been made to other AUSLAB sites across Australia during annual AUSLAB user group meetings.

Findings
- The project was saving considerable amounts of money each month for Queensland Health. Direct savings at the time of the report were almost $150,000, and above $10,000 per month.
- Data from all sites involved in the project showed the retest functionality has seen some reduction in the overall test codes ordering used in the RETEST project, although this was not uniform across all sites. Many external factors, such as hospital activity, must be analysed before more formal conclusions could be determined.
- Analysis indicated the liver function test (LFT) was over-ordered; 8% of all of these tests in Queensland were on the same patient on the same day.
However, the Chemical Pathology Committee did not approve of this test code being added to the interval algorithm.

- Thyroid function test (TFT), glycosylated haemoglobin (HbA1c) and cholesterol (lipids) were the most commonly over-ordered or repeated tests in the project. Requests for these tests were successfully intercepted by this project.
- Almost all sites experienced a reduction in the number of tests rejected as a result of the RETEST program. Ipswich experienced a marked increase in the number of RETESTs ordered in the pathology department, with no explanation able to be found for this increase.

**Key Project Learnings**

- There was one formal complaint received by the project staff from a senior medical consultant which was handled by the Director of the Division the test came under. A configuration change was made to the test report to indicate the test was subjected to a RETEST interval, even though this is also indicated on rejected reports.
- There were difficulties experienced in engaging some areas of QHPSS, including additional new tests for consideration.
- The project was perceived to be a poor business decision costing income from areas with QHPSS.
- Shortages in qualified AUSLAB configuration staff impacted on the speed that new tests could be implemented.
- A project of this type must be driven by the clients of the pathology service (i.e. doctors) not business managers, accountants or pathologists.
- It was the support of the senior clinicians at each site that encouraged almost all other clinicians to accept the changes to the pathology ordering process.
- Complaints and education must be handled correctly and promptly to ensure smooth acceptance during the implementation phase.
- Getting engagement from the largest facility in Queensland Health (Royal Brisbane and Royal Children’s Hospitals) for an implementation meeting was difficult due to constant change in district management and medical administration.
- When the program was accepted in some of the major hospital sites (e.g. The Prince Charles Hospital and The Princess Alexandra Hospital) then other sites around Queensland became very willing participants in the project.
- Difficulties were experienced in gaining approval for new tests for the algorithm from chemical pathology and haematology. The reduction in the RETEST Interval for TFT and HbA1c was unfortunate but accepted as the decision was made by the committee within QHPSS for expert advice on chemical pathology testing.
- The implementation of the New Tests – Microbiology Test code URINE - required modification to work practice in the laboratories.

**Area for Future Consideration**

- Review the AUSLAB project with a view to implementing it in other states.
Home Monitoring of Warfarin Therapy in Children using the Coaguchek™ Point of Care INR Monitor (2003)

Description
Previous research performed by the Royal Children’s Hospital (RCH) had shown the Coaguchek™ INR (international normalised ratio) monitor was reliable and accurate when used to monitor children within the hospital environment. This study aimed to determine if this outcome was achievable in the home environment. All children receiving warfarin therapy managed by the Haematology Department of the RCH were invited to participate. Sixteen families responded and all were accepted into the study as funds were available for up to twenty children. Fourteen families completed all of the requirements.

Grant Recipients
The Royal Women’s Hospital and the Royal Children’s Hospital

Aim
- to determine the safety and efficacy of a home monitoring program facilitated by a comprehensive education package to families.

This aim was achieved by this project.

Outcomes
- INRs performed by parents at home correlated very well with INRs performed in the hospital by dedicated pathology collection staff.
- The home INR (H-INR) results would have produced a different management plan than the control INR (C-INR), taken at every second test point, on three test-points out of the total number performed.
- All parents completed the education and training program associated with this program.

Findings
- 28% of parents understood their child’s indication for warfarin therapy at the commencement of the education program, which increased to 93% at the completion of the program. 85.7% maintained this knowledge at the six-month reassessment.
- Most parents rated the program 10 out of 10, and all stated they would like to continue performing INR tests on their child in their home.
- The estimated total cost of performing an INR at home is $13.56 plus 10 minutes of parental time.
- The estimated total cost of performing an INR in hospital settings is $21.96 plus about one hour or more of parent time as well as community impact time.
- Home monitoring of warfarin therapy is associated with reduced cost compared to hospital-based monitoring.
- There is no avenue to support the cost of ongoing home monitoring of warfarin therapy and it does not receive any form of funding.
- Home monitoring of warfarin therapy is unlikely to be widely used, despite the significant savings, unless infrastructure is offered to support this activity.
Recommendation
1. Develop a “self-monitoring” program where patients of sufficient age are taught to perform their own tests.

Key Project Learning
- Several parents noted they had early problems getting a sufficient sized drop of blood to perform the INR test. This problem can be overcome through education about technique.

Follow on Initiatives and Projects
- Further testing of the safe use of POCT devices as part of the Point of Care Testing in General Practice Trial

Facilitating Best Practice Pathology Utilisation by the Use of Hand-Held Decision Support Devices (2004)

Description
This study sought to prove that the quality use of laboratory testing could be improved by the use of an electronic clinical decision support system for requesting diagnostic laboratory tests which provided the user, at the time of clinical decision-making, with:
  - best practice test selection for the clinical problem
  - relevant past test results.

Grant Recipient
Flinders Medical Centre

Aims
- to investigate if the utilisation of laboratory tests could be improved by requesters using wireless-enabled personal digital assistants (PDAs) that:
  - provided past test results
  - recommended tests and guidelines on excessive frequency of repeat testing ‘at the bedside’
  - identified features to encourage the above outcome
- to encourage the use of best practice test utilisation by developing software that:
  - utilises wireless-enabled PDAs to provide medical staff with electronic support at the time of clinical decision-making
  - integrates best practice test selection and relevant previous test results with minimum re-test intervals for each selected patient
  - downloads the final test selection to locally generate a pathology request.

These aims were achieved by this project.
Objectives

- to increase knowledge about the development and implementation of intelligent electronic communication between pathology requesters and providers
- to identify those features that will facilitate broad application and user acceptance of the model to improve pathology utilisation

Path-Pilot System

- to identify suitable wireless transmitter and PDA devices
- to identify suitable commercial software to establish communication between hospital servers and PDAs
- to design PDA screens to facilitate user requirements and workflow
- to create software to generate PDA screens, capture and display patient and pathology data from hospital servers and record user activity

Trials

- to design clinical condition 'trees' and associated recommended tests
- to obtain clinical/laboratory consensus for test minimum re-test intervals
- to obtain participation in pilot trials by medical staff in a general medicine unit
- to collect test requesting activity data with/without the Path-Pilot system.

These objectives were achieved by this project although wireless reliability problems, thought to be associated with mandatory encryption requirements, precluded more extensive test utilisation data within the project timeframe.

Outcomes

Implementation

- PDAs were provided to general medicine interns, resident medical officers (RMOs) and registrars working in one or more of the wards with wireless coverage. Users were trained in the use of the PDA and the project software system (Path-Pilot). The software was updated with the names of new users so the PDA was ‘personalised’ for each user. In the event of hardware/software problems, users had access to technical support from a project team member via a dedicated pager.
- The user selects the patient of interest by a single stylus tap on the screen to view the test results uploaded for the selected patient. An upper scrollable panel displayed the dates and test mnemonics of results available for viewing. The selected test data was displayed on screen in a cumulative format, with reference values also displayed and abnormal values displayed in red.
- Biochemistry, haematology, immunology, pharmacology and microbiology results were included in the trial, while transfusion medicine and histopathology were not included in the system.
- Tests to assist with an initial diagnostic investigation could be requested via a screen (called ?Diagnosis) that displayed a ‘tree’ of clinical problems/conditions relevant to the general medicine unit. Each clinical problem/condition was associated with a list of tests jointly recommended by the head of general medicine and the pathology service.
- There was a Routine Management option for patients who required on-going management.
- By April 2004, the basic system developed had the capability to:
o utilise wireless technology to download the basic identification details of general medical inpatients allocated to a selected ward or clinical unit (surname, given name, unit record number and bed number) to PDAs
o download and display recent pathology test results for a selected patient
o provide recommended best practice testing for clinical conditions selected from clinical condition trees
o allow further tests to be selected from the laboratory menu
o suppress recommended or added tests if there were conflicts with minimum re-test intervals
o local print of test request forms wirelessly.

- Any deficits in the system, such as tests missing from the menu, could be overcome by writing on the generated request forms.
- Each trial period lasted two to four weeks, depending on the level of technical problems and user cooperation, with feedback obtained by face-to-face debriefs based on a questionnaire. This was followed, where technically feasible, by an upgrade of features for which there was a reasonable level of user consensus. Three of these development cycles were completed in the period May-December 2004 involving a total of approximately 20 medical staff.
- The majority of tests in the Path-Pilot system were associated with ‘minimum re-test intervals’ (MRI) which were defined as the time period within which a repeat test was very unlikely to be of clinical or diagnostic value.
- Of all the user selected and user added tests/panels (2835), 170 (6%) did not proceed to a laboratory request due to MRI guidelines, and a further 147 (5.2%) did not proceed to a laboratory request due to the user de-selecting the test. The total number of tests/panels reinstated by users was 246 (8.7%).
- The limited data suggested that PDAs were used to view test results (62%) more often that to request tests (38%).

Costs
- Even a minimum reduction of 5- 6% of test requesting represents a significant marginal cost saving for medium to large laboratories, and for Medicare pathology service rebates.

Issues
- The Path-Pilot system incorporated a clinical conditions tree designed by an Emergency Department consultant, but to date organisational factors have precluded a trial.
- The level of ‘inappropriate’ repeat testing was small relative to levels commonly reported in large studies which may be due to:
  o the users were well-versed in appropriate test utilisation
  o participation in the trials caused a change in usual requesting behaviour. This will be explored when the original pre-and Path-Pilot intervention is undertaken when the connectivity problems are resolved.

Feedback
• Feedback indicated that *Diagnosis* was most used when patients were in the admission ward and being worked up, while the *Routine Management* option was used for the ongoing management of already diagnosed patients.

• All trial users were positive about the usability of PDAs and generally considered their use would be routine in the near future.

• All users found the alerts for minimum retest intervals useful. Several users suggested it would be useful to have selectable pop-ups to provide more detailed information about test MRIs.

• There was a marked contrast in user habits. Some interns used them on ward rounds while some batched requests at the end of the day.

• All users found flagging of unnecessary repeat tests helpful (MRIs).

• Both specimen collection nurses and laboratory specimen reception staff reported that they found the printed request forms to be a significant improvement to their regular forms, citing legibility of the requester’s identity, 100% completion of ward location, date of request, date of required collection and tests requested. A formal survey was not undertaken.

• A ward pharmacist expressed interest in trialling a Path-Pilot PDA to access pathology results at the bedside when prescribing.

**Findings**

• Valuable information was obtained concerning user profiles, pathology decision support preferences and paths for further development.

• The basic concept of providing mobility with the ability to access test results and request laboratory tests was well received and viewed as becoming an additional work tool in the near future.

• Limited data captured during trials indicated the Path-Pilot system can improve test utilisation.

• The degree of value of the system depended on the user role in the clinical units and the work pattern of the user/unit.

• The majority of users cited the following advantages with the Path-Pilot system’s ability to view results:
  
  o rapid access to results during ward rounds
  
  o no need to leave ward rounds to access the latest results from desktops in the ward station/office
  
  o the ability to review patient results at the end of the shift without waiting to access ward desktops
  
  o the ability to check urgent test results when absent from the patient’s ward.

• There was a clear positive impact on test utilisation through the use of the Path-Pilot system, although it was not clear if this effect would be sustained in the long term.

• Uptake of the Path-Pilot will be gradual, and generally parallel increasing system reliability and peer use.

• User feedback clearly identified that a critical factor to uptake by medical staff in a hospital environment is the extent to which convergence of both information sources and communication can be achieved (as outlined in the recommendations below). Most users viewed the PDA as a future multi-function tool that would contribute to improving their effectiveness and efficiency in clinical work.
• The frequency of use clearly reflected the hierarchy of the clinical users, with junior staff being the relatively high users, and registrars being infrequent ‘one-off’ users. The latter group reported this function was of positive value.

• Different views were expressed in terms of the PDA’s value for work activities.

Recommendations

1. Suggestions for further development of the pathology module include:
   a. the ability to enter test requests for specified patients during ward rounds, and hold pending review and ordering at the end of a shift
   b. expand requesting capability to other specimen types e.g. faeces, pleural fluids
   c. include more diagnostically targeted test panels in the Routine Management option, e.g. ‘bone’, ‘stroke’, ‘pneumonia’, ‘septic’, ‘diabetic’
   d. the ability to customise clinical problems lists to profile the user’s clinical unit such as on-going management testing for clinical problems as opposed to diagnostic work-up testing as done for an admission work-up
   e. the option to increase cumulative results display by having reference values as ‘pop-ups’, or L/R scrolling
   f. access to electronic laboratory handbook
   g. a ‘pop-up’ option to view specimen collection requirements
   h. a field for providing times for dynamic function testing
   i. a field for providing patient status e.g. fasting.
   j. increase test menu entries to cater for common name variants e.g. FBE/CBP, ammonia/NH3 etc.
   k. the option to customise the test menu e.g. commonest tests at top, alphabetic, commonest of each lab at top etc.
   l. provide diagnostic pathways for investigating specific conditions
   m. provide lists of causes of abnormal tests accessible selectable from a pop-up list from test result.

2. Suggestions for further development of PDA functionality include:
   a. access to radiology reports and discharge summaries
   b. access to clinical pathway protocols
   c. access to Path-Pilot module on own PDAs
   d. converge hospital pager system to PDA
   e. access to commonly used risk predictor software
   f. access to personal subscription clinical information databases
   g. access to hospital intranet, staff directory, medical officers handbook etc.

3. There is a need to upgrade the activity audit function within the Path-Pilot software to enable discrimination between use of clinical condition trees and routine management option.

4. There is a need to automatically capture more data on the tests captured by MRI guidelines, particularly by which option they were presented for user review.

5. Many users suggested that additional support tools that provided pathology information, such as diagnostic pathways and causes of abnormal tests, would be valued.
Key Project Learnings

Users

- Nearly all clinical participants were positive about the concept of combining pathology decision support with mobility, and found test recommendations and minimum re-test interval alerts to be of value.
- The majority of users considered the personal digital assistants will increasingly become routine multi-purpose tools in their clinical work environment.
- Interns and RMOs are rotated through clinical units every eight to ten weeks at Flinders Medical Centre. It was found to be important to introduce the Path-Pilot system to medical staff at the commencement of a rotation otherwise they learned to use the normal paper-based test requesting system and were generally reluctant to change their work practices part-way through their clinical attachment to the unit.
- Several participants felt their workloads precluded full participation in the trial.
- The device was difficult to carry comfortably, especially for females if they didn’t have pockets and/or belts.

Information Technology (IT)

- Wireless reliability problems, thought to be associated with mandatory privacy encryption requirements, precluded more extensive test utilisation data collection within the project timeframe.
- The debriefings revealed a general dislike of “computing/IT gadgets.”
- Bringing together a variety of computing systems and software covering the PDA itself, wireless transmission and coverage, hospital servers and information systems, and privacy requirements involving off-site Department of Health servers posed problems that took significantly longer to resolve than expected.
- There were problems with first-try wireless connection by PDAs.
- The technical problems, particularly related to connection reliability, stretched the goodwill of busy junior medical staff for a large part of the project.
- Wireless use significantly drains PDA battery power and connection is generally lost when power falls below 30%. This was a problem for some users, but not for others.

Project Design and Implementation

- It was clear in the early phase of the project that two to three medical staff and about 20 inpatients in the general medicine unit co-located with the Renal Unit would provide inadequate data exposure for developing the pilot system. It was therefore expanded to engage all interns, RMOs and registrars in the general medicine unit working across three inpatient wards.
- Flinders Medical Centre also underwent a continuous period of change in 2004 which caused disruption to the Path-Pilot trials and data collection when medical staff and patients moved to areas necessitating the re-location of the wireless transmitter.
- The return rate of feedback questionnaires about the Path-Pilot system was very low at the beginning of the trial, so feedback was changed to a face-to-face interview based around the questionnaire.
• The study originally aimed to compare test utilisation (choice and volume) by medical staff using both the normal paper test request system and Path-Pilot. This approach was confounded by:
  o less than 100% reliability of PDA wireless connectivity at first attempt, and time taken to re-establish connectivity, caused some users to not fully participate in the trials
  o work pressures of junior medical staff caused some users to participate irregularly
  o re-structuring of ward/clinical unit locations and patient profiles
  o personal dislike of electronic ‘gadgets’ by several users.
The combined effect of these factors was to prevent active users being located in the same clinical unit for sufficient time with satisfactorily operational PDAs to enable sufficient collection of data to allow meaningful statistical comparisons. It was therefore decided to collect all activity data generated by users when utilising Path-Pilot regardless of ward location and period of activity.

Follow on Initiatives and Projects
• Possible further focus on electronic decision support will occur under the Pathology Funding Agreement.

Area for Future Consideration
• Explore the options for PDA system implementation in hospital environments.

Improving GP Access to and Use of Retrospective and Current Pathology Data to Increase Detection of Early Diabetes (IGT and IFG) in General Practice (2005)

Description
This project sought to look at education strategies for improving the detection and management of pre-diabetes in general practice.

Grant Recipient
Fremantle Regional GP Network

Aims and Objectives
• establish current and best practice Request-Test-Report practice and identify gaps from both the pathology laboratory and the general practitioner (GP)
• establish the basis for GP learning which will enable them to improve their role and performance in the Request-Test-Report cycle
• establish current practice and prepare GPs for improved knowledge and practice
• provide opportunity for GPs to build on their improved knowledge and changes to communication systems in order to improve compliance with existing guidelines and the use of disease registers and recall systems.

These aims and objectives were achieved by this project.
Outcomes

- Detailed mapping of current practice in detection and management of pre-diabetes through focus groups, GP clinical audit activity and retrospective pathology reports. Best practice was established through a literature review and consultation with diabetes organisations and experts in the field. Gaps were then identified and an education plan developed and implemented.
- Key recommendations arising from the outcomes of the mapping of current practice were developed and sent to all major pathology laboratories operating in the Fremantle Division boundaries in February 2005.
- Development and implementation of a range of education opportunities for GPs and Practice Nurses (PNs) on the prevention of diabetes.
- GPs were prepared for improved knowledge and practice by completing Phase 1 of the clinical audit, receiving an individual and group report of their results from the clinical audit, and reflecting on their current practice by completing a reflection and action plan.
- Education opportunities for GPs included:
  - register and recall education
  - workshops
  - phase 2 of the clinical audit
  - receipt of regular retrospective pathology reports
  - best practice guidelines and patient resources.
- Development, distribution and evaluation of best practice guidelines on the detection and management of pre-diabetes for general practice.
- Development, implementation and roll out nationally of a five stage clinical audit for GPs on the detection and management of pre-diabetes.
- Presentation of project resources at the 2004 Australian Diabetes Society (ADS) – Australian Diabetes Educators Association (ADEA) National Conference in Sydney.
- “The Practical Management of Pre-diabetes – A Guide for General Practice” was completed in mid-June 2004 with 803 copies distributed throughout Australia as of 29 April 2005.
- A patient information leaflet was developed in July 2004 with 4,892 copies ordered by GPs, PNs and Divisions of General Practice by 19 April 2005.
- Sample copies of the pre-diabetes resources, along with an order form, were sent to all Divisions of General Practice in Australia in October 2005, with orders for multiple copies received from nine divisions.
- The clinical audit was redesigned and submitted to the Royal Australian College of General Practitioners (RACGP) for accreditation to be run nationally.
- The clinical audit was offered to all Divisions of General Practice in Australia in March 2005 with 65 divisions ordering copies as of 29 April 2005.

Findings

- This pilot project demonstrated the successful implementation of a whole-of-practice approach to improving the detection and management of pre-diabetes in general practice.
- Participant GPs changed their clinical practice in relation to measurement of weight, Body Mass Index (BMI) and waist circumference in patients at risk of diabetes.
Over 50% of GPs stated they had changed their practice as a result of participating in the clinical audit.

Data from entry and exit questionnaires show 67% of GPs had a register and recall system for pre-diabetes as compared to 42% prior to the clinical audit.

More practices have an effective register and recall system in place for patients with impaired fasting glucose (IFG)/impaired glucose tolerance (IGT) to ensure they are tested regularly for the onset of Type 2 diabetes.

**Recommendations**

1. All Division programs should adopt a whole of practice approach in all projects in order to address all stakeholders in general practice rather than just focusing on the general practitioner.
2. Offer future clinical audits during the first or second year of the RACGP Quality Improvement & Continuing Professional Development Program (QA & CPD) triennium.
3. GPs who enroll in the QA & CPD should be required to complete Phase 1 and Phase 2 of the clinical audit, as there is significant educational value in completing Phase 2.
4. Ensure there is a clear understanding with project stakeholders of the timeframe when putting in a funding submission to ensure that circumstances do not change significantly between project planning and project implementation.
5. Continue to review current literature on best practice for the management of pre-diabetes to ensure resources remain up to date and relevant.
6. Offer the clinical audit to GPs every three years. This will ensure the GP Network has a current and accurate picture of gaps in the management of pre-diabetes. As the tools are already developed this would not be a time consuming exercise.
7. Continue to identify methods to overcome the barriers identified by general practice in the detection and management of pre-diabetes.
9. Joint Guidelines from the Australian Diabetes Society – Australian Diabetes Educators Association are due to be formalised shortly. These should be incorporated into the current resource as a tear out page.
10. Offer a variety of regular education and upskilling activities to general practice on the detection and management of diabetes.
11. Offer funds to Divisions of General Practice across Australia to implement the clinical audit and associated educational activities.
12. Pathology laboratories offer, as part of their service to general practice, the regular provision of practice level data on test results of all types.
13. All training provided to practices on developing effective registers and recall systems for diabetes should also include pre-diabetes.
14. GP Network should continue to advocate for and support preventative health initiatives that utilise the professional expertise of the practice nurse.
15. Practice visits should be offered to all GP Network practices on an annual basis to offer support for their diabetes and pre-diabetes register and recall systems to ensure they are up to date and being maintained.
16. All practices have in place a protocol to update and maintain their register and recall systems. GP Network staff can assist practices to develop this.
17. GPs code patients with IFG/IGT prospectively as they are diagnosed to ensure they are included in the register and recall systems and practices have an accurate picture of their at-risk patient population.

18. Continue to promote the pre-diabetes resources and education activities developed through this project to general practice.


**Key Project Learnings**

- Twenty-one GPs enrolled to participate in the clinical audit “Improving GP access to and use of retrospective and current pathology data to increase detection of pre-diabetes (IGT and IFG) in general practice”. Sixteen GPs completed data collection for Steps 1-4. Eight GPs enrolled in Step 5 of the clinical audit and five completed the data collection. The attrition rate was due to several reasons including competing time commitments, involvement in other Divisional projects and 2004 being the final year of the RACGP QA&CPD triennium.

- One of the aims of this project was to develop communication systems between general practices and pathology laboratories through trialling a format for feedback to GPs. Due to the time delay between project planning and project implementation, General Pathology Laboratories (GPL) had already put this initiative into operation and it was not included as an intervention in this project. The use of retrospective pathology reports provided by the pathology laboratory to the general practice as the intervention to improve communication systems became the focus instead.

- A multifaceted approach to improving the detection and management of pre-diabetes proved to be an effective strategy that targeted all the stakeholders in general practice. This approach included the development of linked education and resources for GPs, PNs and patients.

- The pathology laboratories and information management systems in general practice were also targeted to ensure the infrastructure was in place to support GPs and PNs to improve the management of pre-diabetes. This strategy also ensured that all care providers and patients were provided with consistent information.

- Combining educational outreach for GPs, PNs and patients, audit and feedback, along with provision of resources and information management support was effective in promoting behaviour change among health professionals.

- Involving PNs in all aspects of this project was a successful strategy. The role of the PN in general practice is relatively new and their roles and duties are continually evolving. By providing education for PNs and linking it to GP education, GPs could understand and utilise the potential of the PN to provide education, distribute resources and assess lifestyle risk factors in patients.

- The strategy of providing continuing medical education linked to the workplace, planned to meet GPs needs and based on self-assessment and peer review proved to be effective in this project. The baseline data provided by the clinical audit informed the development of the educational activities and resulted in participant GPs taking part in education designed to meet needs identified through the clinical audit.
• The varying educational activities, ranging from clinical audit to education workshops, were effective in addressing the broad educational needs of GPs. It also allowed the knowledge gained from this education to lead to sustainable changes in practice through the incorporation of information management strategies and provision of resources for patients, GPs and PNs.
• Undertaking a range of activities enabled a detailed picture of current practice to be developed. This helped in the development and implementation of a comprehensive education plan that addressed all aspects of general practice. As a result, all planned educational activities were well attended and received and resulted in real changes in practice by GPs and PNs.
• The involvement of local pathology laboratories at both a steering committee and project implementation level enabled general practice and pathology laboratories to further their knowledge about the services each provides, and how to improve the linkages between them.

Areas for Future Consideration
• Investigate the areas Practice Nurses can assist with information regarding pathology testing and patient education.

Quality Use of Pathology Services Education Program (2006)

Description
A structured program for teaching diagnostic pathology by pathologists and scientific staff was developed and delivered to year three medical students at the University of Sydney’s School of Rural Health (formally Dubbo Clinical School) over a four-year period (2003-2006).

Grant Recipient
University of Sydney

Aims and Objectives
• to achieve improvement in the health and economic outcomes of the use of pathology in health care through the pursuit of better practice amongst requesters and providers of pathology services
• to produce a greater understanding of pathology tests by medical students
• to equip medical students with the capacity to act more confidently in clinical situations in which pathology services may not be readily available
• to provide medical students with a better understanding of the pathological process of disease and the realistic role of the pathology laboratory.

These aims and objectives were achieved by this project.

Outcomes
• A program to provide a structured program for the teaching of diagnostic pathology by pathologists and scientists was developed for students at The School of Rural Health.
• Pathology teaching was incorporated into the year three medical students’ academic timetable to make it an integrated part of medical training at The School of Rural Health.
• Part of the course demonstrated that a clinician can make an accurate diagnosis in rural/remote practice with simple equipment and basic point of care technology.
• The students spent eight half days covering the major disciplines of pathology, and were involved in autopsies and formal tutorials.
• Independent evaluations of the course were submitted.

Findings
• The School of Rural Health noted the value of teaching pathology, and student opinion was in favour of pathology teaching.
• Pathology departments at both sites acknowledge the benefits of the project and indicated that teaching would continue in the short term.
• A independent external reviewer noted the following strengths of the program:
  o it had a strong correlation with clinical practice
  o the involvement of a broad range of stakeholders (scientists, technicians, pathologists and physicians) to deliver the program objectives
  o enthusiastic, engaging and committed staff at both campuses
  o the good relationship between the pathology laboratories and The School of Rural Health, University of Sydney
  o the close location between The School of Rural Health, the hospitals and the hospital pathology laboratories
  o good physical teaching facilities
  o positive feedback about the program from the medical students
  o willingness of staff to improve the program.
• A second independent external reviewer noted:
  o the program had the potential to provide a model for teaching laboratory medicine in the senior years of medical courses
  o the initial funding had been well-utilised to build an excellent teaching program with great potential as a model to advance the better use of pathology in health care.

Recommendations
1. The School of Rural Health will consider another submission in consultation with the Australian Government Department of Health and Ageing.

Independent external reviews recommended:
2. Develop strategies to ensure that students can participate in all aspects of the program such as ensuring the student’s timetables are compatible with the pathology sessions or introducing a pathology prize.
3. Ensure more consistency in the delivery of the program between the campuses.
4. Greater clarity for students and some staff regarding the learning objectives and outcomes of the program such as the learning standards required.
5. More detailed planning on how the medical school will manage the delivery of the program if pathologist numbers are reduced further, including possibly
developing links between the private pathology services and The School of Rural Health.

6. Development of formal assessment processes to align with the learning objectives involving the University of Sydney Medical Education Unit.

7. More access to staff development programs to help with the program development and delivery.

8. The University of Sydney and the Area Health Service must provide more academic teaching staff for this teaching program to continue and develop successfully.

9. Secure, long-term funding arrangements, probably involving the Australian Government Department of Health and Ageing, must be negotiated to ensure continuation of the teaching program.

10. Consider networking with similar programs in other medical schools.

11. Further support of this program is strongly recommended.

Key Project Learnings

- The time and resources spent by academics and support staff was not factored into the agreement with the Australian Government Department of Health and Ageing.
- The School of Rural Health identified a lack of administrative support and formal coordination between their campuses in Orange and Dubbo and the pathology tutors as a small barrier to the successful delivery of the program to students. This factor must be addressed to make the program sustainable.
- Casebook/skills logbooks were developed and supplied to students at both campuses, however, since their completion was not a requirement of the University’s medical course there was limited success with students filling them out. New assessment methods will need to be standardised and developed across both campuses.

Areas for Future Consideration

- Assess the viability of re-establishing this program in rural medical schools.

Investigation into the Reasons for Incorrect or Incomplete Pathology Request Forms (2008)

Description

This program sought to develop a program to identify the reasons for incomplete or incorrect pathology request forms submitted by medical staff in a large teaching hospital in Sydney. This was done using a questionnaire, focus group interviews and audits of pathology request forms.

Grant Recipient

Royal North Shore Hospital

Aims

- to determine the type of errors that can occur in the completion of pathology request forms
- to determine the reasons for these errors
- to determine the relative importance of these errors
• to determine the impact of these errors on laboratory staff.

*These aims were achieved by this project.*

**Outcomes**

- One hundred and four questionnaires were completed by interns, resident officers, registrars and consultants (342 were sent out).
- An audit of 236 randomly selected pathology request forms over a period of one month to determine the type of errors and omissions and their frequency.
- An additional 179 request forms completed by interns were also audited. This consisted of two separate audits three months apart to determine the effect of the work environment on the completion of request forms.
- An audit of time spent seeking information from clinical staff due to incomplete or inadequate request forms.

**Findings**

**Staff Attitude**

- The clinical staff did not consider it necessary to complete a pathology request form, particularly clinical and medication details, which showed a major problem with the attitude of the clinical staff towards the pathology request form.
- Clinical staff did not understand the impact of incomplete or incorrect pathology request forms on laboratory staff including the extra work required by laboratory staff to find the missing information. There was also corresponding resentment amongst laboratory staff which adversely affected communication between the two staff groups.

**Time Issues**

- One reason for incomplete documentation on the pathology request form was too many sections to be completed which took time to fill in.
- The amount of time wasted and therefore cost to the laboratory because of errors in request forms is considerable. Omission of ID of the requestor and requestor contact details are the sections that cause the most waste of time for collectors and laboratory staff.
- Laboratory staff spent a considerable amount of time to find the missing or incorrect information on the pathology request form. This means that any improvement in the completion rate and accuracy of pathology request forms will improve laboratory productivity.

**Errors**

- The audit showed six sections on the pathology request form accounted for about 80% of the errors and caused significant problems for laboratory staff. These were:
  1. clinical details
  2. medication details
  3. requestor contact details
  4. ID of the requestor
  5. ID of the collector
  6. collection details.
Of these sections, clinical and medication details were the most frequently omitted which have a significant impact on the interpretation and reporting of the result.

_Education_

- Interns were very good at completing pathology request forms, with the exception of clinical and medication details, at the start of their career. However, their error rate increases over time which indicates that education and feedback are essential to maintain good clinical practice.
- Medical staff have a good understanding of the medico-legal aspects of the pathology request form.
- Education should target a few key areas rather than cover all sections of the request form.
- The work environment does not encourage junior medical staff to correctly complete pathology request forms. They are given little feedback about their performance in the completion of request forms.

_Recommendations_

1. Develop an education program that targets the most important errors or omissions on request forms.
2. An education program, which includes laboratory staff, must be given to all medical staff. The error rate in consultants is sufficiently high to warrant providing further education.
3. Review the content and format of pathology request forms and decide which sections do not require completion by medical staff. Removing non-essential sections will allow more time for completion of essential sections.
4. Review the format of the pathology request form to facilitate completion of the most essential sections.
5. Move to electronic request forms which will allow the implementation of mandatory fields.

_Follow on Initiatives and Projects_

- A Best Practice in Pathology Requesting and Reporting Workshop (2009) on page 175 was convened by the Australian Government Department of Health and Ageing to further explore requesting issues with key stakeholders.

_Areas for Future Consideration_

- Review the format and content of pathology request forms.
- Investigate implementing an education program which targets the most important errors or omissions on request forms.

**Enhancing the Quality Use of Pathology for GP Registrars and International Medical Graduates – Assessing the Need (2009)**

_Description_

This project sought to undertake a needs assessment to inform the development of a training program and series of training modules focused on maximising the uptake of education and training in the quality use of pathology by general practice (GP) Registrars and International Medical Graduates (IMGs). It adopted
the view that improved vocational training in the appropriate use of pathology will assist in addressing the issues faced by GP Registrars in moving from a hospital based training setting to community based general practice, especially since registrars indicated that it was easier to seek advice and feedback regarding pathology use in the general practice environment.

Grant Recipient
University of Adelaide

Aim
- to identify the pathology training needs of GP Registrars and IMGs to inform the development of a training module/s focused on maximising quality use of pathology

Objectives
- to undertake a needs assessment to inform the development of a training module focused on maximising the uptake of education and training in the quality use of pathology by GP Registrars and IMGs
- to investigate the work undertaken to assess the educational needs of GP Registrars and IMGs in relation to pathology testing
- to gain insight into GP Registrars’ and IMGs’ knowledge of pathology testing, their training experience and to identify gaps in their training to assist in designing the Needs Assessment Survey to be disseminated to a wider group of GP Registrars and IMGs
- to gain the perspective of pathology providers on the current training needs for GPs and IMGs
- to gain an understanding of GP Registrars’ and IMGs’ knowledge of pathology testing, their pathology training experience and to identify gaps in their training.

The aim and all objectives were achieved by this project.

Outcomes
- A literature review was conducted to inform the conduct of focus groups, pathology provider interviews and the development of a needs assessment survey.
- A qualitative analysis via focus groups with GP Registrars and IMGs to gain insight into their knowledge of pathology testing, their pathology training experiences and to identify gaps in their training.
- A qualitative analysis via interviews with pathology providers to gain their perspective on the current training needs for GP Registrars and IMGs.
- Information from the focus groups and interviews was used to develop a questionnaire.
- A quantitative analysis via a Needs Assessment Survey disseminated to a broader cohort of GP Registrars and IMGs to gain an understanding of their knowledge of pathology testing, their pathology training experiences and to identify gaps in their training.

Findings

Literature Review
• This study confirmed there is a lack of pathology training being provided to GP Registrars and IMGs.
• The literature review highlighted a lack of training for GP Registrars and IMGs in the area of pathology testing.
• The review highlighted a number of areas relating to the quality use of pathology in general practice including:
  o Evidence indicates a relationship between GPs’ characteristics and pathology utilisation. For example, female GPs and younger GPs tend to order more laboratory tests.
  o Pathology usage is linked to level of training and experience. As the confidence of GP Registrars and IMGs increases, their test ordering behaviours may improve. For Registrars it will develop with knowledge and experience; for IMGs it will develop as they gain a better understanding of the Australian healthcare system. This is also related to confidence and knowledge.
  o Additionally, knowledge of clinical guidelines, size of practice and utilisation of specifically designed pathology ordering forms improved quality use of pathology.
  o Patient profile can influence pathology ordering for GPs. Patients with a higher level of education requested more pathology tests.
  o A number of interventions which range from feedback, education and audits to ordering protocols have been shown to improve pathology ordering. The most successful approaches utilise multifaceted strategies.
  o There exists a lack of designated pathology training at the undergraduate and postgraduate levels in Australia and particularly for GP Registrars and IMGs.
  o Different groups have different training needs. For example, IMGs require training in the Australian healthcare system, communication skills and clinical management within the Australian setting. Any training module needs to ensure these differences are addressed, while other areas will be similar to the needs of GPs undergoing registrar training.
  o A national survey on pathology teaching in prevocational and GP vocational training identified the need for a pathology audit package for GPs.

Focus Groups
• The focus group participants and interviews confirmed the existence of gaps in the pathology training being provided to GP Registrars and IMGs.
• Most pathology training at undergraduate level was received through case-based or conditioned-based discussions and problem-based learning (PBL).
• Most training and experience at postgraduate level was gained through clinical placements in general practice and the hospital setting.
• Rural GP Registrars indicated they would like further training on collecting and preserving samples properly.
• The focus group participants identified the conditions which appeared to cause the most difficulties in regards to test ordering as:
  o rheumatology
  o menopausal and infertility problems
• vague illnesses such as tiredness.

• The focus group participants identified the tests most difficult to interpret as:
  • rheumatology results
  • liver function tests (LFTs)
  • lipid tests
  • hormones
  • prostate specific antigen (PSA)

• Test results that were mildly elevated and moderately abnormal posed the most problems.

• The focus group participants identified supervisors and colleagues as the people they would mainly approach for assistance with test ordering and test interpretation difficulties. They often sought advice from pathology providers, but mostly in regards to test interpretation.

Pathology Provider Interviews

• The pathology providers highlighted LFTs, full blood counts, thyroid function tests (TFTs) and reproductive endocrinology as the tests they receive the most calls in regards to assistance with test interpretation.

• The pathology providers believed the following tests were overused by GPs:
  • TFTs
  • PSA
  • glycated haemoglobin (HbA1c)
  • lipids
  • tumour markers
  • vitamin B12
  • folate tests.

• Situations they might receive a call about a test result included:
  • a test result is late
  • a test result for a patient who has been seen by a GP or specialist outside the practice
  • a test result for a GP whose practice is not computerised.

• They received the most enquiries from GPs in rural and remote areas, IMGs and older GPs.

• They received more calls from GPs to help interpret a test result than for advice on the most appropriate test to order.

• The need to have sufficient information on the requesting form, including good contact details for the GP, was highlighted as very important.

• All interviewees believed there are gaps in the current medical training regarding pathology including practical aspects such as:
  • how specimens are collected
  • the timing of specimen collection
  • the difference between the first passed specimen of urine and a mid-stream urine
  • best practice to culture a wound.

• Pathology providers indentified the following areas for inclusion in pathology training for GPs:
  • practical sessions on specimen collection and types of specimens
  • more education about common tests and their use in screening
  • the importance of providing appropriate and sufficient clinical notes on request forms
specific information about tests/conditions that are applicable to the area in which the GP is working.

- Younger doctors and female doctors tended to order more pathology as a group.

Needs Assessment Survey

- Pathology training diminishes as participants move through their levels of medical training.
- IMGs reported less test interpretation problems. As this cohort were older and graduated earlier than the GP Registrars, this was thought to be associated with their years of experience.
- Both groups requested further training, particularly for reproductive hormones including the infertility/pregnancy tests as well as hepatitis serology tests, and more information about new tests and advances in pathology testing.
- The case scenario also identified several tests that may be inappropriately used including ferritin, creatine kinase, erythrocyte sedimentation rate (ESR) and C-reactive protein (CRP) tests. It is unclear if this is due to a lack of understanding on the use of these tests or a result of panel ordering.
- The participants identified several conditions/symptoms which caused them the most problems in regards to pathology testing. Participants had the greatest difficulty with test ordering and test interpretations for conditions/symptoms that are vague and/or where there were no guidelines or decision support systems available. In contrast, the least difficulty was reported for conditions such as diabetes, lipids and urinary tract infections where clear management guidelines are available.
- Presentations of weakness/tiredness and menopausal symptoms/complaints were reported as conditions causing the most problems.
- The format in which participants would like to receive further training included case studies, short seminars or conferences and on-line learning resources, with case studies being most favoured by IMGs.

Recommendations

1. A training module/s to include information on the application of the tests identified as causing the most difficulties.
2. A training module/s to include strategies and available evidence-based resources to manage conditions/symptoms where no guidelines currently exist. The module also needs to include information to help raise awareness about the differences between pathology testing in the hospital and GP setting. This could include untilising ‘a wait and see’ approach, communicating effectively with patients and advocating the importance of taking a detailed history.
3. The training module/s be provided in multiple formats and designed to suit the education material being provided.
4. GP Supervisors advised of the pathology training needs for GP Registrars and IMGs, and provide them with the education and resources to assist them in this knowledge transfer.
5. Establish a working party, including a GP Supervisor and a pathology provider, to develop the training module/s for implementation through GP training providers. It is important that the module/s be continually updated.
to reflect the best evidence-based resources available, and that the participant’s pathology training needs are periodically evaluated.

6. Areas/topics suggested by this project’s focus group and interviewees for further pathology training include:
   a. practical sessions on collecting and preserving samples
   b. common tests and their use in screening
   c. what is covered under the Medicare Benefits Schedule (MBS)
   d. how to find pathology information all in one spot
   e. information on specific tests/conditions that are applicable to the area in which the GP is working.

7. Pathology providers would like a session on providing appropriate and sufficient clinical notes on request forms.

8. Supervisors can play a key role in providing further pathology training.

Follow on Initiatives and Projects

- Project outcomes were promoted at the Best Practice in Pathology Requesting and Reporting Workshop on page 175.

Areas for Future Consideration

- Possible development of a training program/modules to be provided to GP Registrars and IMGs, and the need for a training module/s.
- Develop fact sheets covering the area’s highlighted in recommendation no. 6 above.

Effect of a Structured Microbiology Laboratory Report on Antimicrobial Prescribing for Asymptomatic Bacteriuria in Elderly Females (2010)

Description

This project sought to test the hypothesis that ‘withholding’ of antimicrobial sensitivity reporting in conjunction with a selective evidence-based informative comment will result in:

- less ongoing antibiotic usage in elderly female patients
- fewer antibiotic side effects
- improved patient care
- improved outcomes
- significant cost savings.

Grant Recipients

Flinders Medical Centre and South Australia Pathology

Aim

- to test the hypothesis that the ‘unjustified’ antimicrobial treatment of asymptomatic bacteriuria in elderly females could be reduced by utilising a modified microbiology report in which full microbial speciation was not performed, antimicrobial sensitivity data was not reported and a short educational comment regarding the likely (or lack of) clinical significance of the result was included in the pathology report.
This aim was achieved by this project.

Outcomes

- Urine samples received in the routine diagnostic microbiology laboratory from females aged 70 yrs and over with detected bacteriuria (>10^5 cfu/ml) were considered for randomisation to either:
  - full reporting of isolate at the species level with an ‘appropriate’ choice of oral and intravenous antibiotics reported. As a minimum, sensitivity to ampicillan, cephasolin, timethoprim and gentamicin was reported, with additional antibiotics if first-line drug resistance was present
  - general reporting of the microbiology result without provision of any microbial sensitivity data, but inclusion of the following comment: ‘Asymptomatic bacteriuria in elderly women does not usually require antibiotic treatment. Sensitivities are available upon request.’

- Women were excluded from the trial if:
  - there was an indication from clinical notes to suggest their bacteriuria was symptomatic or that antimicrobials might be indicated
  - they were receiving antimicrobials for another clinical indication which had activity against the urinary isolate.

Findings

- Rates of antimicrobial prescribing for urinary tract infection (UTI) were 202 of 272 (74%) in the reported group, and 205 of 293 (70%) in the sensitivities masked group.
- The subsequent analysis was performed in 470 subjects after exclusion of 95 subjects for reasons not available to the laboratory at the time of randomisation.
- The intervention of masking antimicrobial sensitivities and providing educational comment had a small effect on antimicrobial use for UTI.
- Sensitivities were only requested in 45% of cases of the group receiving masked reports who were prescribed antibiotics. This finding indicated the practice of not confirming antibiotic sensitivities despite prescribing antibiotics was common.
- There was considerable variation in the duration of antimicrobial use.
- Antimicrobials were widely used ‘unnecessarily’ in both groups which highlights the importance of targeted educational programs.
- A limitation of the study was the considerable number of subjects where antimicrobials were initiated empirically, either for presumptive symptomatic UTI (with no indication of this on the pathology request form) or on the basis of immediate dipstick tests collected on admission.
- There was no apparent adverse clinical effect associated with masking antimicrobial sensitivity results.
- The mean length of stay for the masked versus reported group were 13.3 days and 14.2 days respectively.
- Follow-up urine specimens were collected with similar frequency in both groups.
• Educational interventions are beneficial but require significant resources to instigate, may lose effect over time and may not prevent antimicrobial prescribing once a ‘positive’ urine result is obtained.
• Antimicrobial use is associated with additional costs, toxicity and the emergence of resistance.

Recommendations
1. Strategies for reducing unnecessary prescribing for asymptomatic bacteriuria could be directed at reducing the number of specimens initially sent from asymptomatic patients, or providing educational information regarding the significance of the result.
2. Providing only limited information on the laboratory report, and adding a brief educational comment in an attempt to ‘downplay’ the potential significance of the positive urine culture, could be utilised at essentially no cost and be easily sustained with ongoing resources. Incorporating additional components, such as comprehensive educational programs, will produce the best outcomes.
3. Educational programs should be targeted to specific groups to empower them to develop confidence in withholding antibiotics for asymptomatic patients.
4. Educational programs should also target nursing and medical staff to educate them on not obtaining urine for analysis unless the patient is symptomatic.
5. Automatic stop orders after three or five days of antibiotic use for UTI could be initiated in a hospital setting.
6. Additional comments such as ‘Recommended duration of antimicrobial therapy for symptomatic, uncomplicated UTI is 5 days for β-lactams and 3 days for trimethoprim/quinolones’ could be also be added as a supplement to laboratory reports.

Areas for Future Consideration
• Produce a fact sheet on antibiotic use and bacteriuria for all levels of medical staff, including nurses, to empower them to develop confidence in withholding antibiotics for asymptomatic patients.

Identifying how Electronic Decision Support (EDS) in Computerised Pathology Order Entry Systems can Improve Pathology Practice, Rational Ordering and Patient Outcomes (2010)

Description
This project sought to identify whether computerised pathology order entry (CPOE) systems with varying levels of electronic decision support (EDS) can enhance the efficiency of pathology services and lead to more effective and rational pathology ordering and improved patient outcomes. While research has shown that CPOE has the potential to support more efficient pathology services, it is the EDS component which holds the promise for making substantial improvements in delivering more rational pathology ordering and improvements in patients outcomes.
A major limiting factor in deriving benefit from CPOE with EDS is the lack of research evidence regarding which level of EDS is useful and which specific EDS features will improve pathology practice and patient outcomes. This project targeted this large knowledge gap by undertaking a detailed analysis of three levels of EDS.

**Grant Recipient**  
University of Sydney

**Aims and Objectives**

- to identify how computerised pathology order systems with varying levels of electronic decision support can enhance the efficiency of pathology services and lead to more effective and rational pathology ordering which improves patient outcomes
- to undertake a multi-site study which will:
  a. undertake a global assessment of the impact of CPOE on pathology practice measuring a broad range of effectiveness (e.g. length of stay) and efficiency (e.g. turnaround time) indicators
  b. measure the impact of different levels of EDS (basic, intermediate and advanced) on quality of information provided to laboratories, rational pathology ordering and patient outcomes.

*These aims and objectives appeared to be partially achieved by this project as the report did not articulate the level of EDS for each outcome/finding, nor did it articulate the 39 measures across the spectrum of the pathology test processes (see outcomes).*

**Outcomes**

- The reported noted the review identified 39 measures classified into 10 impact areas across the spectrum of pathology test processes (ordering, processing and reporting). These included measures of:
  o turnaround time (TAT)
  o test volumes
  o redundant tests
  o costs
  o guideline compliance
  o work practices
  o communication
  o patient management
  o length of stay
  o adverse events/safety.
- This project resulted in 13 peer-reviewed papers including a number in high impact international journals and conference proceedings.
- This project also resulted in 19 presentations including invited and keynote presentations at major national and international fora.
- The project’s researchers also received an invitation by the American College of Pathologists to contribute a chapter on electronic medical records to the College textbook, and an invitation to outline their work in the founding issue of the *Journal of Pathology Informatics*.  

Integrated Analysis of QUPP Final Reports – 22 June 2012 – v0.3 121
Findings

• Turnaround time, test volumes, redundant tests (tests reordered within an inappropriate time frame providing no additional information) and length of stay (the number of days a patient remains in hospital from admission to discharge) can provide valuable information to monitor the implementation of CPOE and drive benefits realisation.

• There is value in using a standardised record linkage technique to generate a quality dataset with enriched information. Analyses applied to these enriched datasets can provide valuable information to health system planners, clinicians and pathology managers for use in managing and evaluating new CPOE systems.

• The various measures of CPOE performance and impact provide a framework to assess:
  a. efficiency – test volumes, communication
  b. effectiveness – test costs, redundant test rates, TAT, work practices
  c. quality – patient safety, compliance with guidelines, patient management, length of stay, patient safety.

• The study found the CPOE system produced sustained and continuing improvements in laboratory efficiency over a two-year period.

• A regression analysis demonstrated that TAT was a significant factor contributing to patient’s length of stay in the emergency department. This provided evidence that reducing TATs via the introduction of a CPOE may produce improvements in these patients’ outcomes in terms of reduced lengths of stay.

• The rates of missed test results were lower than those from studies where paper ordering and reporting systems were used. This suggests the availability of CPOE systems may reduce the risk of these events. Electronic result delivery, with electronic endorsement to allow documentation of follow-up test results, may provide additional efficiency benefits and further reduce the risk of test results which are not followed up.

• There was a positive impact of using the CPOE for notifying the haematology laboratory about patients on heparin or warfarin treatment when ordering activated Partial Thromboplastin Time (aPTT) or Prothrombin (PT)/International Normalised Ratio (INR). The median TAT also decreased from 28 to 21 minutes for aPTT and from 34 to 23 minutes for PT/INR. Decreases were also shown for TAT in normal test results (30 to 22 minutes) and abnormal rest results (33 to 23 minutes).

Recommendations

1. Associations between increased mortality rates and the introduction of a computerised provider order entry system should be investigated carefully to ascertain any likely association.

2. Conduct research into the change in lengths of stay in emergency departments following the introduction of CPOE.

Follow on Initiatives and Projects

• Continued development as stage 2 in the project The Impact of the Implementation of Electronic Ordering of Pathology Requesting and the Quality and Effectiveness of Hospital Pathology Services – Building a Robust Evidence Base and Benefits Framework for Successful e-Health Diffusions
The Impact of the Implementation of Electronic Ordering of Pathology Requesting and the Quality and Effectiveness of Hospital Pathology Services – Building a Robust Evidence Base and Benefits Framework for Successful e-Health Diffusions (Current)

Description
This project is developing performance indicators to evaluate the quality and effectiveness of electronic test ordering in a range of hospitals in metropolitan, regional and rural settings. It is being conducted in three stages, and the evaluation will examine the quality of pathology test orders, laboratory turnaround times, re-testing and add-on testing.

Grant Recipient
University of New South Wales (UNSW)

Aim
- to provide research evidence, employing key indicators of pathology ordering efficiency and effectiveness, of the impact of electronic test ordering on the utilisation and delivery of hospital pathology services across five hospitals in different demographic settings (major metropolitan, regional, country) within the South Eastern Sydney (Prince of Wales, Royal Hospital for Woman and St George) and Illawarra Shoalhaven (Wollongong, Shoalhaven) Local Health Networks.

Objectives
- provide key comparative (across hospitals) and longitudinal (over time) evidence about the effect of electronic ordering systems
- produce a suite of benefits realisation indicators that can be used to monitor what works (or what doesn’t work), where, and in what circumstances
- utilise a set of performance indicators to evaluate the impact of electronic ordering on the quality use of pathology across the following areas:
  - the legibility and completeness of laboratory test orders and the impact on Central Specimen Reception work processes (quality of test orders)
  - the timeliness of the pathology laboratory process (laboratory turnaround times)
  - the volume and mix of tests ordered examined by such factors as Diagnosis Related Groups, ward location or department, and adjusted for clinical activity where appropriate
  - the impact on re-test and add-on test rates.

This project is current and the aim and objectives are in the process of being achieved.

Outcomes
By early December 2011 the following activities had been achieved:
- ethics approval granted
• extraction of first data for analysis concentrated on:
  o Laboratory Information System (turnaround times, test order volumes, re-test rates and add-on rates)
  o Central Specimen Reception
• analysis of Central Specimen Reception work processes have been undertaken to investigate the effect of electronic medical record and incident reporting on the laboratory test processing procedures, such as ward/laboratory communication and efficiency.


**Description**
This project sought to develop a software platform for use in pathology case studies for junior doctors. The iNvestigate website is:
http://investigate.med.unsw.edu.au/

**Grant Recipient**
University of New South Wales (UNSW)

**Aim**
• to develop a fully functioning software platform to use as a base for an on-line educational program for junior doctors.

*This aim was achieved by this project.*

**Outcomes**
• An alpha version of the software program was demonstrated to the Quality Use of Pathology Committee (QUPC) on 24 February 2010. Since that time first-pass testing of all components of the software commenced with senior undergraduate medical students recruited to evaluate two beta versions. This led to major changes to selected areas of the program.
• One cycle of feedback from academic staff in pathology at the UNSW and from Dr Wendy Pryor at the Royal College of Pathologists of Australasia (RCPA) identified issues similar to those noted by students, as well as suggestions for enhancing the content.
• Further feedback after the second major revision of the beta version was deployed from Professor Fred Dee, the originator of the LabCAPS concept, which highlighted further changes required to the interface for the User role.
• The Case Builder interface was tested which led to iterative changes to certain capabilities.
• Manual coding for each item solved the problems associated with linking Medicare Benefits Schedule (MBS) data to individual test items.
• The process of entering results when building a case was simplified by creating a set of ‘default’ normal values for all of the tests available within iNvestigate.
• A complete system of self-registration of new users has been implemented.
• A graphic designer was employed to create a logo/banner for the *iNvestigate* website.

• Providing a consistent user interaction for aggregated test items proved to be a significant challenge, mostly due to these aggregated tests not being consistently represented in the RCPA Manual. This was solved by an extensible, easy-to-use system available to users with Administrator rights to aggregate tests as needed. This catered for existing groupings and allowed the creation of new grouped items as required.

• All other RCPA Manual items have been included in the fully developed *iNvestigate* website.

• To promote interest in and the use of *investigate*, junior medical officers (JMOs) were engaged with directly and the developers have sought to embed *iNvestigate* into JMO training.

• Various elements which enhance the education value and/or functionality not envisaged as part of the original design have been incorporated into the software package including:
  
  - a running tally of the cost of tests ordered based on indicative data from the MBS
  - an effective and visually pleasing user interface
  - a range of valuable administration tools including a novel and simple test aggregation tool.

**Recommendations**

1. Take steps to make *iNvestigate* a recommended resource disseminated nationally via the Australian Curriculum Framework for Junior Doctors Project.

2. Funding has been requested from the Quality Use of Pathology Program (QUPP) to create a library of 20-25 educationally rich case scenarios with input from a specialist pathologist employed on the project.

**Key Project Learnings**

• All of the senior students who tested the website made it clear they would not read a help file or click through a help system to learn how to use *iNvestigate*. They suggested any relevant help should be provided on the page itself. This led to the original plan to provide a complete hyperlinked help system to be abandoned, and the user interface was re-designed so that context-relevant help was provided at the top of each page.

• Feedback about problems with the dataset and omissions identified were provided to Professor Brett Delahun, Chair of the RCPA Manual Editorial Committee. In future this is anticipated to lead to co-operative interaction and improvement of the RCPA dataset, which will in turn lead to the improvement of test availability within *iNvestigate*.

• It is more appropriate to ask JMOs to undertake testing when a library of cases has been developed.

**Follow on Initiatives and Projects**


**Description**
This project follows on from Phase 1 and sought to develop 20 to 25 authentic case studies spanning all post-graduation year one (PGY1) relevant areas of clinical practice and related investigations. The *iNvestigate* website is: http://investigate.med.unsw.edu.au/

**Grant Recipient**
University of New South Wales (UNSW)

**Aims and Objectives**
- to develop 20 to 25 authentic case studies for *iNvestigate*
- to enhance the software via:
  - review and optimisation of the ‘virtual universe’ of investigations available for ordering
  - programming of an improved user interface.

*These aims and objectives were achieved by this project.*

**Outcomes**
- Twelve cases have been developed and a further 10 are in various stages of development.
- All cases studies, once they are fully developed, will undergo progressive external review and improvement as appropriate.
- Over 30 additional investigations have been added while at least another 30 investigations now have synonyms or abbreviations included in the name label to improve full text searching.
- The interface was upgraded to streamline the user’s interaction with the website.
- There is enhanced searching for tests.
- The website has been continuously available since it was launched with a demonstration case on 6 June 2010. Rakesh K Kumar from the Department of Pathology at UNSW, and the Medicine Computing Support Unit at UNSW, share the responsibility for hosting the website and ensuring its availability.
- There has been a systematic effort to publicise *iNvestigate*, although the most significant issues in the longer term is the impact of external factors on the capacity of those involved with *iNvestigate* to promote its dissemination and use by the target audience.
- The lack of funding for the Australian Curriculum Framework for Junior Doctors Project will inevitably adversely affect the visibility of *iNvestigate*.
- Other approaches to disseminate this resource are being explored. For example, the Royal College of Pathologists of Australasia (RCPA) have provided a link via its Education Portal to the *iNvestigate* website.
- Rakesh K Kumar, from the Department of Pathology, UNSW, in collaboration with Professor Gary Velan of UNSW, has created a cloned site called ‘eDiagnostic’ with access to this website restricted to students enrolled in the Medicine program at UNSW.
Finding
• The critical issue for take-up is persuading the PGY1 graduates to make the time to use iNvestigate, and not the quality of the resource itself.

Recommendations
1. Research avenues for iNvestigate to be deployed for other target audiences with the development of suitable cases. For example, create a clone of iNvestigate with cases for medial students such as eDiagnostic.
2. Identify further relevant target audiences such as the The Royal Australasian College of Physicians (RACP) or the Royal Australasian College of General Practitioners (RACGP), and develop new cases.

Key Project Learnings
• Challenges associated with reaching iNvestigate’s intended target audience were not technical issues, but issues related to dissemination and take-up. One potential barrier contributing to this issue is that what iNvestigate offers may not be what the target audience wants. To address this, feedback from PGY1 graduates during the developmental phase was essential but difficult to obtain, mostly because these graduates are so busy they have insufficient time to be involved in all of the educational activities available to them. Considerable efforts have been made to recruit graduates to provide specific commentary and feedback although there have been few active participants so it was not possible to gather user questionnaire data. The few who offered commentary were very complementary.
• A lesser issue has been recruiting specialist reviewers for the cases and finding they are not as computer-savvy as their PGY1 junior colleagues.
• Other issues relate to investigations missing from the RCPA Manual which therefore have no associated data if they are included. This was resolved by taking advantage of the highly flexible administrator interface developed for iNvestigate.

Follow on Initiatives and Projects
• iNvestigate: Online Patient Simulations for Education in the Rational Use of Investigations (Current).

Areas for Future Consideration
• Identify further potential users for iNvestigate.

iNvestigate: Online Patient Simulations for Education in the Rational Use of Investigations (Current)

Description
This project is Stage three of the iNvestigate initiative and is rebuilding the platform, including database structure and user interface, to allow multiple audience and interface extensibility, and to also allow the iNvestigate website to ‘go live’ for ongoing general practitioner (GP) instruction. The iNvestigate website is: http://investigate.med.unsw.edu.au/.

Grant Recipient
University of New South Wales (UNSW)
Aims

- to develop a fully functioning software platform to use as a base for an online educational program for junior doctors
- to allow multiple case sets on the website to be developed in this instance for the specific target audience of general practitioners.

This project is current and these aims are in the process of being achieved.

Outcomes

- Stage one was a pilot study which developed the software platform and a test case scenario.
- Stage two resulted in the development of 20-25 case scenarios with appropriate instructional value and allowed the website to ‘go live’ for prevocational medical trainees.

Encouraging Quality Pathology Ordering in Australia’s Public Hospitals (2011)

Description

This project involved exploring, documenting and reviewing the efforts made in Australia’s public hospitals to better manage the demand for and appropriate use of pathology testing in the care of patients. This was explored in three parts:

1. Understanding the different approaches taken to considering appropriate and inappropriate pathology ordering in the hospital setting.
2. Creating a ‘snapshot’ of current and planned strategies in public pathology services across Australia.
3. Examining the available evidence in relation to the types of interventions and demand management strategies implemented in Australia and overseas, and their impact on clinicians’ test requesting patterns.

This project also sought to redress some of the deficiencies in definitions, approaches used and associated measures of appropriate versus inappropriate test ordering. A matrix for appropriate pathology test ordering was also developed which combines the different purposes of pathology testing with the broad clinical indicators for use.

Grant Recipient

National Coalition of Public Pathology (NCOPP)

Aims and Objectives

- to document and review the knowledge and experience in Australian public hospitals in order to better manage the demand for and use of pathology testing in patient care
- to consider the lessons learnt
- to establish future directions for achieving sustainable change.

These aims and objectives were achieved by this project.
Outcomes

- A survey of current and planned practices found that most public pathology services (75%) are doing something to secure improvements in appropriate pathology ordering and use in the public hospitals they serve, with these efforts mostly led by pathology.

- A fundamental difficulty the project grappled with concerns the lack of a consistent definition of ‘appropriate’ versus ‘inappropriate’ pathology test ordering. To resolve this problem the project developed a matrix encapsulating a uniform national definition that could be applied to the assessment of whether a request for any or every pathology test was appropriate. The matrix recognises that in the hospital system and the entire health care system there are many different circumstances when ordering of pathology investigations is warranted. The matrix therefore combines the different purposes of pathology testing with broad clinical indications for use:
  - if none of the boxes in the matrix can be ticked, the test should be regarded as inappropriate
  - similarly, if according to the matrix there is an indication for a test to be done and it is not ordered, this would suggest inappropriate ordering of pathology as a result of failure to order an indicated test.
### Appropriate Pathology Test Ordering Matrix

<table>
<thead>
<tr>
<th>Purpose of Pathology Testing</th>
<th>Clinical Indications for Use</th>
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<tbody>
<tr>
<td></td>
<td>Indicated for Acute/Immediate Patient Care</td>
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<tr>
<td>For Diagnosis</td>
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<tr>
<td>For Treatment</td>
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<tr>
<td>For Monitoring – disease or therapy</td>
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<tr>
<td>For Assessment of Possible Adverse Event or Side-effect</td>
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<tr>
<td>For Exclusion of a Possible Diagnosis</td>
<td></td>
</tr>
<tr>
<td>Required to Assess or Manage a Comorbidity (separate to main diagnosis)</td>
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<tr>
<td>Screening*</td>
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*NOTE: This covers the use of tests for purposes of 'disease screening'. Formal population based screening programs are recognised indicators for pathology tests, but generally they are not undertaken as part of usual patient management in the public hospital setting. However, patients in public hospitals may have pathology tests as part of a comprehensive assessment of factors potentially contributing to a problem or as part of a health check strategy.

- This review’s proposed approach to areas where public pathology services might best contribute and add value to building the evidence base and extending the effort to improve pathology ordering and use in Australia’s public hospital sector is guided by five principles:
  1. Acting on major gaps where pathology services can add value.
  2. Promoting a collaborative effort among public pathology services throughout Australia in order to overcome current fragmentation.
  3. Targeting efforts to address areas where they are likely to have an impact.
  4. Identifying factors likely to contribute to sustainability.
  5. Supporting the development of a framework that is useful throughout the country and in a variety of public hospital settings.
Findings

- Numerous reasons have been put forward to explain the increased use and costs of pathology although few have been examined with any rigour. They include:
  - advances in technology enabling multiple tests to be performed on the same specimen reliably and inexpensively, and more rapid turnaround of services
  - the availability of new tests giving more from which to choose
  - extending the clinical applications of testing across the diagnosis, monitoring, screening and prognosis spectrum
  - changes in clinical practice
  - over-reliance on test ordering to deal with uncertainty
  - ‘patient power’ – specifically the increase in patients’ knowledge through internet access, and greater patient expectations of the clinical encounter and the health system generally
  - the increased demand for care as a result of an ageing population and growing numbers of people with chronic disease
  - the teaching of pathology (laboratory medicine)
  - the absence of price signals at the point of request
  - perceptions of potential medico-legal liability if tests are not performed
  - ignorance of the diagnostic significance of tests and their sensitivity, specificity and predictive value
  - fear of being criticised by senior clinicians for failing to order a test
  - research, habit and mere curiosity.

- Appropriate pathology test requesting is central to cost-effective, quality patient care and health care generally.

- There are many strategies that can change the frequency of pathology ordering which fall into five broad categories:
  1. Education, audit and feedback which constitute an effective demand management strategy, although the effect gradually declines during the period after the intervention.
  2. Rules and agreements aimed at restricting test requests where minimum re-test intervals are successful in effecting and maintaining a reduction in unnecessary repeat test requests by clinicians, as evidenced by the sustainability of the interventions. Traffic-light systems have been effective in targeting the test request behaviour of junior doctors in emergency departments through improving the quality of requesting and reducing unnecessary testing, including repeat testing. The effect has been sustained – between four and 11 years – in the three States and Territories where this system has been implemented. When clinical guidelines are implemented, senior clinicians are likely to request fewer tests if they have a more direct involvement in planning clinical pathways, and in the early stages of the patient’s management.
  3. Re-designing the request form to provide guidance to requesters has been effective in reducing the use of pathology tests, regardless of the purpose. Overall this appears to be an effective mechanism for supporting good clinical practice, especially among inexperienced junior doctors. There are still questions over the impact of price signals such as displaying test costs on the request form on test requesting.
4. Computerised physician order entry (CPOE) systems have been effective in bringing real-time evidence-based decision support to requesting physicians and facilitating efforts to manage the demand for pathology. To be successful, CPOE technology needs to be developed to a level of utility and efficiency that is acceptable to users, with stakeholders accepting the investment required and the need to adopt coordinated implementation plans. The design and deployment of such tools are still in their infancy.

5. Reimbursement and funding models designed to manage the demand for pathology testing have not been examined to any great degree. Only one study was found to inform this practice where hospital laboratory budgets were transferred to requesters, however, the observed decrease in test ordering returned to its former pattern after a few years.

- All of the above strategies have the capacity to deliver a successful outcome, although there is no consensus on a model (or models) for broader adoption in the long term, and sustainability remains problematic.
- Success in achieving sustained improvement in appropriate ordering and use of pathology in public hospitals appears to be associated with the interplay of a number of critical factors:
  - targeting multiple behavioural factors
  - basing models on proven and robust behavioural science principles using a multifaceted approach
  - clinical engagement and ownership at a senior level
  - clinical ‘champions’ or lead clinicians to promote the approach
  - strategies that are simple and easily integrated into every day practice
  - adapting strategies to meet local needs and circumstances.
- The importance of the cultural behavioural determinants of pathology requesting is often underestimated, and it is these factors that most probably hold the key to long-term success.
- Virtually all interventions usually have an immediate and significant impact on ordering patterns which is often short-lived. This might partly reflect the limited time frame of most published studies (interventions generally lasting from several months to a year or two) and lack of follow-up on longer-term sustainability.
- Australian public hospitals vary in terms of size, location and types of services provided and are complex organisations. Every intervention would require a multifaceted approach with different elements or areas of emphasis for different hospital settings.
- Efforts to secure improvements in appropriate pathology ordering and use in Australian public hospitals tend to be ad hoc and fragmented. Where interventions have been successful in changing pathology ordering patterns in jurisdictions and institutions there is limited evidence of moves to implement the interventions more widely.
- The primary gaps identified by this review relate to the following:
  - lack of a single or consistent definition of ‘appropriate’ versus ‘inappropriate’ pathology ordering
  - lack of consistent measures and data collection to determine baseline levels of pathology ordering and to assess the impact of interventions implemented
lack of data to guide the selection of which areas to target – particularly across the diverse range of public hospital settings in Australia.

**Recommendations**

1. Develop a standard national definition of ‘appropriate’ pathology test ordering.
2. All future research and audits should use the matrix to review and assess pathology test ordering and to evaluate interventions. It may also be a useful educational tool in an intervention strategy or national guidelines.
3. Develop standard data sets on pathology use in Australia’s public hospitals for data collection and benchmarking purposes with initial efforts focused on assessing the top 10 to 15 diagnosis related groups for public hospitals nationally, and the top 10 to 15 pathology tests used in public hospitals.
4. Monitor and participate in developing electronic health record systems and computerised physician order entry systems.
5. Identify which changes in the frequency of pathology ordering will minimise waste without impacting on patients’ health care outcomes or access in Australia’s public hospitals.

**Key Project Learning**

- It was challenging to assemble evidence from a variety of sources and provide a clear evidence base in terms of what is known and unknown and the associated limitations. Studies vary in their level of rigour and quality and use different methodologies and approaches to reviewing outcomes. In some cases the outcomes were unclear. This necessitated the development of a useful grouping of interventions and an assessment framework that drew together and examined the evidence available for similar interventions and allowed conclusions to be made.

**Areas for Future Consideration**

- Develop a standard national definition of ‘appropriate’ pathology test ordering.

**Effective Communication of Pathology Results in Requesting Practitioners and Consumers (Current)**

**Description**

The three organisations involved in this project are undertaking project work towards more effective and consumer-friendly pathology reporting.

**Grant Recipients**

University of Melbourne; Dianella Community Health; Royal College of Pathologists of Australasia (RCPA)

**Aims**

- to identify a core set of key visual communication techniques for reporting pathology test results both to requesting practitioners and consumers (including consumers with limited literacy)
• to prepare and test several formats designed to maximise communication with the specified target groups (e.g. treating clinicians, consumers from culturally and linguistically diverse backgrounds, consumers with low literacy levels) to test which formats will best engage health consumers in their own care
• to develop a GP practice pilot to trial the new reporting format under clinical conditions.

This project is current and these aims are in the process of being achieved.

Outcomes
• The draft reporting formats have been developed using eye-tracking experiments and tested with consumer focus groups.
• It is expected there will be opportunities within stage one to carry out some pre-testing of the draft template with general practitioner (GP) focus groups.
• Pathology providers and GPs are now being recruited for the pilot that will form a proposed stage two of this project, although no decision has yet been made to proceed to this stage.
Workforce Capacity and Competence

The relative ‘invisibility’ of the pathology workforce has had a number of flow-on effects on its capacity and competence. Pathology is not a ‘high profile’ choice of specialty for medical graduates, while other factors such as an ageing and declining specialist workforce and unclear career pathways for scientists have contributed to what is recognised as a pathology workforce crisis. This situation is not unique to Australia with workforce issues regarded as a threat to the global pathology sector and therefore to the delivery of quality pathology services.

The Quality Use of Pathology Program (QUPP) has enabled the exploration of these issues through six projects (Table 7). Detailed analyses of workforce issues have been identified accompanied by a long list of recommendations to achieve a sustainable pathology workforce for the future. Areas for future consideration may include:

- Investigate better data capturing methods for the assessing pathology workforce.
- Devise strategies to increase the profile of pathology.
- Continue to address pathology workforce issues.
- Continue to monitor the workload for pathologists.
- Investigate strategies to promote pathology as an appealing career choice.
- Investigate strategies to provide increased access to pathology to people in rural and regional areas.
- Investigate avenues to promote and utilise the Pathology Associations Council’s set of competency standards using the eight pathways identified in the report Career Structures and Pathways for the Scientific Workforce in Medical Pathology Laboratories on page 153.

It is also important to note that since the Pathology Funding Agreement was implemented on 1 July 2011, much of the work addressing workforce issues has been taken over by the Workforce Advisory Committee (WAC) which is comprised of representatives from the Australian Government Department of Health and Ageing (DoHA), Royal College of Pathologists of Australasia (RCPA), National Coalition of Public Pathology (NCOPP), Australian Association of Pathology Practices (AAPP), Catholic Health Australia, Health Workforce Australia (HWA), Pathology Associations Council (PAC) and the Department of Industry, Innovation, Science, Research and Tertiary Education.

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Grant Recipient/s</th>
<th>Page No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PathWay (2005)</td>
<td>Royal College of Pathologists of Australasia (RCPA)</td>
<td>136</td>
</tr>
<tr>
<td>Review of Pathology Specialist Development Pathways (2010)</td>
<td>RCPA</td>
<td>143</td>
</tr>
<tr>
<td>Impact of Workload of Anatomical Pathologists on Quality and Safety (2011)</td>
<td>RCPA</td>
<td>147</td>
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<tr>
<td>Survey of the Pathology Workforce (2011)</td>
<td>URBIS</td>
<td>150</td>
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Table 7: Reports summarised for Workforce Capacity and Competence

PathWay (2005)

Description
The Royal College of Pathologists of Australasia (RCPA) identified a need to strengthen the position of the pathology profession in both the medical and general communities and consequently developed a strategy called “PathWay”. This included a quarterly lifestyle format print magazine, Internet site, print/electronic material and media placement aimed at enhancing the pathology profession’s standing, perceived relevance and credibility. PathWay also integrated a range of RCPA information products and communication initiatives, such as the RCPA Manual, Common Sense Pathology series and workforce initiatives, into a sustained and cohesive campaign. The RCPA requested and was granted seed money from the Quality Use of Pathology Program (QUPP) to assist in funding stage 1 of this project.

Grant Recipient
RCPA

Aim
• enhance the pathology profession’s standing, perceived relevance and credibility.

Objectives
• to promote pathology as a vocational choice among near/recent medical graduates
• to promote evidence-based pathology ordering by medical practitioners (general practitioners [GPs] and recent graduates)
• to promote joint decision making with consumers in pathology ordering
• to promote appropriate pathology ordering habits among near/recent medical graduates
• to develop a campaign that can be sustained without government funds.

This aim and many of the objectives appeared to have been achieved although they were difficult to measure.

Outcomes
• Stage 1, 2004 – an integrated 12 month campaign which focused on the production of a quarterly lifestyle magazine (PathWay), Internet site, print/electronic material and media placement. PathWay integrated a range of current RCPA information products and communication initiatives, such as the RCPA Manual, Common Sense Pathology series and workforce initiatives, into a sustained and cohesive campaign.
• Stage 2, 2005 – develop targets based on the objectives and achievements of Stage 1.
- Stage 2, 2006 onwards – assess the achievements and ongoing viability of the campaign.
- *PathWay* was distributed to all medical students in Australia and New Zealand, and provided to junior medical staff in hospitals in Australia.
- There was positive feedback from medical students in Australia and New Zealand, and from junior medical staff in hospitals in Australia, about the value of the magazine in raising awareness of pathology as a career choice. This issue was discussed at the RCPA’s Trainee Advisory Committee, who reported a considerable number of junior medical staff approaching them about a career in pathology following new editions of *PathWay*.
- Medical students and recent graduates also provided positive feedback in relation to the content of the articles, particularly educating them about how a pathologist can be used in advising on appropriate usage of pathology testing and the interpretation of results.
- An evaluation form sent out with the third edition of *PathWay* provided positive feedback and support for the usefulness of the magazine in educating GPs and recent graduates on appropriate pathology ordering.
- The *PathWay* magazines were available in pathology collection centres and doctors’ rooms. The RCPA also sold a valuable number of subscriptions.
- The articles in *PathWay* were also available on the *PathWay* website at [http://www.rcpa.edu.au/pathway](http://www.rcpa.edu.au/pathway).

**Finding**

- The PathWay project was deemed successful, with *PathWay* magazine a particularly useful tool for promoting pathology and pathologists to the medical and general community.

**Recommendation**

1. Publish *PathWay* on an ongoing basis.

**Key Project Learning**

- The sale of advertising space in *PathWay* was difficult, although the RCPA had sold sufficient at the time of their report for continued production.

**Follow on Initiatives and Projects**

- The RCPA initiated an online version of *PathWay*, titled *ePathWay*, in 2011.

**The Australian Pathology Workforce Crisis (2008)**

**Description**

This report represented the first national overview of the issues facing the comprehensive pathology workforce. It sets out the scope and structure for the pathology industry workforce, and draws together a summary of the key issues, gaps and opportunities for further work as suggested by pathology stakeholders.

**Grant Recipient**

Michael Legg & Associates
Aim

- to assist the Australian Government Department of Health and Ageing (DoHA) to prepare a background discussion paper which sets out the scope and structure of the pathology industry workforce, and draws together a summary of the key issues, gaps and opportunities for further work to be undertaken on this issue.

This aim was achieved by this project.

Outcomes

- A series of consultations were undertaken including meetings in cities in four States/Territories (Canberra, Sydney, Melbourne and Brisbane)
- Relevant reports and submissions were identified and reviewed, and submissions were invited from relevant organisations.
- The Productivity Commission Report on Australia’s health workforce identified the following systemic problems:
  - fragmented roles and responsibilities with health workforce policy ‘compartmentalised’ by professions, even in circumstances where an integrated ‘cross-profession’ approach is clearly called for
  - inadequate co-ordination mechanisms, inflexible and inconsistent regulation with a lack of collaborative policy efforts to improve co-ordination across the various parts of the system
  - inflexible and inconsistent regulation that is subject to considerable influence from the professional groups concerned, and widely perceived as inhibiting changes to scopes of practice and the development of new competencies that could meet changing health care needs
  - perverse funding and payment incentives that may result in patients seeking treatment from a doctor, when (unsubsidised) treatment from another health professional may be more appropriate
  - limited incentives for medical practitioners to delegate less complex service provision to other suitably skilled but more cost-effective health professionals
  - entrenched workforce behaviours that are heavily influenced by ‘custom and practice.’

Findings

Pathology Workforce

- There is a real problem with workforce shortages in pathology, and the available projections infer a further and significant impact on service quality and timeliness if urgent action is not taken.
- The critical shortages are best documented for specialist pathologists, and there is good evidence of a critical shortage of scientists.
- Those working in pathology believe that co-ordination at a national level is required, as the situation cannot wait for a ‘comprehensive industry-wide’ solution.
- The actual volume split between public and private pathology is not known, but has been estimated at 60% private and 40% public.
- The average pathology service episode involves around one hour of worked time from a complex workforce team using a diverse range of skills.
The pathology workforce team consists of:

- specialist pathologists
- medical scientists
- health informaticians
- technical officers or medical technicians
- laboratory assistants
- collectors and nurses
- pathology couriers
- clerical staff and other directory involved in testing
- management and support services.

The pathology workforce is estimated at between 30,000 and 50,000 which is more than 5% of the total health workforce. At least 70% of the pathology workforce is female.

Approximately 50% of Senior Scientists are aged 50 or over, while 20% of Pathologists actively practicing in Australia are aged 60 or over.

**Education and Training**

- Only pathologists have a registration scheme.
- Education programs relevant to the pathology workforce are offered by universities, institutes of technology, TAFE colleges, through accredited education courses conducted by pathology organisations and through on-the-job training.
- In addition to education institutions, 16 other organisations have a role in representing and educating members of the pathology workforce. These can be divided into specialist colleges, scientific societies and associations, and industry associations.
- Technical officers and medical technicians have the greatest variation in the training offered, job title and workplace expectations.
- The needs of the pathology sector are not currently recognised in the larger health workforce review activities.
- The issues relating to the pathology workforce have also been experienced by other countries such as New Zealand, the US and Canada.
- Australia’s comprehensive quality and accreditation system has buffered the industry from incidents happening in countries such as Canada, and many countries have observed and drawn on the system for laboratory accreditation that was established cooperatively in Australia.
- The strongest of the drivers leading to workforce shortage is demography, and particularly the impact of the ‘baby boomer’ birth-rate bulge reaching retirement age. When this is combined with increased life expectancy there is a double impact for healthcare; a reduced supply of workers and an increasing demand for services. The implications of this situation are more acutely felt in pathology because they are compounded by other sector-specific issues.

**Impacts and Demands on the Pathology Sector**

- The impact of technology on the pathology sector is related more to doing ‘new things’ rather than doing ‘existing things’ faster.
- There has historically been an average increase in the volume of testing of around 8% per annum without a matching rise in funding which has resulted in a 25-year ‘efficiency’ dividend. The situation is often exacerbated by the introduction of new tests into common clinical practice before the sometimes lengthy process of funding has been determined.
• The demand for pathology is expected to rise and is being driven by factors including:
  o increased disease prevalence and complexity with an ageing population
  o increased cancer prevalence with increased longevity
  o increased emphasis on evidence-based medicine that requires pathology for decision making
  o increased use of pathology testing for eligibility for subsidised drug therapy and monitoring
  o increased genetics (epigenetic and molecular pathology) testing for pre-emptive and personalised medicine
  o increased consumer expectation that testing is part of diagnosis and treatment.

• There is a widely held perception that pathology had declined in its prestige and capacity to win funding against other medical disciplines where “partisan mutual adjustment” is the norm in the resource-limited environment of healthcare. Reasons offered for this include:
  o the limited actual contact between pathologists and their patients
  o a reduction in clinical emphasis on the science of medicine, including significant reduction in pathology content in medical training, with a consequent underestimation of the value of the contribution made by pathology testing
  o the erroneous perception by the users of pathology and their patients that pathology is a machine-based discipline with little human involvement or expertise required
  o lack of promotion of the value of pathology by the pathology profession themselves
  o competition within the industry and the high service levels offered by pathology practices to requesters and consumers
  o the “commoditisation” of pathology, particularly in the hospital environment, where it has been sometimes grouped and dealt with in the same way as support services such as laundry and catering.

• The issues specific to pathology but common to all pathology workforce groups include:
  o a lack of understanding and profile of what pathology is and its value and so a lower standing in the community and healthcare sector
  o the option of increasing supply by the use of overseas-trained pathologists and scientists is hampered by a world-wide shortage of well trained personnel, especially in the sub specialties with greatest need such as toxicology
  o there is an argument that laboratories are not being used optimally by requesters and that fewer more appropriate requests would result – however, this is balanced against the evidence that if protocols for common diseases such as diabetes were being adhered to, many more pathology tests would be ordered such as double the number of glycated haemoglobin (HbA1c) tests for diabetics.
  o the opportunity to further remodel the workforce is impaired by some of the existing work practices, award structures and regulations.

Issues Specific to Medical Scientists
  o difficulty attracting new recruits of appropriate quality
o difficulty in training staff
o difficulty in re-entry to the workforce.

**Issues Specific to Pathologists**

- too few trainee pathologists due to too few funded trainee positions
- reduced exposure to pathology in medical training and the associated 
  loss of role models is reducing the attraction of the profession and the 
  calibre of trainees
- the current rate of advance of knowledge is difficult to keep pace with, 
  especially when demands on service provision are high
- high workloads
- professional isolation of pathologists working in regional laboratories
- declining trainees as general pathologists
- dual-trained pathologists spending most of their time in clinical 
  practice
- specific shortages in sub-specialties.

**Recommendations**

1. The pathology workforce is not tracked by the Australian Institute of Health 
   and Welfare (AIHW) as for other areas of healthcare in their biennial reports 
   on Australia’s health, but its future inclusion would improve monitoring 
   options.

2. A comprehensive and regularly updated data set is required to manage the 
   pathology workforce effectively on an ongoing basis. This should include 
   numbers, ages, sex, geographical distribution, educational levels, 
   employment levels and other essential information. Strategies to do this 
   might involve:
   
   a. full workforce and workload audit
   b. inclusion of pathology-related workforce data in the Australian 
      Institute of Health and Welfare’s (AIHW) two yearly reports
   c. increase the profile of pathology in the national health-workforce 
      review activities.

3. The Council of Australian Governments (COAG) response to the Productivity 
   Commission Report included the following recommendations, many of which 
   are already under consideration and/or in place:
   
   a. reduce health workforce shortages through significant investments, 
      including additional medical school and higher education nursing 
      places and capital funding for medical schools and nurses’ clinical 
      training. The increase in medical school places would result in an 
      expansion in the number of medical school places bonded to areas of 
      workforce shortage
   b. promote workforce mobility and consistency between jurisdictions by 
      creating national registration and accreditation schemes for health 
      professions
   c. provide greater health service access for rural, remote and indigenous 
      communities by introducing a new Medicare item for practice nurses 
      and registered Aboriginal health workers to provide ongoing support 
      for patients with chronic disease
   d. help medical specialist trainees build appropriate skills and 
      experience by providing a new system of training rotations through an 
      expanded range of settings beyond traditional public teaching
hospitals, including regional, rural and ambulatory settings, private sector hospitals and practices and community settings
e. create a national health workforce taskforce to undertake workforce projects and advise governments on workforce innovations and reforms.

4. There is a clear need for better information about the pathology workforce and better matching of training to the workplace.

5. Address the image of pathology by:
   a. continuing and accelerating the work done by the Royal College of Pathologists of Australasia (RCPA)
   b. lobbying for a greater share of medical course time
   c. engaging pathology consultative committee members and their suppliers in an industry-wide program
   d. coordinating activities through the Pathology Associations Committee to increase the impact and maximise the ‘bang for buck’.

Pathologists

6. Increase the opportunities for education and training and recruitment for medical scientists and technicians and pathologists (a list of possible approaches are included in the report).

7. Retain the existing workforce for longer (a list of possible approaches are included in the report).

8. Attract re-entry of those who have exited (a list of possible approaches are included in the report).

9. Provide substitution from those outside the sector by training other specialists in specific sub-specialty and super-specialty areas of pathology (e.g. ophthalmic surgeons in histopathology of the eye) and then supporting them through existing laboratories.

Other strategies

10. Redistribute the existing workforce geographically and by discipline.

11. Improve the productivity of the workforce through improved work design, new technology and further consolidation.

12. Reduce the demand for pathology services by improving the quality of ordering, or rationing through the use of more rules in the Pathology Services Table.

13. The next steps may include:
   a. inviting comment from those consulted, in particular from the RCPA, scientific societies, industry groups and education providers, about the range of strategies proposed in this report and their relative priority
   b. engaging with the Australian Health Ministers' Advisory Council and its relevant committees (including the National Health Workforce Taskforce Group)
   c. engaging with other jurisdictional departments that have a role in pathology workforce planning such as Attorneys General who have a role in forensic pathology
   d. establishing a national steering group and agree on the actions to be taken by prioritising the suggestions provided here, and any that may be prompted by review of the report, by assessing them against criteria of importance, ‘doability’, cost, impact and timeliness in order to draft a strategic plan for action
e. acting on the outcome with a multi-pronged approach.

**Follow on Initiatives and Projects**
- Review of Pathology Specialist Development Pathways on page 143
- Impact of Workload of Anatomical Pathologists on Quality and Safety on page 147
- Survey of the Pathology Workforce on page 150
- Career Structures and Pathways for the Scientific Workforce in Medical Pathology Laboratories on page 153
- The profile of pathology workforce and associated issues was raised and negotiated successfully for inclusion in the Pathology Funding Agreement.

**Areas for Future Consideration**
- Investigate better data capturing methods for the pathology workforce.
- Devise strategies to increase the profile of pathology.
- Continue to address pathology workforce issues.

**Review of Pathology Specialist Development Pathways (2010)**

**Description**
This project examined options to achieve maximum efficiency and effectiveness of the policy and procedures for preparing new specialist pathologists workforce entrants. This was in response to the current and long-standing workforce shortage of pathologists in Australia where strategies to promote the uptake of pathology as a career can be considered in three broad areas of need:
1. to enhance the visibility of pathologists as key members of health care teams and providers of vital input that influences a very high proportion of clinical decisions
2. to investigate and address possible barriers to undertaking pathology training, and to actively promote pathology as a career to medical students and junior doctors
3. for more flexible training options available in an extended range of settings which are supported and evaluated to ensure the required standards are maintained.

**Grant Recipient**
Royal College of Pathologists of Australasia (RCPA)

**Aims**
- to examine options for achieving maximum efficiency and effectiveness of the policy and procedures for preparing new specialist pathology workforce entrants
- to develop strategies to promote the uptake of pathology as a career
- to develop a strategic approach to the supply of specialists for identified areas of sub-discipline shortages (e.g. paediatric, neuropathology and general pathology)
- to give consideration to future planning for the provision of quality pathology services in difficult-to-service locations, including regional centres.
Objectives

- stage 1 involved the preparation of a review of national and international pathways for pathology specialist training where information on a range of strategies was collated and presented for consideration
- stage 2 required the examination of strategies identified in Stage 1 in terms of best practice, their relevance and opportunities for their possible adoption in the Australian pathology context
- stage 3 involved a review of the current RCPA options, policy, procedures and training/development support capacity of its Fellows, with a view to maximising and streamlining opportunities for entry to the pathologist workforce at an adequately trained standard
- to review assessment processes for overseas qualified pathologists who need further training and assessment prior to being able to work in Australia unsupervised
- to review strategies for the development of educational resources, particularly those that are deliverable online, to support the learning requirements set out in the curricula
- to review current strategies used to attract young doctors into a career in pathology, and identify further measures the RCPA could undertake to promote pathology as a career
- Stage 4 required the finalisation of recommendations for the pathology profession and the development of strategies to improve the training of pathologists
- to provide recommendations regarding how to assess UK Fellows to enable them to obtain RCPA Fellowship without examinations.

These aims and objectives were achieved by this project although reviewing strategies to develop educational resources required further substantial resources.

Outcomes

Curriculum Review

- The review for stage 1 was prepared by the Curriculum Development Officer and presented to the Board of Censors of the RCPA on 10 July 2009. The report highlighted the following characteristics of best practice curricula including:
  o explicit competencies required for all aspects of professional practice
  o basing the assessment program on a blueprint which maps outcomes against the methods by which they will be assessed to ensure constructive alignment between outcomes and assessment
  o a range of valid, reliable, feasible workplace-based assessment methods for formative assessment
  o suitable learning experiences for developing the desired competencies
  o emphasising the importance of trainees receiving regular, supportive diagnostic feedback from a variety of sources before final judgements are made about their performance
  o a range of valid, reliable methods for making summative judgements of competence across the range of education outcomes
  o not assuming that proficiency develops after a particular duration of training.
Disciplinary panels revised their curricula in relation to best practice including developing clear outcome statements. They then developed blueprints for assessment based upon the revised curricula to consider reducing the overall load of formal summative assessment, replacing some existing assessment with more reliable forms of assessment, and a broader range of in-training and formative assessment enhancing opportunities for feedback and early remediation of problems.

The Basic Pathological Sciences (BPS) curriculum was extensively revised with more explicit definition of learning outcomes. Essay questions have been replaced with multiple-choice questions (MCQs) mapped to the learning outcomes in the examination.

Extensive stakeholder consultation and iterative revisions have contributed to the development of the new microbiology curriculum accompanied by a portfolio incorporating documentation of learning activities and outcomes and a suite of workplace-based assessment tools which were trialed in 2011.

Restructured curricula have been drafted for anatomical pathology, chemical pathology and immunology, with other disciplines under development.

The Curriculum Development Officer has been working with the Chief Examiner in anatomical pathology and others to develop a curriculum for a Diploma in Paediatric Pathology.

Curriculum mapping for each discipline with defined parameters for development of WPBA tools, with processes in place to facilitate early recognition and remediation of problems with training.

Examination Processes

Examination processes were modified in microbiology to provide more authentic and reliable forms of assessment. Essay questions were replaced with MCQs and short answer questions. Examiner training videos were produced and used for the 2010 structured oral examinations.

Supervisor’s reports are being modified in all disciplines to clarify outcomes and standards, to accommodate documentation of workplace-based assessment (WPBA) and to enable input from more than one supervisor.

A peer review pathway has been developed to facilitate the progress to Fellow of the Royal College of Pathologists of Australasia (FRCPA) for pathologists with qualifications and experience that are substantially comparable to the standards for RCPA-trained pathologists.

There will be continued efforts to reduce the overall burden as WPBA are established to improve the reliability of examinations, clearly articulating standards and improving the selection and training of examiners. This will be completed by the end of 2011 and will be followed by ongoing evaluation and review.

A process is in place for rigorous peer-assessment over the course of 12 months of supervised practice for UK Fellows in anatomical and chemical pathology. Other disciplines may also offer this assessment following more extensive review of an individual’s past training and examinations. Consideration is being given to applying similar processes to other countries.

Educational Resources

The Moodle learning management system as a platform for a trainee education portal has been installed to offer convenient access to learning.
resources in each discipline. The program Questionmark Perception has been purchased to integrate with Moodle which will facilitate the banking of assessment items and delivery of online formative assessments, as well as construction of interactive case studies and mock exams.

- Online learning materials have been made available to support preparation for the BPS examination with an online mock examination available in early 2011. Existing resources for all disciplines is being revised for the new online environment. Further resources are being planned in accordance with needs analysis and priority.

**Training**

- The study reviewed how the RCPA may be better able to provide training for pathologists in difficult to service locations, including regional areas, and to develop a strategic plan to address these issues and identify current obstacles and possible solutions for overcoming them. The online environment will help with these issues and the work is being further supported through an Australian Government grant under the Specialist Training Program. Similar strategies may be used to supplement education and training in identified areas of sub-discipline shortages.

- The Review of International and National Approaches to Pathology Training, and the identification of areas that are considered best practice for pathology training for Australia, forms the basis of a plan for ongoing development of an outcomes-based curriculum.

**Pathology as a Career Choice**

- Funding from this project has supported the engagement of the Director of Education with a number of strategies to address attracting young doctors into a career in pathology. These include:
  - forming a Medical School Taskforce to identify opportunities to work constructively with medical schools to promote and support quality teaching of pathology and engage students’ interest in pathology as a career
  - the RCPA actively supporting an advanced standing pathway for medical students at the University of New South Wales (UNSW)
  - computer-based simulations may also promote pathology to doctors at the prevocational level
  - the development of templates for pathology rotations for post-graduation year one (PGY1) and PGY2 doctors
  - the Board of Education currently reviewing criteria for offering scholarships and support to medical students who undertake pathology-related projects to provide greater incentives
  - RCPA participation in Career Days at universities, high-schools and other national career events
  - the production of brochures, vodcasts (on YouTube) and posters promoting pathology as a career.

**Finding**

- Standard setting and item analysis procedures have improved the fairness and reliability of the examination in the BPS curriculum, and electronic marking allows much faster availability of results.
Recommendations
1. The appointment of an Education Designer to develop an online learning environment and facilitate the delivery of online educational resources.
2. Further staff support may be needed as WPBA are rolled out, and there will be a need to train supervisors and examiners and to assist with monitoring and evaluation of ongoing developments.
3. The development of educational resources to support the revised curriculum is underway but will require substantial ongoing funding and human resources to continue the work of construction, editing and uploading of resources for supervisors, examiners, workplace assessors and international medical graduates.
4. Development and implementation of strategies to review and quality control the educational resources is a major priority that will require ongoing expert input from pathologists.

Areas for Future Consideration
• The Director, Education was preparing a strategic plan at the time of the report to identify future priorities for technologies to support ongoing educational needs.

Impact of Workload of Anatomical Pathologists on Quality and Safety (2011)

Description
This study sought to identify ways in which workload impacts on professional pathology practice through three components designed to provide a workforce perspective, maximise the utilisation of Medicare data and provide a perspective of the individual pathologists. These were:
1. identification of the relative time values of pathologists’ work via the Medicare Schedule
2. a survey of the total workload of individual pathologists over a year using Medicare billing and relative time values
3. a diary that identified the time spent on individual items by participating pathologists over a given week including a survey (the Diary Survey) of the impact of existing workload on quality and safety of pathology work, including the impact on the health of pathologists.

There are also no current benchmarks for staffing and workload for pathology.

Grant Recipient
Royal College of Pathologists of Australasia (RCPA)

Aims and Objectives
• to develop a better understanding of how the quality and safety of pathology service were being influenced from the perspective of Anatomical Pathologists
• to address the impact of workforce shortages in the quality and safety of pathology services in Australia, and the impact on pathologists.
These aims and objectives were achieved by this project.

Outcomes

- Pathologists (65 out of the 96 surveyed) identified the following areas that could be changed to improve the quality and safety of pathology:
  - more pathologists
  - less workload/safe workload limits, better balanced workload
  - better information technology (IT) infrastructure/support
  - more time for professional development activities/reading
  - better reimbursement/improved remuneration per specimen/improved remuneration by Medicare
  - more scientific/technical staff
  - more secretarial support/clerical-admin staff
  - more trainees.

- A workshop of senior experienced pathologists was convened to provide expert opinion into the Relative Time Units (RTUs) for items on the Medicare Benefits Schedule (MBS). The actual time reported in the diaries was less than the estimate of best practice identified in the expert workshop, however, these may be due to reasons such as testing tasks such as cut, quality assurance and case conference being measured separately in the diary.

- Following this workshop, a survey of pathologists’ annual work volume was undertaken which found a wide distribution of clinical workload ranging from less than 200 RTUs to over 3000 RTUs with an average of 1,439 RTUs.

Findings

- Pathologists are unable to fully undertake quality assurance activities due to excessive workloads which represents a potentially serious public health concern.
- The pathologists’ surveyed reported that an increase in workforce numbers is required to sustain existing workloads and address the issues of quality and safety.
- While the RCPA has been successful in increasing the number of training places for pathologists in Australia, there appears to be a disconnect with recruitment at specialist level for graduating pathologists which means the increased numbers have not translated into an improvement of specialist workloads.
- Full-time pathologists worked an average working week of 48 hours, while those who worked less than full-time reported a working week of 34.7 hours.
- 43% of pathologists who kept a diary for a week reported workings days of 10 hours or more.
- The actual hours recorded in the Diary were substantially higher than the reported usual hours worked in a week which suggests that pathologists may underestimate the hours they work.
- 55% of pathologists reported they were working more now than they had been two years ago.
- 24% of pathologists considered they were working above their capacity, and a substantial proportion stated they were only able to sustain their workload for a limited period of time (23% for a year, 38% for no more than 2 years).
• 71% of those working above their full capacity indicated there had been times they were too busy to quality assure their work, 73% reported their workload compromised quality and 45% reported there had been times when patient care was compromised. A further 51% working at capacity reported their workload impacted on their ability to undertake quality assurance (QA) activities.

• 41% of the pathologists in regional centres reported situations where patient care had been compromised compared to 17% of the pathologists in capital cities.

• Adverse quality and safety impacts increased sharply when pathologists worked more than 39 hours a week.

• 68% of pathologists indicated their workload had impacted on their health and wellbeing, while 91% of those working above their full capacity reported it was affecting their health and wellbeing. The four main areas mentioned were increased stress, feeling constantly tired, decreased physical fitness and impact on personal relationships outside work.

• 33% of pathologists in regional centres reported increased turnaround times, while 17% of pathologists in the metropolitan areas reported increased turnaround times.

• 8% of the actual working week of pathologists is allocated to QA activities.

• The critical point at which quality and safety issues appear to be most at risk is after the 39 hours per week mark.

• There is a strong relationship between capacity and the number of areas in which adverse quality and safety impacts associated with workload were identified.

• The relationship between high workload and compromises in quality and safety is a systematic issue and not related to public or private laboratories, location or pathologists.

**Recommendations**

1. There is a strong imperative to establish safe working guidelines to address the current deficiency for anatomical pathologists in Australia.

2. The solution to addressing the quality and safety issues lies in addressing the workforce shortage.

3. Increasing the number of qualified pathologists will not significantly reduce the workloads of practicing pathologists unless the number of specialist positions is increased. These could be filled by the increase in trainees graduating, or by practicing pathologists moving from a part-time to a full-time arrangement. The RCPA will need to collaborate with Australian, State and Territory governments and the heads of private laboratories.

4. Ongoing monitoring of the workload is required. One method is for individual laboratories to use the tools developed in the course of this project to refine RTU estimates.

5. Ensuring good occupational health and safety practices within laboratories is a sound strategy for assisting in minimising the impact of workload.

**Follow on Initiatives and Projects**

• To be taken up by the Workforce Advisory Committee and this issue was also specifically identified as an initiative in the Pathology Funding Agreement.
Areas for Future Consideration
- Continue to monitor the workload for pathologists.

Survey of the Pathology Workforce (2011)

Description
This project provided a snapshot of the 2010 pathology workforce as reported by participating pathology workforce employers and employees. The project report identified a number of statistics relating to the pathology workforce, with only the main points included in this summary.

Grant Recipient
URBIS

Aim
- to describe in complete and accurate terms the size and make-up of the Australian Pathology workforce in terms of key workforce groupings, demographic characteristics and workplace characteristics.

Objectives
- review existing pathology workforce data collections, methodologies and survey instruments and incorporate the learnings into the development of an effective method on which to conduct the first ever national pathology workforce survey (Survey)
- finalise the list of required data items for inclusion in the Survey in consultation with the project steering group and project reference group
- develop Survey instruments to collect the data in consultation with the project steering group
- develop an implementation strategy for the Survey with pathology providers/employers to negotiate agreeable data collection mechanisms and to make arrangements for data collection
- collect/coordinate the collection of data and manage quality control
- clean, process and analyse data
- develop a current pathology workforce profile
- conduct an audit of educational institutions in order to ascertain the current supply sources for identified workforce groupings
- identify strategies for ongoing monitoring of the pathology workforce.

The aim and objectives were achieved by this project.

Outcomes
- The 2010 Pathology Workforce Survey captured data that covered the following groups through the use of an employer survey and an employee survey:
  o pathologists
  o scientists and senior scientists
  o medical laboratory technicians
  o laboratory assistants
• There were a total of 4,743 responses to the employee survey, which was reduced to 4,631 (Table 8) once the missing data points were excluded. This represents about 20% of the estimated pathology workforce.

<table>
<thead>
<tr>
<th>WORKFORCE GROUP</th>
<th>FREQUENCY</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pathologist (includes Specialists and Trainees)</td>
<td>359</td>
<td>7.8%</td>
</tr>
<tr>
<td>Senior Scientist</td>
<td>334</td>
<td>7.2%</td>
</tr>
<tr>
<td>Scientist</td>
<td>2,308</td>
<td>49.8%</td>
</tr>
<tr>
<td>Laboratory Technician</td>
<td>572</td>
<td>12.4%</td>
</tr>
<tr>
<td>Laboratory Assistant</td>
<td>273</td>
<td>5.9%</td>
</tr>
<tr>
<td>Health Information Professional</td>
<td>80</td>
<td>1.7%</td>
</tr>
<tr>
<td>Phlebotomist/Pathology Collector</td>
<td>390</td>
<td>8.4%</td>
</tr>
<tr>
<td>Medical/Anatomical Pathology typist</td>
<td>146</td>
<td>3.2%</td>
</tr>
<tr>
<td>* Other pathology</td>
<td>169</td>
<td>3.6%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>4,631</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

* A breakdown of ‘Other pathology’ includes those mainly performing administrative functions (n=22) and assistant/aid functions (n=22). This was followed at much lower levels of mention by academic/teaching functions (n=13), clinical functions and warfarin (both n=13) and quality management functions (n=12). All other mentions were lower than n=10.

• A total of 28 employer surveys were completed representing a 22% response rate of all the Approved Pathology Authorities (APAs) (Table 9) contacted (n=130)

<table>
<thead>
<tr>
<th>NUMBER OF EMPLOYEES</th>
<th>NUMBER OF APAS</th>
<th>CUMULATIVE NO. OF APAS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fewer than 15</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>15-80</td>
<td>5</td>
<td>11</td>
</tr>
<tr>
<td>81-500</td>
<td>10</td>
<td>21</td>
</tr>
<tr>
<td>501-1,500</td>
<td>5</td>
<td>26</td>
</tr>
<tr>
<td>Greater than 1,500</td>
<td>2</td>
<td>28</td>
</tr>
</tbody>
</table>

• One very large organisation (more than 1500 employees) declined to participate in the employer survey which may have acted as a discouragement to staff participation.

• A brief audit of Australian educational institutions was conducted over an eight-week period to gauge the extent to which the education supply meets current and anticipated future workforce demand.

Findings
• The estimated size of the pathology workforce is 24,157.
• There were significant differences within age, gender and location between workforce groups between states.
• Notable responses relating to job/workplace indicated that 43% of senior scientists intended to leave the pathology workforce in the next five years and 58% of specialist pathologists worked more than 45 hours per week.
• It takes about 3.1 months to fill the vacant positions of scientists.
• The main reason for pathologists intending to leave the profession were due to impending retirement (73.5%) compared to those in other pathology workforce groupings, and they were much less likely to be seeking a change/employment in another profession (1.5%) or feel they had limited career opportunities (0.0%).

• The most pressing issue facing the pathology workforce is the shortage of skilled labour (particularly senior scientists and pathologists), which was mentioned by all APAs completing the survey. They also noted the general lack of interest among some scientists to undertake further personal development, and the need for senior scientists to step-up and run laboratories.

• The lack of senior positions to progress and promote staff was also identified as a current ‘bottleneck’ exacerbating the skilled labour shortage.

• There is also a shortage of health information professionals, possibly due to the acceleration of eHealth initiatives.

• Other secondary issues include high staff turnover (particularly amongst phlebotomy, clerical and reception staff), the timeframes to replace staff, and the expense of providing practical on-the-job training.

• There is an uneven spread of jobs across the States, with around 50% of laboratory technicians located in New South Wales, while there is a high concentration of laboratory assistants in Queensland and significantly fewer in Victoria and South Australia.

• Other issues include insufficient incentive to attract the right people from metropolitan areas to move into and work in smaller regional communities (e.g. pathology registrars), poor Medicare rebates, high cost of wages in a market of declining revenues, difficulty staffing out-of-hours shifts, the desire amongst senior staff to work fewer hours and the need for more efficient work practices.

• About 20% of employee respondents intend to reduce their working hours, with pathologists (34%) returning the highest incidence in this group.

• The size and effectiveness of the future pathology workforce will be largely determined by the provision of suitably qualified entrants into the workforce, particularly at a senior level (e.g. pathologists).

Recommendations
1. There is a need to create more positions and workplace opportunities while also making pathology an attractive career choice in order to fill these positions. This need is more pressing at the highly skilled end of the job spectrum, particularly for pathologists and scientists.

2. To successfully attract new people into a career in pathology the profession needs to be made more attractive through positive structural change (internal focus) as well as the development of a marketing campaign to positively advertise and promote the industry. An important aspect of this should be the active promotion of regional/rural placements.

3. The Medical Benefits payable for pathology should be increased.

4. A flexible and effective management structure that allows for succession planning, intelligent rotations, provides work replacement for trainees, maximises the number of workplace training positions and aligns the strategic goals of the organisation with workforce issues should be provided.
5. Improve communication and coordination with tertiary course providers to ensure that graduates are better able to meet job requirements based on training that is relevant and practical. This process should also help APAs attract better graduates.
6. Create paid positions for scientists that are not directly related to result outputs.
7. Introduce initiatives to help overcome the significant shortage of scientists including the provision of scientist apprenticeship positions with the assistance of cooperative government funding, supporting medical scientists’ career structure initiatives and providing support for restructuring the award for scientists.
8. Provide sustainable training by allocating sufficient funding for training positions, and ensure training remains a top agenda item going forwards.
9. Continuing to lobby for industry best practice on a number of fronts including tertiary institutions (for better training/better qualified graduates), medical administrators (for better medical and pathology training) and to contribute to workforce reform and the separation of industrial versus professional issues.
10. Offer good remuneration and career prospects to attract new people into pathology, and to make it more appealing for part-time workers to work longer hours.

**Key Project Learning**
- Developing an effective methodology for this project was challenging due to the fact there was not a direct and straightforward means of gaining access to all workers in the pathology sector. There were only a limited number of professional associations and industry peak bodies both able and willing to provide access to segments of the pathology workforce, but none which represented all pathology workers.

**Follow on Initiatives and Projects**
- Career Structures and Pathways for the Scientific Workforce in Medical Pathology Laboratories
- Pathology Workforce Workshop on page 177.

**Areas for Future Consideration**
- Investigate strategies to promote pathology as an appealing career choice.
- Investigate strategies to provide increased access to pathology to people in rural and regional areas.

**Career Structures and Pathways for the Scientific Workforce in Medical Pathology Laboratories (2011)**

**Description**
This project analysed the scientific workforce and proposed a model for a career framework for the Australian scientific workforce in medical pathology laboratories. The scientific workforce is defined as including senior scientists, medical laboratory scientists, medical laboratory technicians and laboratory
assistants, although individuals within each workforce group may hold different titles.

**Grant Recipient**  
Human Capital Alliance (HCA)

**Aims and Objectives**
- to provide an understanding of current and future workforce requirements and the appropriateness and adequacy of current supply strategies
- to investigate options to promote workforce retention especially through career pathways development for the scientific workforce in medical pathology laboratories.

*These aims and objectives were achieved by this project.*

**Outcomes**
- A one-day workshop was held on 24 November 2010 with all 12 members of the Project Reference Group (PRG).
- Secondary data sources were gathered and analysed.
- A literature search was conducted to research current practices, specialist viewpoints of specialists and survey reports.
- Written submissions were invited from selected stakeholders, and extensive stakeholder consultations were undertaken.
- A review of award structures from various states were collected and analysed for similarities and compatibilities with special attention paid to the pros and cons of each in regard to potential career frameworks.
- A one-day workshop was held with the PRG to finalise the project.
- Major issues identified and explored include:
  - workforce boundaries around the medical pathology scientist workforce, and within the workforce between assistants, technicians and scientists and between different disciplines
  - apparent labour market conditions and the possibility of segmented labour markets that behave in different ways, and the implications for new graduate supply, preferred training providers and preferred career structures to foster early careers
  - deskilling of certain labour markets as a result of centralising testing processes (rural/private)
  - use of competencies as a means of understanding skill and knowledge in comparison with qualifications and how these might better underpin a range of human resource decisions
  - some aspects of scientist workforce behaviour that are impacting on available supply and have implications for career frameworks, such as high turnover of scientists at specific levels and time periods, and including those associated with scientists’ progression beyond the first five to seven years in employment and barriers to entry to senior scientist levels
  - limited pool of ‘middle level’ scientists able to progress easily to senior scientist roles as it is expected that large numbers of senior scientist will (shortly) reach retirement age and exit the workforce
varied possible pathways to senior scientist levels, but in most cases there is an implicit requirement or specific commitment to management development. This is unattractive for many potential candidates

- support for clinical senior scientist roles where such roles can be defined, particularly in disciplines in which pathologist numbers and influence are low

- a range of career structure possibilities that have already been explored by employers or provided by persons thinking about the issue.

Findings

- The most complete and compelling career structure model for the scientific workforce in medical pathology laboratories has been developed and implemented in the UK. It is built on the concept of skills escalation and offers flexible career opportunities to meet workforce service and individual needs.

- The Pathology Associations Council’s (PAC’s) set of competency standards for the scientific workforce in medical pathology laboratories represent an under-utilised resource for improving the development, management and assessment of the medical science workforce.

- A credible and current estimate of workforce size is required through either Medicare Australia or the National Association of Testing Authorities (NATA).

- Many of the differences in the Australian scientific workforce in medical pathology laboratories career frameworks can be attributed to or consolidated by prevailing industrial arrangements.

- Career progression in the public sector depended on a position becoming vacant (scientists occupying senior roles were often incumbent for an extended period of time), while in the private sector it was at the discretion of management.

- The medical pathology scientist workforce is closest in structure to the nursing workforce with three discernable levels; professional, paraprofessional and semi-skilled.

- There are insufficient numbers of senior scientist positions to provide a reasonable incentive to scientists to invest in the pursuit of one of these positions.

- Any career framework for the medical pathology service workforce should satisfy the following principles:
  - the career framework should be comprehensive and include all components of the workforce.
  - introduce competency based processes, calibrated against competencies instead of qualifications, to support career framework structures.
  - learning opportunities should be built into the career framework.

- It is unlikely that a single career framework would be appropriate to fit all of the different circumstances in various medical pathology laboratory science labour markets.

Recommendations
1. Utilise the Pathology Associations Council’s set of competency standards using the eight pathways identified in the report:
   01. review current industrial arrangements
   02. support the wider use of competencies within the workforce
   03. explore and assess the feasibility of different approaches to build current data on workforce numbers and skill mix
   04. build data on service/labour demand
   05. undertake labour market analysis
   06. support structured training for senior scientists
   07. clinical practice for new graduate scientists
   08. training of technicians.

2. Recommendations arising from concerns associated with career framework change include:
   o there is a need for at least two pathways within a career framework – management competencies and continued development of expertise as a scientist
   o the transition from education to work is unstructured, and graduate trainee positions should be reinstated
   o reinstate apprenticeship or traineeship positions to support the training of laboratory technicians
   o progress from novice to proficient practitioner for scientists should be ‘mapped’ against identified competencies, and subsequent pay rises, promotions and work allocation all made consequent to assessed levels of competence
   o introduce a registrar type training program to enable the transition from proficient to expert practitioner for scientists
   o lengthen the career pathway of medical scientists by introducing extended practice roles.

3. A powerful reason to change and seek new career frameworks is necessary to overcome barriers to change. Benefits need to be highlighted to employers through relevant forums (e.g. National Coalition of Public Pathology [NCOPP] and Australian Association of Pathology Practices Inc. [AAPP]) and directly to employers through business case studies of attempted career framework change.

4. The outline of possible career framework for the scientific workforce in medical pathology laboratories can be found in Figure 8 on page 73 of the report.

Follow on Initiatives and Projects
- Further possible work through the Workforce Advisory Committee under the Pathology Funding Agreement.

Areas for Future Consideration
- Investigate avenues to promote and utilise the Pathology Associations Council’s set of competency standards using the eight pathways identified in the report.
Consumer Focus and Information Strategies

The Quality Use of Pathology Program (QUPP) sought to engage consumers in a meaningful dialogue to increase their knowledge base about the quality use of pathology and identify consumer issues related to pathology. This was achieved through three projects (Table 10) which highlighted the increasing importance of engaging with consumers as legitimate stakeholders in the health system.

These projects revealed consumer issues predominantly based on a need for improved communication and engagement, especially around the benefits and risks of pathology, and the need for comprehensive information strategies to address their concerns. As a consequence, areas for future consideration identified through this integrated analysis include:

- Best practice web-based guidelines for consumers regarding pathology self-collections.
- Information strategies to inform consumers about the status and progress in the areas of eHealth and rural and remote issues.
- Develop more information resources for the website www.labtestsonline.org.au (LTOAU).
- Implement a consistent, ongoing communication campaign to inform consumers and health care workers about the existence of LTOAU, highlighting it as an independent, trustworthy source of information about pathology.

[alt = “The following table lists the three project names and grant recipients under the Consumer Focus and Information Strategies theme”]

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Grant Recipient/s</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Quality Use of Pathology Consumer Consultation Project (2010)</td>
<td>Consumers Health Forum of Australia (CHF)</td>
</tr>
<tr>
<td>2 Benefits and Risks of Pathology Testing (Current)</td>
<td>Royal College of Pathologists of Australasia (RCPA)</td>
</tr>
<tr>
<td>3 Lab Tests OnlineAU Stage 1 (Current)</td>
<td>Australasian Association of Clinical Biochemists (AACB)</td>
</tr>
</tbody>
</table>

Table 10: Reports Summarised for Consumer Focus and Information Strategies

Quality Use of Pathology Consumer Consultation Project (2010)

Description
This project sought to engage, inform and consult with health consumers to identify issues of importance to consumers regarding the quality and use of pathology.

Grant Recipient
Consumers Health Forum of Australia (CHF)

Aims
- to establish an evidence base through consumer consultation to identify consumer issues, including gaps and opportunities and facilitators and barriers to quality use of pathology
• to suggest strategies that would make the pathology experience more appropriate for consumers.

_These aims were achieved by this project._

**Outcomes**

• A series of eight jurisdictional workshops were carried out across Australia in late 2009.
• A national workshop was held in Melbourne in March 2010 which brought together consumers and pathology stakeholders to discuss issues raised in the jurisdictional workshops.
• Continued input was sought from consumers.

**Findings**

• Issues discussed in consultations included:
  o safety and quality of service
  o equity of access including availability and affordability
  o adequate availability of an appropriate workforce
  o communication between consumer, referrer and provider
  o privacy
  o Point of Care Testing (PoCT) and cost
  o Direct Access Testing (DAT)
  o rural/remote issues that relate to pathology
  o eHealth and access to pathology results
  o genetic testing.
• Two key issues identified by consumers were the importance of improving consumer health literacy, and the need for more and better information to be communicated to consumers prior to testing.
• Consumers were also concerned about how to best ensure all consumers receive this information including those from culturally and linguistically diverse (CALD) backgrounds, people with disabilities and those with low literacy, given the demands on the time of General Practitioners (GPs) and Specialists.
• It was also seen as essential that the information provided is correct, clear, up-to-date and comprehensive, and that consumers have the opportunity to seek additional clarifying information.

**Recommendations**

1. The development and implementation of tools to prompt health practitioners to provide better quality information for those undergoing or considering pathology testing.
2. The development and provision of generic Quality Use of Pathology (QUP) information to consumers.
3. The development of resources to enhance self-management skills and capabilities for consumers.
4. Prompt access to results for consumers and prompt explanation of their meaning followed by written information on those results and subsequent recommendations.
5. Introduction of a Medicare Item Number for a ‘Pathology Results’ consultation with a GP or other requesting practitioner.
6. Investigation of more widespread implementation of PoCT.
7. Workforce initiatives to deal with the shortage of expertise.
8. Increased funding to aid the expansion of mobile collection services to more rural and remote communities.
9. Improved availability of telemedicine services, particularly for the explanation of results.
10. A greater emphasis on informed financial consent for pathology services.
11. Ongoing consumer consultation and input into any changes to current pathology funding arrangements.
12. Creation of stronger links with other accreditation processes.
13. Implementation of a transparent complaints process to encourage and review consumer complaints in relation to pathology testing.
14. Credentialing of the people who collect samples at collections centres.
15. Continued consumer education about the role of eHealth in improving privacy by enabling secure electronic transmission of information, and the benefits to consumers in improving communication, efficiency, safety and quality.

**Key Project Learnings**

- Consumers across States and Territories expressed differing experiences and views on what is currently occurring in the pathology field, and also about what they hoped to see happen in the future.
- Consumers agreed on the need for quality, safe, accessible and affordable pathology services.
- Consumers expect providers and practitioners to listen to them and consider their views when making pathology requests, taking samples and conveying results.
- Consumers believe pathology is an area where further work needs to be undertaken with consumers.

**Follow on Initiatives and Projects**

- Benefits and Risks of Pathology Testing
- Effective Communication of Pathology Results in Requesting Practitioners and Consumers on page 133
- Best Practice in Pathology Requesting and Reporting Workshop on page 175.

**Areas for Future Consideration**

- Best practice web-based guidelines for consumers regarding pathology self-collections.
- Information strategies to inform consumers about the status and progress in the areas of eHealth and rural and remote issues.

**Benefits and Risks of Pathology Testing (Current)**

**Description**

This project is seeking to increase the knowledge of consumers about the benefits and risks of pathology to support more informed engagement of consumers in the pathology testing process. The steering committee included representatives from:

- Consumers Health Forum of Australia (CHF)
Lab Tests Online\textsuperscript{AU} (LTO) Board

- Pathology Associations Council (PAC)
- Royal Australasian College of Physicians (RACP)
- Royal Australian College of General Practitioners (RACGP)
- Royal College of Pathologists of Austrasia (RCPA) (pathologist and Lay Committee representatives)
- Department of Health and Ageing (DoHA).

**Grant Recipient**
RCPA

**Aims and Objectives**

- to educate the public about pathology testing in an easy-to-read format based on sound scientific principles and focusing on a set of key identified risks and benefits.

*This project is current and these aims and objectives are in the process of being achieved.*

**Outcomes**

- Nine fact sheets are currently in the final stages of production. These are:
  1. Who works in pathology and what do they do?
  2. Why do I need a pathology test?
  3. Consent – What you need to know
  4. Where can I have a pathology test?
  5. How safe is the testing process?
  6. What should I know about pathology test results?
  7. How are pathology test fees calculated?
  8. What should I know about genetic testing?
  9. What should I know about Direct-to-Consumer genetic testing?

**Lab Tests Online\textsuperscript{AU} Stage 1 (Current)**

**Description**
This project is seeking to develop an authoritative website that provides information on pathology tests available in Australia, and draws on international collaboration of pathology experts. The Lab Tests Online\textsuperscript{AU} (LTO\textsuperscript{AU}) website is: [http://labtestsonline.org.au/](http://labtestsonline.org.au/).

**Grant Recipient**
Australasian Association of Clinical Biochemists (AACB)

**Aims and Objectives**

- to develop an authoritative database which is accessible as a website to the general public and health professionals
• to provide information on pathology tests and the health conditions the tests are used to diagnose and monitor
• to determine the needs of the current users and non-site users to improve the website content and accessibility
• to explore ways of promoting the website more widely to health consumers and health professionals.

These aims and objectives were achieved by this Stage 1 of this project.

Outcomes
• A two-part research project was implemented between June and November 2011 to determine the needs of current users and non-site users and determine attitudes towards pathology in general, and more specifically to the LTOAU website. The findings from this survey will be used to develop some of the tasks in a proposed Stage 2 of this project.
• Apart from news items, very little additional material has been added recently as the bulk of the editorial workload continues to be added at the three yearly site review. This process is nearing completion for all tests and conditions.
• The project is currently in a publish hold phase to exhaustively check the website before re-launching the site with the new content management system.
• The initiative of using trainee pathology registrars is working well and a recently retired pathologist has been recruited to strengthen the team.
• The project now has a sustainable solution in place for the delivery of editorial content across all of the pathology disciplines.
• There has been an average monthly traffic growth of 4% resulting in a 42% increase over the previous year.

Findings
Responses to Consumer Research Survey
• The research confirmed that in the four years since its launch, LTOAU has been a valuable asset in empowering people by giving them the reliable and trustworthy pathology information they need to engage in productive relationships with medical and health professionals. It is also an important information source for doctors, nurses, practice managers, pathology collectors and health professionals, both for themselves and their patients.
• The research also highlighted fundamental changes taking place within pathology. Access to test results is becoming a realistic expectation among the public and the medical profession, and this is seen by even the most conservative and change-resistant as a positive development.
• The medical professionals and members of the public who took part in the research were strongly concerned about the veracity of information on commercial websites, with the public particularly wary of any information from overseas.
• The trend towards self-education and more active patient participation in healthcare is being embraced by some sections of the general and medical communities and resisted by others.
The research flagged a clear need for a non-commercial, trustworthy source of public information about pathology. LTOAU has established itself as the first point of call for pathology information.

The research also highlighted that general practitioners (GPs) were mostly against patients being informed about health matters generally.

The research noted that pathology collection staff would like to see the public better informed about pathology, the testing process and in particular the cost and value of testing. They believe that if people understood the cost of pathology testing then they would value it more.

One group of Sydney-based hospital doctors and nurses also thought there was an issue of doctors not being fully informed about tests and who felt the need to ‘over-test’ their patients.

Pathology collection staff reported most questions from the general public related to whether they would be bulk-billed for the test, how long it takes to get results and where the results were sent.

Many GPs in the survey felt LTOAU was more suitable for them and was rated as the most concise source of information on pathology testing readily available to GPs.

GPs also found it difficult to accept the site would have been written without some form of commercial or government agenda.

Most people found LTOAU by Google which highlighted the need for a consistent, ongoing communication campaign to promote it as a reliable information source for pathology.

**Recommendations**

1. LTOAU needs to have clearer references to its authors and sponsors and clearly articulate that the website is Australian, independent and non-commercial with the information prepared by experts working in pathology testing.
2. Endorsements will be negotiated with relevant government agencies and recognisable medical and professional associations.
3. The AACB should state their credentials clearly to reassure the audience the information has been prepared under the auspices of a body with the appropriate authority and expertise. This may include a link on the banner to a section about the AACB.
4. Appoint a web professional (this is in progress) to redesign and explore ways of presenting the information so it is easily accessible. New copy will also be prepared.
5. The website’s content will be reviewed by the Site Manager and tested via an online survey of 40 participants including members of the public and medical and health professionals.
6. All information will be reviewed and revised and made more readily accessible.

**Follow on Initiatives and Projects**

- Stage 2 of this project.

**Areas for Future Consideration**

- Develop more information resources on the website.
- Implement a consistent, ongoing communication campaign to inform consumers and health care workers about the existence of LTO\textsuperscript{AU}, highlighting it as an independent, trustworthy source of information.
Access Initiatives – Raising Awareness

The compromised health outcomes for Aboriginal and Torres Strait Islander peoples are well documented. The Quality Use of Pathology Program (QUPP) enabled three projects (Table 11) to explore ways to improve the health outcomes for Indigenous Australians through raising awareness of the need to become a stakeholder in their own health care. This was achieved through culturally appropriate and clinically effective strategies to engage Aboriginal Australians in understanding the benefits of actively participating in their own health care to achieve positive health outcomes. One area for future consideration noted from this integrated analysis included:

- Further evaluation and extension of the ‘Flip Chart’ concept as noted in the report Optimising Health Benefits for Aboriginal People who take Warfarin

[alt = “The following table lists the three project names and grant recipients under the Access Initiatives – Raising Awareness theme”]

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Grant Recipient/s</th>
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<tbody>
<tr>
<td>1 Optimising Health Benefits for Aboriginal People who take Warfarin (2009)</td>
<td>Royal Australian College of General Practitioners (RACGP)</td>
</tr>
<tr>
<td>2 Quality Assurance for Aboriginal Medical Services (QAAMS) (Current)</td>
<td>Flinders University</td>
</tr>
<tr>
<td>3 Quality Assurance for Aboriginal Medical Services (QAAMS) Quality Assurance Program (Current)</td>
<td>Royal College of Pathologists of Australasia Quality Assurance Programs Pty Ltd (RCPA QAP)</td>
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</tbody>
</table>

Table 11: Reports summarised for Access Initiatives – Raising Awareness

Optimising Health Benefits for Aboriginal People who take Warfarin (2009)

Description
This project sought to examine the use of anticoagulants and International Normalised Ratio (INR) testing in Aboriginal and Torres Strait Islander people, and to develop educational resources for their use. Lack of a shared understanding between doctors and patients of the benefits and risks of Warfarin treatment (a brand of anticoagulant medication), particularly involving patients with limited literacy skills, has been demonstrated to be a contributing factor in poor INR control.

This project has progressed through two stages:
1. Consultation through yarning groups (focus groups) with Aboriginal and Torres Strait Islander patients taking anti-coagulant medication, and emerging from this consultation;
2. The development of a ‘Flip Chart’ which is an educational resource to be used as a discussion aid between a health worker and a patient to provide information about the need for INR tests when taking anticoagulant medication.
Grant Recipient
Royal Australian College of General Practitioners (RACGP)

Aims and Objectives
- to identify the needs of Aboriginal people with respect to a common and important pathology test, namely the INR blood test, performed for patients taking Warfarin
- to design culturally sensitive information strategies that improve the knowledge of pathology testing in relation to INR amongst a group of Aboriginal communities
- to pilot and evaluate the information strategies
- to make recommendations about future information strategies for pathology tests in Aboriginal communities.

These aims and objectives were achieved by this project.

Outcome
- The most culturally appropriate and clinically useful information strategy to improve knowledge of INR testing was the development of pictorial hard copy materials rather than any electronic/video format. In this project a ‘Flip Chart’ was created which was a 31 page A4 size document structured to be placed on a desk or flat surface in an A-Frame form. This enabled the patient to see the images clearly displayed while the health professional discussed particular aspects of the image that related to INR testing.

Finding
- The use of yarning groups/interviews with patients was the most effective method of identifying Aboriginal people’s needs in relation to INR testing.

Recommendations
1. This project’s design is a recommended model for cross-organisational work in Aboriginal Health. The model’s key features included:
   - engaging with Aboriginal people and communities in needs assessment and development of interventions/educational strategies
   - partnership arrangements between a lead organisation and Aboriginal Medical Services (AMSs), including clarity regarding ownership and dissemination of data collected by AMSs
   - consultation with clinical staff in AMSs throughout the implementation of the project
   - flexibility in times and outcomes in response to needs of AMSs and patients.
2. The project design should be extended to other pathology tests of critical importance to Aboriginal and Torres Strait Islander people in order to develop culturally appropriate tools to assist people to undertake tests.
3. The project design should be extended to other clinical and health issues in Aboriginal Health (not restricted to pathology testing) in order to develop culturally appropriate educational interventions.
4. A study should be undertaken to test the effectiveness of the ‘Flip Chart’ as an educational intervention to improve medication and INR test compliance by Aboriginal and Torres Strait Islander patients.
5. The content of the ‘Flip Chart’ be developed into formats that can be easily taken home by patients and their families to reinforce the messages from the ‘Flip Chart’ discussed in the consultation. A leaflet or comic book appears to be the most appropriate format.

6. Canvass opportunities to fund ‘reminders’ for Aboriginal and Torres Strait Islander patients to take Warfarin and have INR tests. The range of appropriate ‘reminders’ identified in the yarning group phase of the project include fridge magnets, text messages to mobile phones, calendars etc.

**Key Project Learnings**

- There was strong support by the Aboriginal communities for the content of the ‘Flip Chart’ to be produced in the form of leaflets or booklets for the patients to take home.
- Future projects utilising the same project design/model should consider including the following amendments:
  - gain ‘in-principle’ commitment to the project by specific AMSs during the development of the proposal rather than recruiting AMSs after funding has been received
  - employ a dedicated ‘project manager’ (ideally an Indigenous person) in the lead agency with minimal responsibilities outside the project
  - clarify the specific Human Research Ethics Committees that require approval of the project during the planning stages
  - resourcing for increased travel/face-to-face contact between the lead agency and AMSs
  - increased resourcing for staffing at the lead agency
  - increased time of implementing the project which recognises that flexibility and time is needed to build strong working relationships
  - clearer guidance to AMSs at the beginning of the project to ensure an appropriate clinical staff member is ‘assigned’ to work on the project
  - clarify the need/purpose of any Reference or Working Group during the proposal stage of the project.

**Areas for Future QUPP Consideration**

- Further evaluation and extension of the ‘Flip Chart’ concept to include other morbidities.

**Quality Assurance for Aboriginal Medical Services (QAAMS) (Current)**

**Description**

The Quality Assurance for Aboriginal Medical Services (QAAMS) program sought to provide culturally appropriate and clinically effective diabetes management through the use of two “point of care” pathology tests (PoCT): glycosylated haemoglobin (HbA1c) and urine albumin/creatinine ratio (ACR), at participating Aboriginal and Torres Strait Islander health services across Australia. A management framework of training, technical support and quality monitoring, and a program for Aboriginal community leaders ensured that pathology testing met the quality achieved in conventional pathology laboratories. There was an
Australia-wide network of sites (150 in 2010-2011) for PoCT to assist in effective diabetes management in Indigenous communities.

**Grant Recipient**
Flinders University

**Aims and Objectives**
- to establish and maintain a QAAMS Program Management Group (QPMG) to co-ordinate and control the conduct of the Project
- to provide scientific, technical and clinical support and on-going scientific review of the Project
- to provide comprehensive education, training and on-going support for the Project
- to develop mechanisms to foster and encourage greater Aboriginal leadership and expertise within the Project
- to increase the participation rate of Aboriginal Medical Services (AMSs) and Aboriginal Community Controlled Health Services (ACCHSs) in the Program
- to oversee the maintenance of the internal quality control and external quality assurance processes.

*These aims and objectives were achieved by this project.*

**Outcomes**
- The number of services enrolled in the QAAMS Program for HbA1c and ACR increased by 78% (from 60 to 107) to 146% (from 37 to 91) during the contract period of 2006 to 2009. Two recruitment drives resulted in the cap of 100 services participating in the program being exceeded which necessitated a contract variation.
- A telephone hotline support service was set up and manned by a qualified scientist from the Flinders University Community Point-of-Care Services (CPS) unit during business hours (9am to 5pm [CST] Monday to Friday) across the contract period. Total calls in were 1650 and total calls out were 2185.
- A quarterly QAAMS newsletter on issues relevant to the QAAMS program was routinely produced and sent to all participants, and later posted on the QAAMS website.
- A QAAMS Clinical Support Officer was appointed in early 2006.
- Information was provided to AMSs and ACCHSs to ensure the appropriate use and understanding of the Medicare Rebate.
- The QAAMS Program Manager liaised consistently with Bayer (now Siemens HealthCare Diagnostics) to ensure participants received high quality services in relation to the provision of reagents, quality control (QC) and consumables, and technical support for the DCA 2000 PoCT device.
- The Flinders CPS unit undertook a major program of work called the *QAAMS Diabetes Outcome Study* midway through the contract period to validate the clinical effectiveness of QAAMS by collecting and analysing serial PoCT HbA1c results from patients with established diabetes from different services participating in QAAMS. Results from this analysis showed:
o a statistically significant reduction in mean HbA1c of 0.5% (from 8.8% to 8.3%) in this group of patients over a median time of observation of 29 months (p<0.0001)
o the time period over which PoCT was monitored (a median of 2.5 years) indicated that improvements in mean glycaemic control occurred over the long term and were not just short-term changes
o a separate means of analysis showed a trend towards improved diabetic control; a 12% increase in the percentage of patients achieving a HbA1c <8%, a 7% reduction in the percentage of patients having a HbA1c between 8% and 10%, and a 6% reduction in patients with poorly controlled diabetes.

- There were significant advances and new initiatives in the delivery of training in PoCT for QAAMS participants including:
  o redevelopment of the QAAMS primary training resources
  o development of the QAAM’S website
  o new education initiatives.
- The annual QAAMS Workshops increased their attendance rates between 2001 and 2008.
- The QAAMS Leaders Group was formed in May 2006 whereby one person of Aboriginal or Torres Strait Islander descent was selected to represent each State or Territory. They developed a Mission Statement for QAAMS and a Terms of Reference document and played an integral role in:
  o assessing training resources for their cultural appropriateness
  o assisting with regional training visits by the primary QAAMS Training Team
  o delivering the annual QAAMS Workshop through program development, training assistance, delivering specific core sessions and making presentations.
- The Flinders CPS unit and Royal College of Pathologists of Australasia Quality Assurance Programs Pty Ltd (RCPA QAP) held 29 meetings to collectively review the quality control and quality assurance results from each QAAMS site across the contract period.
- The QAAMS Management Team published papers about QAAMS in two peer-reviewed papers, and the Program Manager delivered invited lectures on the QAAMS Program at a number of conferences/meetings.

Findings
- Face-to-face training and competency assessment through on-site visits to individual services or regional workshops were crucial core activities.
- The latter development of supporting on-line web-streamed training video and competency processes meant more device operators could be trained through this medium. This was a useful adjunct for training, but was not intended to replace face-to-face training which was the most effective means of delivering training for device operators in the QAAMS Program.

Recommendations
1. The QAAMS Program should embrace the opportunity to include new PoCT devices as they enter the Australian market, provided they meet analytical goals and are safe for patient care. This may involve new challenges to
develop training and quality management processes that can support these new devices.

2. The QAAMS Management team should further engage the QAAMS Leaders to assist the scientific team in establishing contact with and rectifying the issues causing poor participation in QC testing regimes.

Key Project Learnings

- The constant change of health service personnel in the locations made the continuity of a high quality PoCT service and maintenance of training support difficult to sustain. The introduction of web-based training available 24hrs a day 7 days a week, and training DVDs, addressed this issue to some extent, but the fundamental issue of staff retention in rural and remote Australia will remain a permanent issue for QAAMS.
- High staff turnover is also associated with the maintenance of regular QC testing regimens.
- Data collection for the Diabetes Outcome Study was labour intensive and not streamlined despite the easy-to-follow templates and processes designed and implemented to assist this process. Processes are in place to address this issue.

Follow on Initiatives and Projects

- Specific funding was provided by the Commonwealth Government in the 2009 Budget for four years. The success of the QAAMS program also led to Flinders University International Centre being able to use the QAAMS model to assist in the development of “point of care” pathology testing programs in other countries which currently include Canada, South Africa, Thailand and New Zealand.

Areas for Future Consideration

- Further funding for QAAMS will be considered under the new Chronic Disease Prevention and Service Improvement Fund.

Quality Assurance for Aboriginal Medical Services (QAAMS)

Quality Assurance Program (Current)

Description
This project sought to provide and manage the external quality assurance component of the Quality Assurance for Aboriginal Medical Services (QAAMS) Program, and assist in the provision of training, technical support and quality management to participating Aboriginal and Torres Strait Islander health services across Australia. This report focuses on Cycle 20 which ran from 30 January 2009 to 30 June 2009, and its associated QAAMS activities.

Grant Recipient
Royal College of Pathologists of Australasia Quality Assurance Programs Pty Ltd (RCPA QAP)
Outcomes
- There were 99 enrolments for cycle 20 comprising of 96 enrolments for glycosylated haemoglobin (HbA1c) and 78 enrolments for urine albumin/creatinine ratio (ACR).
- Interim Reports and Supervisor’s Reports were printed monthly as soon as possible after the closing date.
- The RCPA QAP and QAAMS management met monthly to review participation, quality control (QC) results and quality assurance (QA) results and decide if any action was required.
- The telephone hotline support service is continuing to be used by participants.
- The RCPA QAP contributed two newsletters in this reporting period.

Findings
- The participation rate of 69% for HbA1c and 64% for urine ACR is an improvement from cycle 19 but still less than in previous years. The Aboriginal Medical Service (AMS) is contacted if they are not participating.
- The percentage of acceptable results for HbA1c and urine ACR remained high in cycle 20.

Key Project Learnings
- Staff and training are the main issues for the QAAMS’ Quality Assurance Program.
- It is a challenge for all participants to return results by the due date. A process has been put into place to alert participants to the consequences of not submitting QC and QA results.

Follow on Initiatives and Projects
- Specific funding was provided by the Commonwealth in the 2009 Budget for four years.

Areas for Future Consideration
- Further funding for QAAMS will be considered under the new Chronic Disease Prevention and Service Improvement Fund.
Communication Strategy and Stakeholder Engagement

The Quality Use of Pathology Program (QUPP) sought to engage stakeholders in pathology through four workshops (Table 12) to scope out issues relating to the quality use of pathology. These workshops identified a number of issues relating to stakeholders within the industry, with the Quality Use of Pathology Committee (QUPC) seeking to increase their engagement with consumers during the latter workshops.

Common issues that emerged during these workshops included:
- workforce safety and quality, especially for Anatomical Pathologists
- recruiting and retaining a quality pathology workforce
- lack of clear guidelines around pathology requesting and reporting
- concerns about eHealth
- increased consumer empowerment and engagement
- quality assurance issues.

These workshops produced many recommendations about the way forward in pathology, while this integrated analysis captured the following areas for future consideration:
- Emphasis should be placed on producing guidelines (perhaps incorporating patient pathways) allowing informed choices to be made by consumers rather than on difficult to develop and administer regulation.
- Review the pathology test request forms for relevance to the current provider/requester/consumer climate.
- Explore options to develop guidelines/testing pathways, especially for health checks, obesity, common multi-morbidity combinations and hypertension.
- Explore options to target requesters at critical education and training points.
- Explore the issue of pathology training and specialty opportunities for Aboriginal and Torres Strait Islander medical graduates.
- Explore the possibility of developing guidelines on safe pathologist workloads.

[alt = “The following table lists the four project names and grant recipients under the Communication Strategy and Stakeholder Engagement theme”]

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Grant Recipient/s</th>
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<tbody>
<tr>
<td>3. Best Practice in Pathology Requesting and Reporting Workshop (2009)</td>
<td>Apis Group Pty Ltd</td>
</tr>
<tr>
<td>4. Pathology Workforce Workshop (2011)</td>
<td>URBIS</td>
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Table 12: Projects summarised for Communication Strategy and Stakeholder Engagement
Report from the National Workshop on Safety and Quality in Pathology (2007)

Description
This one-day workshop on 28 November 2007 brought together key stakeholders from the pathology profession and industry. They identified a number of key themes for future Quality Use of Pathology (QUPP) investment, including a strong concern about the future safety and quality of pathology as a consequence of current workforce shortages.

Stakeholders represented included:
- Royal College of Pathologists of Australasia (RCPA)
- RCPA Quality Assurance Programs Pty Ltd (RCPA QAP)
- Australian Association of Pathology Practices (AAPP)
- National Coalition of Public Pathology (NCOPP)
- Consumers Health Forum of Australia (CHF)
- National E-Health Transition Authority (NEHTA)
- Australian Commission of Safety and Quality in Health Care
- Australasian Association of Clinical Biochemists (AACB)
- Health Informatics Society of Australia (HISA)
- National Association of Testing Authorities (NATA)
- ACT Division of General Practice
- Cancer Institute of NSW
- University of Sydney (GP Statistics and Classification Centre)
- Medical Industry Association of Australia

Grant Recipient
Michael Legg and Associates

Aims and Objectives
- to focus on the full spectrum of pathology-related quality issues from ‘decision to request a service’ through ‘conduct of the testing’ to ‘use of test results in patient management’
- to reflect on current plans and recent pathology initiatives in patient safety and quality
- to identify any gaps that need addressing and scan the horizon for future issues
- to produce a range of options to guide future development activity in this area contributing to strategic planning for both the short and medium term
- to suggest how identified concepts or initiatives should be ranked and priorities for future attention by the relevant bodies.

These aims and objectives were achieved by this workshop.

Outcomes
- The Workshop participants identified issues they thought would be important in relation to safety and quality in the provision of pathology services for the next three years. The issues identified in order of priority were:
  1. workforce (127 points)
2. smart requesting (87 points)
3. positive identification (63 points)
4. testing outside of the current quality framework (46 points)
5. smart reporting (44 points)
6. multidisciplinary care (25 points)
7. clinical audit (14 points).

- A Consensus Statement on workforce safety and quality in pathology was developed after the Workshop based on agreement about the pathology workforce issue identified during the Workshop. It could be used to escalate the issue and advocate for remedy. The Consensus Statement developed is:

There is a **critical threat to the safety and quality** of the world-class pathology system that Australia currently has; it is workforce shortages.

The problem extends to the entire range of those involved in providing pathology services but in particular it affects

a. **Pathologists and**
b. **Laboratory Scientists/Technicians and Health Informaticians**.

The shortage of qualified staff is **already having an impact** on the way that pathology practices are organising themselves and this has been evident for at least the last three years.

The problem is **not because of inefficiencies** because Australian laboratories are among the most efficient in the world.

There are **too few trainees in the system to meet current needs** let alone to deal with the ageing workforce.

There are willing trainees and trainers from both public and private practices but there is **insufficient** state and territory government **funding for this education**.

The **workforce shortage will only be exacerbated** by the increased reliance on pathology in the practice of modern medicine and the burgeoning disease burden of an ageing population.

**Action** by the various parties must be taken now to avoid serious consequences to health outcomes.

**Finding**

- The current quality framework in pathology laboratories means most risk and opportunity for improvement is in the nodes of the Pathology Request Test Report Cycle in the pre- and post-analytical stages, rather than at the analytical stage.

**Recommendations**

1. Consider options for action to address identified priorities through the Quality Use of Pathology Committee (QUPC) and National Pathology Accreditation Advisory Council (NPAAC).
2. Consider reconvening in two years to evaluate progress and revise the plan.
Follow on Initiatives and Projects

• The Second National Workshop on Safety and Quality in Pathology

The Second National Workshop on Safety and Quality in Pathology (2008)

Description

This one-day workshop on 6 November 2008 was the second platform to highlight and discuss Quality Use of Pathology Program (QUPP) initiatives. It showcased current and recent QUPP-funded initiatives and further work to date on priorities identified in the Report from the National Workshop on Safety and Quality in Pathology on page 172. This second Workshop also sought to more explicitly engage with requesters and consumers.

Stakeholders represented included:

• Royal College of Pathologists of Australasia (RCPA)
• RCPA Quality Assurance Programs Pty Ltd (RCPA QAP)
• Australian Association of Pathology Practices (AAPP)
• National Coalition of Public Pathology (NCOPP)
• Consumers Health Forum of Australia (CHF)
• National E-Health Transition Authority (NEHTA)
• Royal Australian College of General Practitioners (RACGP)
• Australasian Association of Clinical Biochemists (AACB)
• Human Genetics Society of Australasia (HGSAn)
• Health Informatics Society of Australia (HISA)
• National Association of Testing Authorities (NATA)
• ACT Division of General Practice
• Cancer Institute of NSW
• University of Sydney (GP Statistics and Classification Centre)
• Medical Industry Association of Australia

Grant Recipient

Michael Legg and Associates

Aims and Objectives

• to provide an update to stakeholders on the progress made in the priority areas since the initial Workshop, and discuss future proposed work
• to identify any gaps that need addressing
• to further scan the horizon for future issues to be addressed.

These aims and objectives were achieved by this workshop.

Outcomes

• Two interactive sessions were held during the workshop.
• The first was to test the ‘Quality Framework’ Map provided in the pre-reading for completeness of the list by category of the organisations and their products that are involved in the national pathology quality framework (outside of the actual laboratories), and suggestions were collected which will be used to expand this report.
The second session was an invited open discussion on the work being done to help and protect consumers using pathology testing under their control (as opposed to those requested by medical practitioners).

**Recommendations**

1. Emphasis should be placed on producing guidelines (perhaps incorporating patient pathways) allowing informed choices to be made by consumers rather than on difficult to develop and administer regulation.

2. Continue to develop strategies to address workforce shortages in pathology and reconvene a group for that purpose in March 2009.

**Follow on Initiatives and Projects**

- Best Practice in Pathology Requesting and Reporting Workshop.

**Areas for Future Consideration**

- As per recommendation No. 1 above.

**Best Practice in Pathology Requesting and Reporting Workshop (2009)**

**Description**

This one-day workshop on 9 December 2009 sought to promote collaborative, evidence-based pathology requesting and reporting strategies. It included presentations and some discussion in respect to the latest studies ensuring patient safety and quality in pathology communications, emerging issues and priorities and opportunities for future collaboration of agreed priorities.

Stakeholders represented included:

- Royal College of Pathologists of Australasia (RCPA)
- Quality Use of Pathology Committee (QUPC)
- National Pathology Accreditation Advisory Council (NPAAC)
- National Prescribing Service (NPS)
- Australian Association of Pathology Practices (AAPP)
- Australian General Practice Network
- Royal Australian College of General Practitioners (RACGP)
- Cancer Australia
- National Coalition of Public Pathology (NCOPP)
- Confederation of Post Graduate Medical Education Council
- NSW Institute of Medical Education and Training
- National Institute of Clinical Studies
- Royal Australian College of Surgeons (RACS)
- Rural Doctors Association
- Health Informatics Society of Australia
- Consumers Health Forum of Australia (CHF)
- National eHealth Transmission Authority (NEHTA)
- Royal Australasian College of Physicians (RACP)
- Australian Medical Association (AMA)
- Committee of Deans of Australian Medical Schools
- Medical Students Association
Department of Health and Ageing (DOHA).

Grant Recipient
Apis Group Pty Ltd

Objective
• to explore and promote collaborative, evidence-based pathology requesting and reporting strategies.

This objective was achieved by this workshop.

Outcomes
• A broad range of topics were presented and discussed covering the latest studies, ensuring patient safety and quality in pathology communications, emerging issues and priorities and opportunities for future collaboration on agreed priorities.
• A Plenary Session focused on priority areas for future development and collaboration in pathology requesting and reporting.

Findings
• Where clear clinical pathways/guidelines exist and are well known, pathology requesting patterns largely appear to mirror guidelines. Problems tend to be found where there are not clear, agreed guidelines and/or clinicians have to juggle competing and possibly non-aligned guidance for several conditions.
• Adhering to patient and sample identification and collection protocols external to pathology providers is one evidence-based method of preventing harm to patients.

Recommendations
The workshop identified priority areas for further development and exploration including:
1. Ensuring eHealth system capacity provides an effective platform for transferring clinical information and results between requesters and pathology providers.
2. Increasing the focus on the format and content of pathology test request forms and the possible inclusion of more clinical information to draw on pathologists’ expertise regarding smart requesting.
3. Targeting requester training at critical education and training points e.g. post graduation year one (PGY1) and PGY2 curriculum and general practice (GP) registrar training programs.
4. Developing clinical practice guidelines on test requesting for health checks and the management of obesity, common multi-morbidity combinations and uncomplicated hypertension.
5. Focusing on consumer empowerment and engagement through:
   a. better education and training of clinicians to support this
   b. improved access to information including awareness of risks and dangers of unnecessary testing
   c. better communication (readability of pathology reports, need for consumer-friendly language, cultural sensitivity)
   d. guidelines for monitoring/maintenance including self-management.
6. Exploring the need for further research on the rationales for pathology ordering across various settings and provider types.
7. Promoting the development of more comprehensible and useful reporting of pathology test results.
8. Exploring clinical governance issues around accountability and transparency of pathology request and result transactions.
9. Exploring the capacity for requesters to order tests according to patient circumstances.
10. Improving mechanisms to monitor testing algorithms and/or managed under shared care arrangements (e.g. anaemia).
11. Exploring the need to collate and analyse public sector best practice requesting strategies for possible application to the fee-for-service testing model.

Areas for Future Consideration
- Review the pathology test request forms for relevance to the current provider/requester/consumer climate.
- Explore options to develop guidelines/testing pathways, especially for health checks, obesity, and common multi-morbidity combinations and hypertension.
- Explore options to target requesters at critical education and training points.

Pathology Workforce Workshop (2011)

Description
This one-day workshop on 22 June 2011 sought to inform stakeholders of recent research and developments relating to the pathology workforce, and to provide an opportunity for discussion of key issues for the specialist and scientific workforce. Both medical and scientific professionals attended with key issues raised including limited career opportunities, increased demands on the workforce and a forecast decrease in both specialist and scientific workforce numbers. The Australian Association of Pathology Practices (AAPP) was not represented at the workshop, and asked that their decision not to attend be noted.

(The number of delegates available to attend this workshop was substantially reduced at short notice due to the closure of Sydney Airport related to an ash cloud from a volcanic eruption in Chile.)

Grant Recipient
URBIS

Aims
- to provide a representative forum for discussion of pathology workforce issues
- to consider the findings of research related to the pathology workforce
- to identify information gaps requiring further research or investigation.
**Objective**
- to stimulate discussion and debate regarding current and projected workforce challenges and solutions.

*These aims and objective were achieved by this workshop.*

**Findings**

*Workforce Issues*
- There is a declining proportion of working age population and an ageing population with increasing demands for pathology services.
- There are cultural changes across generations which are predicted to impact on workforce choices in the future, with many younger people choosing lifestyle choices over career advancement.
- The career framework is less well defined for the scientific workforce than it is for the specialist pathologist workforce.
- Influences on the future pathology workforce identified include:
  - the need for more flexible workplace environments
  - increasing and changing demands for technologies
  - the growing move within Australia towards nationally consistent accreditation and standards.
- The main challenges identified by employers are:
  - shortage of skilled labour
  - high staff turnover
  - poor Medicare rebates
  - the high cost of wages/remuneration
  - difficulties staffing out-of-hours shifts.
- Key issues for employees were:
  - the desire for new challenges
  - limited career opportunities, particularly for the scientific workforce
  - insufficient rewards, particularly for the scientific workforce
  - stress/burnout
  - a desire for improved work-life balance.
- The current workforce levels, which have increased (particularly in rural areas) for Anatomical Pathologists, represent a threat to the health and well being of pathologists, and on the quality and safety of pathology services.
- There needs to be recognition that participating pathologists perform other duties in addition to reporting on patient-related activities.
- Segmenting the workforce in discrete roles with different training pathways, accreditation requirements and career pathways, and with different industrial arrangements across States/Territories, has not been conducive to developing clear and consistent career frameworks.
- Issues relating to the specialist workforce include:
  - a perceived need for flexibility across pathology sub-disciplines
  - workforce shortages and the proposal for increased recruitment of medical graduates into pathology, including the creation of more training positions
  - the creation of more specialist pathologist positions to cope with the increase in the demand for services
  - increasing service demand and the impact of workload pressures on pathologists’ health and wellbeing, as well as quality and safety
changing technologies and the proposal for enhanced training including support for training while still working
flexible work practices and the development of a career framework which could provide new options for pathologists to move into and out of pathology specialties over a lifetime’s career.

- There is a critical need to recruit and retain senior scientists.
- There is no dedicated pathway for Aboriginal and Torres Strait Islander medical graduates, which may be addressed in the future.

Research Findings
- There is a large amount of data to support action to address key workforce challenges and no pressing need for new research.
- The increase in the demand and complexity of pathology services will require innovative, long-term planning in order to respond to the changing technological environment and ensure the capacity of the workforce to adapt to changing market needs.
- The number of pathology trainees has increased from 406 in 2008 to 474 in 2010.
- The increasing drive towards sub-specialisation may require even more pathologists than otherwise to provide for both generalist and sub-specialty pathology demands.

General Findings
- The Pathology Associations Council (PAC) Competency Based Standards (CBS) framework for Medical Scientists provides a structure for creating a scope of practice and developing a career pathway which could be formalised in industrial reward structures.
- New technologies, such as decision support and point of care testing, will require a flexible and responsive workforce to adapt to changing work practices and service demands. In some cases technology may increase workloads, while it may decrease workloads and increase capacity for other tasks.
- It is important for the pathology sector and government to work together to ensure the workforce is able to meet the demands for future services.
- There is a trend towards concentrating services in urban areas which is reducing the opportunities for rural careers. Innovative packaging or incentives and professional opportunities, as well as strategies such as creating generalist positions for anatomical pathology trainees based in regional or rural locations, could encourage more practitioners to work in rural areas.

Recommendations
1. A better training and career framework for senior scientists should be explored which also considered the drive to sub-specialisation, and the potential for professionals (including pathologists) to move in or out of sub-specialties over the course of their career.
2. Explore options to promote the value of pathology services to the broader health system and within universities to gain the cooperation of those in a position to assist with addressing recruitment, training and workload needs.
3. Existing studies and data could be further mined and an annual survey on employment and data trends would be useful.
4. Explore the option of implementing comprehensive national workforce planning.
5. Quality measures for anatomical pathology need to be given more priority.
6. Possible future actions to recruit and retain senior scientists include:
   a. review current industrial arrangements
   b. undertake a labour market analysis
   c. support structured training
   d. provide a clear and structured career pathway
   e. nationally consistent competency-based standards, role definition and assessment processes
   f. remuneration relative to qualifications and specialisation
   g. support to undertake a professional fellowship.
7. A career framework, supported by greater flexibility within the workplace, is essential to ensure the future pathology workforce was able to meet the demands for services. This may need to be coordinated with undergraduate and postgraduate training, and offer options for ongoing professional development supported while retaining specialists in employment.
8. Explore one accurate method to collect workforce data for both the specialist and scientific workforce.
9. Forecast the number of pathology specialists required in the future to ensure there is capacity within the training pipeline to accommodate an increased number of pathology trainees, including defining a full-time workload.
10. Identify the gaps in the available data on the demand for pathology services.
11. Develop guidelines on safe pathologist workloads.
12. Profile the workforce differences between private and public laboratories.
13. Compare the attrition rates to those in other professions to assess the extent of the problem.

**Follow on Initiatives and Projects**
- Further possible work through the Workforce Advisory Committee under the Pathology Funding Agreement.

**Areas for Future Consideration**
- Explore the issue of pathology training and specialty opportunities for Aboriginal and Torres Strait Islander medical graduates.
- Explore the possibility of guidelines on safe pathologist workloads.
Appendix A – Report Summaries Relevant to Different Themes

The Quality Use of Pathology (QUPP) report summaries incorporate principles and strategies relevant to additional chapter themes which are highlighted in the table below.

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Chapter Theme</th>
</tr>
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</table>
Workforce Capacity and Competence |
<p>| 2 An Historical Analysis of Pathology Ordering by General Practitioners between April 1998 and March 2001 from the Bettering the Evaluation and Care of Health (BEACH) Program (2002) | Pathology Requesting and Reporting – Requester and Consumer Focus |
| 3 A Project to Examine the Utilisation of Pathology Tests in the Investigation of Tiredness in General Practice (2002) | Pathology Requesting and Reporting – Requester and Consumer Focus |
| 4 Analysis of Current Practices in Relation to the Teaching of Pathology | Workforce Capacity and Competence |</p>
<table>
<thead>
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<th>Category</th>
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<td>Analysis of Current Laboratory Medicine (Pathology) Teaching Practice in Prevocational and General Practitioner Vocational Training (2003)</td>
<td>Workforce Capacity and Competence</td>
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<td></td>
<td>Pathology Requesting and Reporting – Requester and Consumer Focus</td>
</tr>
<tr>
<td>9</td>
<td>Common Sense Pathology (2006)</td>
<td>Pathology Requesting and Reporting – Requester and Consumer Focus</td>
</tr>
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<td>10</td>
<td>Improved Pathology Reporting, Education and Practice (IPREP) for Colorectal Cancer (2009)</td>
<td>Pathology Requesting and Reporting – Requester and Consumer Focus</td>
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<tr>
<td>1</td>
<td>Evidence-Based, Best-Practice Prevention of Blood Borne Virus Transmission in Health Care Settings Program (PBBV) (2009)</td>
<td>Risk Minimisation</td>
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<tr>
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<td>Pathology Requesting and Reporting – Requester and Consumer Focus</td>
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<td>Communication Strategy and Stakeholder Engagement</td>
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<td>Structured Pathology Reporting Standards for Cancer (2009)</td>
<td>Risk Minimisation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>eHealth Capability</td>
</tr>
<tr>
<td>3</td>
<td>Evidence-Practice Gap in GP Pathology Test Ordering: A Comparison of BEACH Pathology Data and Recommended Testing (2009)</td>
<td>Pathology Requesting and Reporting – Requester and Consumer Focus</td>
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<td>Pathology Requesting and Reporting – Requester and Consumer Focus</td>
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<td>5</td>
<td>Common Sense Pathology Publication Series (2011)</td>
<td>Pathology Requesting and Reporting – Requester and Consumer Focus</td>
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<td>Communication Strategy and Stakeholder Engagement</td>
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<tr>
<td>6</td>
<td>Promoting and Expanding Structured Pathology Reporting of Cancer (Stage 2) (Current)</td>
<td>Pathology Requesting and Reporting – Requester and Consumer Focus</td>
</tr>
<tr>
<td>8</td>
<td>Pilot Laboratory Assessment and Peer Review Mechanism for Pathology Key Performance Indicators (2007)</td>
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<td>19</td>
<td>Key Incident Monitoring &amp; Management Systems (Current)</td>
<td>Workforce Capacity and Competence</td>
</tr>
<tr>
<td>20</td>
<td>Performance Monitoring of External Quality Assurance (Current)</td>
<td>Workforce Capacity and Competence</td>
</tr>
<tr>
<td>21</td>
<td>NATA File Audit – Risk Analysis of Assessment Non Conformances Identified in Pathology Laboratory Assessment Accreditation (Current)</td>
<td>Workforce Capacity and Competence</td>
</tr>
<tr>
<td>22</td>
<td>Virtual Microscope (2005)</td>
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</tr>
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<td>27</td>
<td>Establishment</td>
<td>Risk Minimisation</td>
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</table>
Integrated Analysis of Quality Use of Pathology Program (QUPP) Final Reports

A Summary Report for the Australian Department of Health and Ageing Medical Benefits Division

Canberra 22 June 2012

Cognitus Pty Ltd
Jane Carstens

Table of Contents
Executive Summary
General Findings from the Integrated Analysis
Consistent Themes Identified from the Integrated Analysis
Conclusion

Abbreviations

Introduction
Background
Terms of Reference
Structure of the Document

Promoting Evidence-Based Practice
An Historical Analysis of Pathology Ordering by General Practitioners between April 1998 and March 2001 from the Bettering the Evaluation and Care of Health (BEACH) Program (2002)
Evidence-Practice Gap in GP Pathology Test Ordering: A Comparison of BEACH Pathology Data and Recommended Testing (2009)
A Project to Examine the Utilisation of Pathology Tests in the Investigation of Tiredness in General Practice (2002)
Analysis of Current Laboratory Medicine (Pathology) Teaching Practice in Prevocational and General Practitioner Vocational Training (2003)
Common Sense Pathology (2006)
Common Sense Pathology Publication Series (2011)
Improved Pathology Reporting, Education and Practice (IPREP) for Colorectal Cancer (2009)
Structured Pathology Reporting Standards for Cancer (2009)
Promoting and Expanding Structured Pathology Reporting of Cancer (Stage 2) (Current)
Evidence-Based, Best-Practice Prevention of Blood Borne Virus Transmission in Health Care Settings Program (PBBV) (2009)

Risk Minimisation
RCPA – Quality Assurance Programs Key Indicator Project (2004)
Pilot Laboratory Assessment and Peer Review Mechanism for Pathology Key Performance Indicators (2007)
Performance Monitoring of External Quality Assurance (Current)
NATA File Audit – Risk Analysis of Assessment Non Conformances Identified in Pathology Laboratory Assessment Accreditation (Current)
Key Incident Monitoring & Management Systems (Current)

Quality Assurance and Capacity – New Technology
Virtual Microscope (2004)
High Resolution Scanning Microscopy for Quality Assurance and Educational Applications (2009)
Policies, Procedures and Guidelines for Point-of-Care Testing (2011)
PoCT Training, Certification, Support and Skill Maintenance Program (Australian PoCT Practitioners Network – APPN) (Current)
Establishment of a Molecular Genetics Quality Assurance Program (Current)
MAWSON – An Online Repository of Genetic Data to Aid Reporting of Medical Genetic Tests (Current)

eHealth Capability
Pathology and General Practice Software Integration Project (PaGSIP) (2003)
Chain of Information Custody for the Pathology Request-Test-Report Cycle in Australia (Guidelines for Pathology Requesters and Pathology Providers) (2004)
Supporting HL7 for Health Informatics Standards (2004)
Application of Pathology Informatics to Reporting of Critical/Abnormal Results for Improved
<table>
<thead>
<tr>
<th>Theme</th>
<th>Reports/Projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication Strategy and Stakeholder Engagement</td>
<td>Pathology Requesting and Reporting – Requester and Consumer Focus</td>
</tr>
<tr>
<td></td>
<td>Guidelines for Patient/Consumer Access to Pathology Test Reports (2001)</td>
</tr>
<tr>
<td></td>
<td>AUCLAB Retest Interval Trial Project (2003)</td>
</tr>
<tr>
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<td>Home Monitoring of Warfarin Therapy in Children using the CoaguChek® Point of Care INR Monitor (2003)</td>
</tr>
<tr>
<td></td>
<td>Facilitating Best Practice Pathology Utilisation by the Use of Hand-Held Decision Support Devices (2004)</td>
</tr>
<tr>
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<td>Improving GP Access to and Use of Retrospective and Current Pathology Data to Increase Detection of Early Diabetes (IGT and IFG) in General Practice (2005)</td>
</tr>
<tr>
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<td>Quality Use of Pathology Services Education Program (2006)</td>
</tr>
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<td>Investigation into the Reasons for Incorrect or Incomplete Pathology Request Forms (2008)</td>
</tr>
<tr>
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<td>Enhancing the Quality Use of Pathology for GP Registrars and International Medical Graduates – Assessing the Need (2009)</td>
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<tr>
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<td>Effect of a Structured Microbiology Laboratory Report on Antimicrobial Prescribing for Asymptomatic Bacteriuria in Elderly Females (2010)</td>
</tr>
<tr>
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<td>The Impact of the Implementation of Electronic Ordering of Pathology Requesting and the Quality and Effectiveness of Hospital Pathology Services – Building a Robust Evidence Base and Benefits Framework for Successful e-Health Diffusions (Current)</td>
</tr>
<tr>
<td></td>
<td>iNvestigate: Online Patient Simulations for Education in the Rational Use of Investigations (Current) (2011)</td>
</tr>
<tr>
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<td>Encouraging Quality Pathology Ordering in Australia’s Public Hospitals (2011)</td>
</tr>
<tr>
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<td>Effective Communication of Pathology Results in Requesting Practitioners and Consumers (Current)</td>
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<tr>
<td>Workforce Capacity and Competence</td>
<td>Pathway (2005)</td>
</tr>
<tr>
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<td>The Australian Pathology Workforce Crisis (2008)</td>
</tr>
<tr>
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<td>Review of Pathology Specialist Development Pathways (2010)</td>
</tr>
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<td>Impact of Workload of Anatomical Pathologists on Quality and Safety (2011)</td>
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<td>Survey of the Pathology Workforce (2011)</td>
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<td>Career Structures and Pathways for the Scientific Workforce in Medical Pathology Laboratories (2011)</td>
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<tr>
<td>Consumer Focus and Information Strategies</td>
<td>Quality Use of Pathology Consumer Consultation Project (2010)</td>
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<td>Benefits and Risks of Pathology Testing (Current)</td>
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<td>Lab Tests Online™ Stage 1 (Current)</td>
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<td>Access Initiatives – Raising Awareness</td>
<td>Optimising Health Benefits for Aboriginal People who take Warfarin (2009)</td>
</tr>
<tr>
<td></td>
<td>Quality Assurance for Aboriginal Medical Services (QAAMS) (Current)</td>
</tr>
<tr>
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</tr>
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<td>The Second National Workshop on Safety and Quality in Pathology (2008)</td>
</tr>
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<td>Best Practice in Pathology Requesting and Reporting Workshop (2009)</td>
</tr>
<tr>
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<td>Pathology Workforce Workshop (2011)</td>
</tr>
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Appendix A – Report Summaries Relevant to Different Themes
Executive Summary

The Quality Use of Pathology Program (QUPP) is a well-established program having been established in 1999. Its goal is the continual improvement in health and economic outcomes from the use of pathology in health care through the pursuit of better practice amongst requesters/referrers and providers of pathology services, and through knowledgeable and engaged consumers. It is managed by the Australian Government Department of Health and Ageing (DoHA) in conjunction with the Quality Use of Pathology Committee (QUPC).

The Australian Government Department of Health and Ageing commissioned Cognitus Pty Ltd to undertake an analysis of the projects/initiatives funded under the Quality Use of Pathology Program (QUPP). The objectives of the project were:

- to conduct a comprehensive review of QUPP projects/initiatives, including project results and recommendations; and
- to produce a document that would record the past and present investment and could inform the future strategic direction of the program.

This analysis includes a summary of the QUPP projects/initiatives over the past ten years and also provides an analysis of whether each of the projects/initiatives achieved their aims and objectives and whether there were any key project learnings.

There were 74 project reports analysed, which were further divided into the following nine themes that were based on QUPP areas of focus:

10. Promoting Evidence-Based Practice
11. Risk Minimisation
13. eHealth Capability
14. Pathology Requesting and Reporting – Requester and Consumer Focus
15. Workforce Capacity and Competence
16. Consumer Focus and Information Strategies
17. Access Initiatives – Raising Awareness

*The number of reports within each theme is presented in Figure 1.*
General Findings from the Analysis

The QUPP has contributed to the expansion of the knowledge base of pathology practice and to the quality use of pathology services in Australia. There were a number of project recommendations that were strategically followed up in subsequent projects. For example, The Australian Pathology Workforce Crisis report resulted in five other initiatives and projects.

In a broader sense, all of the themes led to a high rate of follow on initiatives and projects as outlined below:

<table>
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<tr>
<th>Theme</th>
<th>Original projects</th>
<th>Follow on initiatives and projects</th>
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<td>Pathology Requesting and Reporting – Requester and Consumer Focus</td>
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<td>Promoting Evidence-Based Practice</td>
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<td>Quality Assurance and Capacity – New Technology</td>
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<td>4</td>
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<td>Communication Strategy and Stakeholder Engagement</td>
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<td>Consumer Focus and Information Strategies</td>
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<tr>
<td>Access Initiatives – Raising Awareness – 2 out of 3</td>
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<td>2</td>
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Areas of significant and rapid change, such as eHealth have been supported to enable investigation into their impact on the quality use of pathology including health and economic outcomes. For example, twelve projects in the area of eHealth have uncovered significant key project learnings such as issues with software installation and capacity, and identified strategies to facilitate the future implementation of eHealth capability.

The QUPP investment into eHealth also enabled pathology reports to integrate into the electronic age by supporting projects to develop software systems to automatically extract information from narrative pathology reports, and to standardise pathology terminology units to facilitate their use in electronic reporting.

Projects to investigate workforce issues in the pathology sector were also funded by this program. These projects identified stakeholder concerns, such as the ageing pathology workforce and the lack of a structured career path for scientists. Of the six projects funded under the Workforce Capacity and Competence theme, ten follow on projects and initiatives have been undertaken to further investigate and address these key issues.

The QUPP also facilitated increased engagement with consumers through workshops which highlighted issues predominantly based on a need for improved communication and engagement, and the need for comprehensive information strategies to address consumer concerns.

From the analysis of QUPP initiatives to date, there are few identified areas that may benefit from some further consideration. These include:

- eHealth information outlining the benefits/risks of pathology results being uploaded onto the National Electronic Health Record System for consumers.
- Standardised request forms and education of all levels of health practitioners about the importance of completing the information on these forms.
- Development of comprehensive guidelines for General Practitioners (GPs) regarding evidence-based pathology requesting.
- Investigate including patient-specific advice for GPs on pathology test results.
- Focus on increasing GPs' understanding of the pathology testing process.

**Consistent Themes Identified from the Analysis**

From the analysis there appears to be three consistent themes throughout all areas of the pathology spectrum. These are:

4. The need for increased information resources generated by reliable sources about pathology testing for General Practitioners (GPs) that are short, concise and easily accessed. This information should also include procedures for GPs when collecting pathology specimens from their patients, and for GPs to give to their patients for patient-collected samples.

5. Educating medical students during their training and post-graduate years about pathology was consistently viewed as a long term strategy to improve pathology knowledge and practice. This included rotating medical students through pathology laboratories as a component of
their medical training.

6. Producing reliable consumer information about pathology testing, and keeping consumers informed about current issues/advances within pathology.

**Conclusion**

The QUPP has enabled projects to investigate and implement improvements in health and economic outcomes for the quality use of pathology. This is evidenced by the high rate of follow on initiatives and projects outlined in Table 1, and by the changes in practice that have resulted from this program's support. For example, the Structured Pathology Reporting of Cancer projects developed cancer protocols for the structured reporting of six types of cancer. This project may lead to the possible development of a standardised reporting format for all major cancers and other major complex reporting topics.

This integrated analysis also highlighted a number of key project learnings from the past ten years of the Quality Use of Pathology Program. It also identified potential areas for future consideration across all of the themes which are presented in the analysis of each theme. This report stands as a record of the valuable investment the program has made to the quality and capacity of the pathology sector to date, and will form the basis for reflection when future programs are investigated and/or supported by this important program.

**Abbreviations**

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<th>Abbreviation</th>
<th>Description</th>
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<td>AACB</td>
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<td>AAPP</td>
<td>Australian Association of Pathology Practices</td>
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<td>AIHW</td>
<td>Australian Institute of Health and Welfare</td>
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<td>APPN</td>
<td>Australian Point of Care Practitioners Network</td>
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<td>ACRRM</td>
<td>Australian College of Rural and Remote Medicine</td>
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<td>AMA</td>
<td>Australian Medical Association</td>
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<td>BEACH</td>
<td>Bettering the Evaluation and Care of Health</td>
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<td>CHF</td>
<td>Consumers Health Forum of Australia</td>
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<td>DATIS</td>
<td>Drug and Therapeutics Information Service</td>
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<td>DoHA</td>
<td>Australian Government Department of Health and Ageing</td>
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<td>GP</td>
<td>General Practitioner</td>
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<td>Human Genetics Society of Australasia</td>
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<td>Health Informatics Society of Australia</td>
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<td>Key Performance Indicators</td>
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<td>Lab Tests Online</td>
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<td>MBS</td>
<td>Medicare Benefits Schedule</td>
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<tr>
<td>MTAAC</td>
<td>Medical Testing Accreditation Advisory Committee</td>
</tr>
</tbody>
</table>
Introduction

Background

The Quality Use of Pathology Program (QUPP) was established in 1999 under the auspice of the 2nd pathology Memorandum of Understanding (MoU) with pathology stakeholders, and with up to $2 million notionally allocated per year for the funding of projects and other initiatives relating to improvements in the quality of pathology services.

The program has been managed by the Australian Government Department of Health and Ageing (DoHA) in conjunction with the Quality Use of Pathology Committee (QUPC). The QUPC was originally a sub-committee of the Pathology Consultative Committee (PCC) formed to work with the Australian Government to manage pathology outlays under the MoU. But more recently it has been given a continued focus with the commencement of the five-year Pathology Funding Agreement (PFA) between the Commonwealth Government and key pathology stakeholders in April 2011.

The QUPC provides advice relation to strategic directions and projects and/or initiatives implemented under the program. This committee currently comprises nominees from the pathology profession, general practice, the Royal Australasian College of Physicians, Doctors-in-Training, the Consumers Health Forum of Australia, Medical Deans Australia and New Zealand and representatives from the Department of Health and Ageing.

Funding for the QUPP has been allocated by a combination of open funding rounds and targeted initiatives. The program has operated under overarching principles supported by guiding assumptions developed by
DoHA and the QUPC in consultation with the broader pathology stakeholder sector.

National workshops have been held each year since 2007 with the aim of bringing pathology, requester and consumer stakeholders together to discuss pathology quality and safety issues, to inform the QUPP priority setting process and debate the ways in which priority issues could be addressed. In 2005-2006 the QUPP was reviewed and the operation of the program was refined to address strategic issues outlined in the review report. Since the review, project funding has generally been targeted to three sub-programs with the following key objectives:

4. **Quality Consumer Services**: To develop and improve consumer-focused, accessible and coordinated services that promote informed choice and meet consumer needs;

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6. **Quality Pathology Practice**: To support professional practice standards that meet consumer and referrer needs and provide evidence-based, best practice, quality-assured services that are safe, cost effective and efficient.

In recent years there has been an increasing focus on the funding of initiatives aimed at developing and testing strategies to minimise error and promote patient safety. This work is relevant to the strategic focus of the National Pathology Accreditation Advisory Council.


**Terms of Reference for the project**

DoHA commissioned Cognitus Pty Ltd to conduct a comprehensive analysis of the Quality Use of Pathology Program project reports. The project objectives were:

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The analysis was to cover the QUPP investment that has occurred over the past ten years which would record the investment to date made on the quality use of pathology. It is expected that this document would also provide a potential basis for any future evaluation of the program.

**Structure of the Report**

This document is structured according to nine themes based on the QUPP’s areas of focus:

10. Promoting Evidence-Based Practice
11. Risk Minimisation
13. eHealth Capability
14. Pathology Requesting and Reporting – Requester and Consumer Focus
15. Workforce Capacity and Competence
16. Consumer Focus and Information Strategies
17. Access Initiatives – Raising Awareness

There were 74 reports analysed for this integrated analysis, with each report assigned to one of the above themes. Each report was set out in the following template:

- Description
- Grant Recipient/s
- Aims and/or Objectives
- Outcomes and/or Findings
- Recommendation/s
- Key Project Learning/s
- Follow on Initiatives and Projects
- Areas for Future Consideration.

Many of the projects listed in this report fall into more than one theme – see Appendix A – Report Summaries Relevant to Different Themes.
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A Summary Report for the Australian Department of Health and Ageing Medical Benefits Division

Canberra
22 June 2012

Cognitus Pty Ltd
Jane Carstens

Table of Contents
Executive Summary

General Findings from the Integrated Analysis
Consistent Themes identified from the Integrated Analysis
Conclusion

Abbreviations

Introduction

Background
Terms of Reference
Structure of the Document

Promoting Evidence-Based Practice

A Historical Analysis of Pathology Ordering by General Practitioners between April 1998 and March 2001 from the Bettering the Evaluation and Care of Health (BEACH) Program (2002)
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Appendix A – Report Summaries Relevant to Different Themes
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The Australian Government Department of Health and Ageing commissioned Cognitus Pty Ltd to undertake an analysis of the projects/initiatives funded under the Quality Use of Pathology Program (QUPP). The objectives of the project were:

- to conduct a comprehensive review of QUPP projects/initiatives, including project results and recommendations; and
- to produce a document that would record the past and present investment and could inform the future strategic direction of the program.

This analysis includes a summary of the QUPP projects/initiatives over the past ten years and also provides an analysis of whether each of the projects/initiatives achieved their aims and objectives and whether there were any key project learnings.

There were 74 project reports analysed, which were further divided into the following nine themes that were based on QUPP areas of focus:

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*The number of reports within each theme is presented in Figure 1.*
General Findings from the Analysis

The QUPP has contributed to the expansion of the knowledge base of pathology practice and to the quality use of pathology services in Australia. There were a number of project recommendations that were strategically followed up in subsequent projects. For example, The Australian Pathology Workforce Crisis report resulted in five other initiatives and projects.

In a broader sense, all of the themes led to a high rate of follow on initiatives and projects as outlined below:

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<tr>
<th>Theme</th>
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<th>Follow on initiatives and projects</th>
</tr>
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<tr>
<td>Pathology Requesting and Reporting – Requester and Consumer Focus</td>
<td>17</td>
<td>9</td>
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<td>10</td>
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<tr>
<td>eHealth Capability</td>
<td>12</td>
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<td>Quality Assurance and Capacity – New Technology</td>
<td>8</td>
<td>4</td>
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<td>Workforce Capacity and Competence</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>Risk Minimisation</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Communication Strategy and Stakeholder Engagement</td>
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<td>Consumer Focus and Information Strategies</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Access Initiatives – Raising Awareness – 2 out of 3</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>
Areas of significant and rapid change, such as eHealth have been supported to enable investigation into their impact on the quality use of pathology including health and economic outcomes. For example, twelve projects in the area of eHealth have uncovered significant key project learnings such as issues with software installation and capacity, and identified strategies to facilitate the future implementation of eHealth capability.

The QUUP investment into eHealth also enabled pathology reports to integrate into the electronic age by supporting projects to develop software systems to automatically extract information from narrative pathology reports, and to standardise pathology terminology units to facilitate their use in electronic reporting.

Projects to investigate workforce issues in the pathology sector were also funded by this program. These projects identified stakeholder concerns, such as the ageing pathology workforce and the lack of a structured career path for scientists. Of the six projects funded under the Workforce Capacity and Competence theme, ten follow on projects and initiatives have been undertaken to further investigate and address these key issues.

The QUUP also facilitated increased engagement with consumers through workshops which highlighted issues predominantly based on a need for improved communication and engagement, and the need for comprehensive information strategies to address consumer concerns.

From the analysis of QUUP initiatives to date, there are few identified areas that may benefit from some further consideration. These include:

- eHealth information outlining the benefits/risks of pathology results being uploaded onto the National Electronic Health Record System for consumers.
- Standardised request forms and education of all levels of health practitioners about the importance of completing the information on these forms.
- Development of comprehensive guidelines for General Practitioners (GPs) regarding evidence-based pathology requesting.
- Investigate including patient-specific advice for GPs on pathology test results.
- Focus on increasing GPs' understanding of the pathology testing process.

**Consistent Themes Identified from the Analysis**

From the analysis there appears to be three consistent themes throughout all areas of the pathology spectrum. These are:

7. The need for increased information resources generated by reliable sources about pathology testing for General Practitioners (GPs) that are short, concise and easily accessed. This information should also include procedures for GPs when collecting pathology specimens from their patients, and for GPs to give to their patients for patient-collected samples.

8. Educating medical students during their training and post-graduate years about pathology was consistently viewed as a long term strategy to improve pathology knowledge and practice. This included rotating medical students through pathology laboratories as a component of
their medical training.

9. Producing reliable consumer information about pathology testing, and keeping consumers informed about current issues/advances within pathology.

Conclusion

The QUPP has enabled projects to investigate and implement improvements in health and economic outcomes for the quality use of pathology. This is evidenced by the high rate of follow on initiatives and projects outlined in Table 1, and by the changes in practice that have resulted from this program’s support. For example, the Structured Pathology Reporting of Cancer projects developed cancer protocols for the structured reporting of six types of cancer. This project may lead to the possible development of a standardised reporting format for all major cancers and other major complex reporting topics.

This integrated analysis also highlighted a number of key project learnings from the past ten years of the Quality Use of Pathology Program. It also identified potential areas for future consideration across all of the themes which are presented in the analysis of each theme. This report stands as a record of the valuable investment the program has made to the quality and capacity of the pathology sector to date, and will form the basis for reflection when future programs are investigated and/or supported by this important program.

Abbreviations

AACB  Australasian Association of Clinical Biochemists
AAPP  Australian Association of Pathology Practices
AIHW  Australian Institute of Health and Welfare
APPN  Australian Point of Care Practitioners Network
ACRRM  Australian College of Rural and Remote Medicine
AMA  Australian Medical Association
BEACH  Bettering the Evaluation and Care of Health
CHF  Consumers Health Forum of Australia
DATIS  Drug and Therapeutics Information Service
DoHA  Australian Government Department of Health and Ageing
GP  General Practitioner
HGSA  Human Genetics Society of Australasia
HIC  Health Insurance Commission
HISA  Health Informatics Society of Australia
KPI  Key Performance Indicators
LTO  Lab Tests Online
MBS  Medicare Benefits Schedule
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<table>
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<tr>
<th>Acronym</th>
<th>Description</th>
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<tr>
<td>NATA</td>
<td>National Association of Testing Authorities</td>
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<td>NeHTA</td>
<td>National E-Health Transition Authority</td>
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<td>NCOPP</td>
<td>National Coalition of Public Pathology</td>
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<td>NHMRC</td>
<td>National Health and Medical Research Council</td>
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<td>National Pathology Accreditation Advisory Council</td>
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<td>NPS</td>
<td>National Prescribing Service</td>
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<td>Pathology Associations Council</td>
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<td>Pathology Funding Agreement</td>
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<td>PoCT</td>
<td>Point of Care Testing</td>
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<td>Queensland Health Pathology &amp; Scientific Services</td>
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<td>Royal Australian College of General Practitioners</td>
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<td>Royal Australasian College of Physicians</td>
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<td>Royal Australian College of Surgeons</td>
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<td>Royal College of Nursing Australia</td>
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<td>RCPA</td>
<td>Royal College of Pathologists of Australasia</td>
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<td>RCPA Quality Assurance Programs Pty Ltd</td>
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<td>QAAMS</td>
<td>Quality Assurance for Aboriginal and Torres Strait Islander Medical Services</td>
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<td>QASEC</td>
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<td>QUPC</td>
<td>Quality Use of Pathology Committee</td>
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<td>4</td>
</tr>
<tr>
<td>Workforce Capacity and Competence</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>Risk Minimisation</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Communication Strategy and Stakeholder Engagement</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Consumer Focus and Information Strategies</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Access Initiatives – Raising Awareness – 2 out of 3</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>
Table 1: Summary of Follow On Initiatives and Projects

<table>
<thead>
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<th>Areas of significant and rapid change, such as eHealth have been supported to enable investigation into their impact on the quality use of pathology including health and economic outcomes. For example, twelve projects in the area of eHealth have uncovered significant key project learnings such as issues with software installation and capacity, and identified strategies to facilitate the future implementation of eHealth capability.</th>
</tr>
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<tr>
<td>The QUPP investment into eHealth also enabled pathology reports to integrate into the electronic age by supporting projects to develop software systems to automatically extract information from narrative pathology reports, and to standardise pathology terminology units to facilitate their use in electronic reporting.</td>
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<td>Projects to investigate workforce issues in the pathology sector were also funded by this program. These projects identified stakeholder concerns, such as the ageing pathology workforce and the lack of a structured career path for scientists. Of the six projects funded under the Workforce Capacity and Competence theme, ten follow on projects and initiatives have been undertaken to further investigate and address these key issues.</td>
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<td>The QUPP also facilitated increased engagement with consumers through workshops which highlighted issues predominantly based on a need for improved communication and engagement, and the need for comprehensive information strategies to address consumer concerns.</td>
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**Consistent Themes Identified from the Analysis**

From the analysis there appears to be three consistent themes throughout all areas of the pathology spectrum. These are:

10. The need for increased information resources generated by reliable sources about pathology testing for General Practitioners (GPs) that are short, concise and easily accessed. This information should also include procedures for GPs when collecting pathology specimens from their patients, and for GPs to give to their patients for patient-collected samples.

11. Educating medical students during their training and post-graduate years about pathology was consistently viewed as a long term strategy to improve pathology knowledge and practice. This included rotating medical students through pathology laboratories as a component of
their medical training.

12. Producing reliable consumer information about pathology testing, and keeping consumers informed about current issues/advances within pathology.

**Conclusion**

The QUPP has enabled projects to investigate and implement improvements in health and economic outcomes for the quality use of pathology. This is evidenced by the high rate of follow on initiatives and projects outlined in Table 1, and by the changes in practice that have resulted from this program’s support. For example, the Structured Pathology Reporting of Cancer projects developed cancer protocols for the structured reporting of six types of cancer. This project may lead to the possible development of a standardised reporting format for all major cancers and other major complex reporting topics.

This integrated analysis also highlighted a number of key project learnings from the past ten years of the Quality Use of Pathology Program. It also identified potential areas for future consideration across all of the themes which are presented in the analysis of each theme. This report stands as a record of the valuable investment the program has made to the quality and capacity of the pathology sector to date, and will form the basis for reflection when future programs are investigated and/or supported by this important program.

**Abbreviations**

AACB  Australasian Association of Clinical Biochemists  
AAPP  Australian Association of Pathology Practices  
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DATIS  Drug and Therapeutics Information Service  
DoHA  Australian Government Department of Health and Ageing  
GP  General Practitioner  
HGSA  Human Genetics Society of Australasia  
HIC  Health Insurance Commission  
HISA  Health Informatics Society of Australia  
KPI  Key Performance Indicators  
LTO  Lab Tests Online  
MBS  Medicare Benefits Schedule  
MTAAC  Medical Testing Accreditation Advisory Committee
Introduction

Background

The Quality Use of Pathology Program (QUPP) was established in 1999 under the auspice of the 2nd pathology Memorandum of Understanding (MoU) with pathology stakeholders, and with up to $2 million notionally allocated per year for the funding of projects and other initiatives relating to improvements in the quality of pathology services.

The program has been managed by the Australian Government Department of Health and Ageing (DoHA) in conjunction with the Quality Use of Pathology Committee (QUPC). The QUPC was originally a sub-committee of the Pathology Consultative Committee (PCC) formed to work with the Australian Government to manage pathology outlays under the MoU. But more recently it has been given a continued focus with the commencement of the five-year Pathology Funding Agreement (PFA) between the Commonwealth Government and key pathology stakeholders in April 2011.

The QUPC provides advice relation to strategic directions and projects and/or initiatives implemented under the program. This committee currently comprises nominees from the pathology profession, general practice, the Royal Australasian College of Physicians, Doctors-in-Training, the Consumers Health Forum of Australia, Medical Deans Australia and New Zealand and representatives from the Department of Health and Ageing.

Funding for the QUPP has been allocated by a combination of open funding rounds and targeted initiatives. The program has operated under overarching principles supported by guiding assumptions developed by
DoHA and the QUPC in consultation with the broader pathology stakeholder sector.

National workshops have been held each year since 2007 with the aim of bringing pathology, requester and consumer stakeholders together to discuss pathology quality and safety issues, to inform the QUPP priority setting process and debate the ways in which priority issues could be addressed. In 2005-2006 the QUPP was reviewed and the operation of the program was refined to address strategic issues outlined in the review report. Since the review, project funding has generally been targeted to three sub-programs with the following key objectives:

10. **Quality Consumer Services:** To develop and improve consumer-focused, accessible and coordinated services that promote informed choice and meet consumer needs;

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12. **Quality Pathology Practice:** To support professional practice standards that meet consumer and referrer needs and provide evidence-based, best practice, quality-assured services that are safe, cost effective and efficient.

In recent years there has been an increasing focus on the funding of initiatives aimed at developing and testing strategies to minimise error and promote patient safety. This work is relevant to the strategic focus of the National Pathology Accreditation Advisory Council.


**Terms of Reference for the project**

DoHA commissioned Cognitus Pty Ltd to conduct a comprehensive analysis of the Quality Use of Pathology Program project reports. The project objectives were:

- to conduct a comprehensive review of QUPP projects/initiatives to date including project results and recommendations, and

- to produce a document that will form a record of past and present investment and will assist in determining the future strategic direction of the program.

The analysis was to cover the QUPP investment that has occurred over the past ten years which would record the investment to date made on the quality use of pathology. It is expected that this document would also provide a potential basis for any future evaluation of the program.

**Structure of the Report**

This document is structured according to nine themes based on the QUPP’s areas of focus:

28. Promoting Evidence-Based Practice
29. Risk Minimisation
31. eHealth Capability
32. Pathology Requesting and Reporting – Requester and Consumer Focus
33. Workforce Capacity and Competence
34. Consumer Focus and Information Strategies
35. Access Initiatives – Raising Awareness

There were 74 reports analysed for this integrated analysis, with each report assigned to one of the above themes. Each report was set out in the following template:

- Description
- Grant Recipient/s
- Aims and/or Objectives
- Outcomes and/or Findings
- Recommendation/s
- Key Project Learning/s
- Follow on Initiatives and Projects
- Areas for Future Consideration.

*Many of the projects listed in this report fall into more than one theme – see Appendix A – Report Summaries Relevant to Different Themes.*
<table>
<thead>
<tr>
<th>ID</th>
<th>Description</th>
<th>Pathology Requesting and Reporting – Requester and Consumer Focus</th>
</tr>
</thead>
<tbody>
<tr>
<td>32</td>
<td>Pathology and General Practice Software Integration Project (PaGSIP) (2003)</td>
<td></td>
</tr>
<tr>
<td>33</td>
<td>Chain of Information Custody for the Pathology Request-Test-Report Cycle in Australia (Guidelines for Pathology Requesters and Pathology Providers) (2004)</td>
<td></td>
</tr>
<tr>
<td>34</td>
<td>Supporting HL7 for Health Informatics Standards (2004)</td>
<td></td>
</tr>
</tbody>
</table>

**Integrated Analysis of Quality Use of Pathology Program (QUPP) Final Reports**

**A Summary Report for the Australian Department of Health and Ageing Medical Benefits Division**
Table of Contents

Executive Summary
- General Findings from the Integrated Analysis
- Consistent Themes Identified from the Integrated Analysis
- Conclusion

Abbreviations

Introduction
- Background
- Terms of Reference
- Structure of the Document

Promoting Evidence-Based Practice
- An Historical Analysis of Pathology Ordering by General Practitioners between April 1998 and March 2001 from the Bettering the Evaluation and Care of Health (BEACH) Program (2002)
- Evidence-Practice Gap in GP Pathology Test Ordering: A Comparison of BEACH Pathology Data and Recommended Testing (2009)
- A Project to Examine the Utilisation of Pathology Tests in the Investigation of Tiredness in General Practice (2002)
- Analysis of Current Laboratory Medicine (Pathology) Teaching Practice in Prevocational and General Practitioner Vocational Training (2003)
- Common Sense Pathology (2006)
Pathology Requesting and Reporting – Requester and Consumer Focus

Guidelines for Patient/Consumer Access to Pathology Test Results (2001)
AUSLAB Retest Interval Trial Project (2003)
AUSLAB Retest Interval Project (2004)
Home Monitoring of Warfarin Therapy in Children using the Coaguchek™ Point of Care INR Monitor (2003)
Facilitating Best Practice Pathology Utilisation by the Use of Hand-Held Decision Support Devices (2004)
Improving GP Access to and Use of Retrospective and Current Pathology Data to Increase Detection of Early Diabetes (IGT and IFG) in General Practice (2005)
Quality Use of Pathology Services Education Program (2006)
Investigation into the Reasons for Incorrect or Incomplete Pathology Request Forms (2008)
Enhancing the Quality Use of Pathology for GP Registrars and International Medical Graduates – Assessing the Need (2009)
Effect of a Structured Microbiology Laboratory Report on Antimicrobial Prescribing for Asymptomatic Bacteriuria in Elderly Females (2010)
Identifying how Electronic Decision Support (EDS) in Computerised Pathology Order Entry Systems can Improve Pathology Practice, Rational Ordering and Patient Outcomes (2010)
The Impact of the Implementation of Electronic Ordering of Pathology Requesting and the Quality and Effectiveness of Hospital Pathology Services – Building a Robust Evidence Base and Benefits Framework for Successful e-Health Diffusions (Current)
Investigate: Online Patient Simulations for Education in the Rational Use of Investigations – Final
## Executive Summary

The Quality Use of Pathology Program (QUPP) is a well-established program having been established in 1999. Its goal is the continual improvement in health and economic outcomes from the use of pathology in health care through the pursuit of better practice amongst requesters/referrers and providers of pathology services, and through knowledgeable and engaged consumers. It is managed by the Australian Government Department of Health and Ageing (DoHA) in conjunction with the Quality Use of Pathology Committee (QUPC).

The Australian Government Department of Health and Ageing commissioned Cognitus Pty Ltd to undertake an analysis of the projects/initiatives funded under the Quality Use of Pathology Program (QUPP). The objectives of the project were:

- to conduct a comprehensive review of QUPP projects/initiatives, including project results and recommendations; and

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<table>
<thead>
<tr>
<th>Phase</th>
<th>Report Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>Investigate: Online Patient Simulations for Education in the Rational Use of Investigations (Current)</td>
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<tr>
<td></td>
<td>Encouraging Quality Pathology Ordering in Australia’s Public Hospitals (2011)</td>
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<tr>
<td></td>
<td>Effective Communication of Pathology Results in Requesting Practitioners and Consumers (Current)</td>
</tr>
<tr>
<td></td>
<td>Workforce Capacity and Competence PathWay (2005)</td>
</tr>
<tr>
<td></td>
<td>The Australian Pathology Workforce Crisis (2008)</td>
</tr>
<tr>
<td></td>
<td>Review of Pathology Specialist Development Pathways (2010)</td>
</tr>
<tr>
<td></td>
<td>Impact of Workload of Anatomical Pathologists on Quality and Safety (2011)</td>
</tr>
<tr>
<td></td>
<td>Survey of the Pathology Workforce (2011)</td>
</tr>
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<td></td>
<td>Career Structures and Pathways for the Scientific Workforce in Medical Pathology Laboratories (2011)</td>
</tr>
<tr>
<td></td>
<td>Consumer Focus and Information Strategies Quality Use of Pathology Consumer Consultation Project (2010)</td>
</tr>
<tr>
<td></td>
<td>Lab Tests Online™ Stage 1 (Current)</td>
</tr>
<tr>
<td></td>
<td>Access Initiatives – Raising Awareness Optimising Health Benefits for Aboriginal People who take Warfarin (2009)</td>
</tr>
<tr>
<td></td>
<td>Quality Assurance for Aboriginal Medical Services (QAAMS) (Current)</td>
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<td></td>
<td>Quality Assurance for Aboriginal Medical Services (QAAMS) Quality Assurance Program (Current)</td>
</tr>
<tr>
<td></td>
<td>The Second National Workshop on Safety and Quality in Pathology (2008)</td>
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<tr>
<td></td>
<td>Best Practice in Pathology Requesting and Reporting Workshop (2009)</td>
</tr>
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<td>Pathology Workforce Workshop (2011)</td>
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</table>
|       | Appendix A – Report Summaries Relevant to Different Themes
• to produce a document that would record the past and present investment and could inform the future strategic direction of the program.

This analysis includes a summary of the QUPP projects/initiatives over the past ten years and also provides an analysis of whether each of the projects/initiatives achieved their aims and objectives and whether there were any key project learnings.

There were 74 project reports analysed, which were further divided into the following nine themes that were based on QUPP areas of focus:

37. Promoting Evidence-Based Practice
38. Risk Minimisation
40. eHealth Capability
41. Pathology Requesting and Reporting – Requester and Consumer Focus
42. Workforce Capacity and Competence
43. Consumer Focus and Information Strategies
44. Access Initiatives – Raising Awareness
45. Communication Strategy and Stakeholder Engagement.

The number of reports within each theme is presented in Figure 1.

The General Findings from the Analysis
The QUPP has contributed to the expansion of the knowledge base of pathology practice and to the quality use of pathology services in Australia. There were a number of project recommendations that were strategically followed up in subsequent projects. For example, The Australian Pathology Workforce Crisis report resulted in five other initiatives and projects.

In a broader sense, all of the themes led to a high rate of follow on...
initiatives and projects as outlined below:

<table>
<thead>
<tr>
<th>Theme</th>
<th>Original projects</th>
<th>Follow on initiatives and projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pathology Requesting and Reporting – Requester and Consumer Focus</td>
<td>17</td>
<td>9</td>
</tr>
<tr>
<td>Promoting Evidence-Based Practice</td>
<td>16</td>
<td>10</td>
</tr>
<tr>
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<td>12</td>
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<td>4</td>
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<tr>
<td>Access Initiatives – Raising</td>
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<td>2</td>
</tr>
<tr>
<td>Awareness – 2 out of 3</td>
<td></td>
<td></td>
</tr>
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</table>

**Table 1: Summary of Follow On Initiatives and Projects**

Areas of significant and rapid change, such as eHealth have been supported to enable investigation into their impact on the quality use of pathology including health and economic outcomes. For example, twelve projects in the area of eHealth have uncovered significant key project learnings such as issues with software installation and capacity, and identified strategies to facilitate the future implementation of eHealth capability.

The QUPP investment into eHealth also enabled pathology reports to integrate into the electronic age by supporting projects to develop software systems to automatically extract information from narrative pathology reports, and to standardise pathology terminology units to facilitate their use in electronic reporting.

Projects to investigate workforce issues in the pathology sector were also funded by this program. These projects identified stakeholder concerns, such as the ageing pathology workforce and the lack of a structured career path for scientists. Of the six projects funded under the Workforce Capacity and Competence theme, ten follow on projects and initiatives have been undertaken to further investigate and address these key issues.

The QUPP also facilitated increased engagement with consumers through workshops which highlighted issues predominantly based on a need for improved communication and engagement, and the need for comprehensive information strategies to address consumer concerns.

From the analysis of QUPP initiatives to date, there are few identified areas that may benefit from some further consideration. These include:

- eHealth information outlining the benefits/risks of pathology results being uploaded onto the National Electronic Health Record System for consumers.
Standardised request forms and education of all levels of health practitioners about the importance of completing the information on these forms.

- Development of comprehensive guidelines for General Practitioners (GPs) regarding evidence-based pathology requesting.
- Investigate including patient-specific advice for GPs on pathology test results.
- Focus on increasing GPs’ understanding of the pathology testing process.

**Consistent Themes Identified from the Analysis**

From the analysis there appears to be three consistent themes throughout all areas of the pathology spectrum. These are:

13. The need for increased information resources generated by reliable sources about pathology testing for General Practitioners (GPs) that are short, concise and easily accessed. This information should also include procedures for GPs when collecting pathology specimens from their patients, and for GPs to give to their patients for patient-collected samples.

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15. Producing reliable consumer information about pathology testing, and keeping consumers informed about current issues/advances within pathology.

**Conclusion**

The QUPP has enabled projects to investigate and implement improvements in health and economic outcomes for the quality use of pathology. This is evidenced by the high rate of follow on initiatives and projects outlined in Table 1, and by the changes in practice that have resulted from this program’s support. For example, the Structured Pathology Reporting of Cancer projects developed cancer protocols for the structured reporting of six types of cancer. This project may lead to the possible development of a standardised reporting format for all major cancers and other major complex reporting topics.

This integrated analysis also highlighted a number of key project learnings from the past ten years of the Quality Use of Pathology Program. It also identified potential areas for future consideration across all of the themes which are presented in the analysis of each theme. This report stands as a record of the valuable investment the program has made to the quality and capacity of the pathology sector to date, and will form the basis for reflection when future programs are investigated and/or supported by this important program.
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NPS National Prescribing Service
PAC Pathology Associations Council
PFA Pathology Funding Agreement
PoCT Point of Care Testing
QHPSS Queensland Health Pathology & Scientific Services
RACGP Royal Australian College of General Practitioners
RACP Royal Australasian College of Physicians
RACS Royal Australian College of Surgeons
RCNA Royal College of Nursing Australia
RCPA Royal College of Pathologists of Australasia
RCPA QAP RCPA Quality Assurance Programs Pty Ltd
QAAMS Quality Assurance for Aboriginal and Torres Strait Islander Medical Services
QASEC Quality Assurance Scientific and Education Committee
QUPC Quality Use of Pathology Committee
QUPP Quality Use of Pathology Program
WAC Workforce Advisory Committee

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Background

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**Integrated Analysis of Quality Use of Pathology Program (QUPP) Final Reports**

**A Summary Report for the Australian Department of Health and Ageing Medical Benefits Division**
Canberra
22 June 2012

Cognitus Pty Ltd
Jane Carstens

Table of Contents

Executive Summary ................................................................................................................................. 1
General Findings from the Integrated Analysis .................................................................................... 1
Consistent Themes Identified from the Integrated Analysis ................................................................. 1
Conclusion ............................................................................................................................................. 1

Abbreviations .......................................................................................................................................... 1

Introduction ............................................................................................................................................. 1
Background .............................................................................................................................................. 1
Terms of Reference ................................................................................................................................. 1
Structure of the Document ..................................................................................................................... 1

Promoting Evidence-Based Practice ..................................................................................................... 1
Revision of Manual of Use and Interpretation of Pathology Tests (2004) ............................................ 1
RCPA Manual Transformation Project (2010) ...................................................................................... 1
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A Mechanism for the Development, Implementation and Evaluation of Evidence-Based, Best-Practice Clinical Guidelines to Facilitate Quality Use of Pathology Tests (2003) ......................................................................................................................... 1
Academic Detailing Supporting Better Outcomes from Diagnostic Technologies (2004) ................. 1
Common Sense Pathology (2006) ......................................................................................................... 1
Common Sense Pathology Publication Series (2011) ........................................................................... 1
Improved Pathology Reporting, Education and Practice (PREP) for Colorectal Cancer (2009) .......... 1
Structured Pathology Reporting Standards for Cancer (2009) ............................................................. 1
Promoting and Expanding Structured Pathology Reporting of Cancer (Stage 2) (Current) .............. 1
Evidence-Based, Best-Practice Prevention of Blood Borne Virus Transmission in Health Care Settings Program (PBBV) (2009) ................................................................................................................................. 1

Risk Minimisation .................................................................................................................................. 1
RCPA – Quality Assurance Programs Key Indicator Project (2004) ...................................................... 1
Integrated Analysis of QUPP Final Reports – 22 June 2012 – v0.3

Pilot Laboratory Assessment and Peer Review Mechanism for Pathology Key Performance Indicators (2007) .................................................................

Performance Monitoring of External Quality Assurance (Current) .........................................................................................

NATA File Audit – Risk Analysis of Assessment Non Conformances Identified in Pathology Laboratory Assessment Accreditation (Current) ........................................................................

Key Incident Monitoring & Management Systems (Current) ..........................................................................................................................

Quality Assurance and Capacity – New Technology ..........................................

Virtual Microscope (2005) ........................................................................

High Resolution Scanning Microscopy for Quality Assurance and Educational Applications (2009) ............................


Policies, Procedures and Guidelines for Point-of-Care Testing (2011) ..........................................................................................

PoCT Training, Certification, Support and Skill Maintenance Program (Australian PoCT Practitioners Network – APPN) (Current) ........................................................................................................

Establishment of a Molecular Genetics Quality Assurance Program (Current) .................................................................

MAWSON – An Online Repository of Genetic Data to Aid Reporting of Medical Genetic Tests (Current) ..................

eHealth Capability ........................................................................

Pathology Informatics Working Party (2003) ........................................

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Quality Assurance for Aboriginal Medical Services (QAAMS) (Current) .............................
Quality Assurance for Aboriginal Medical Services (QAAMS) Quality Assurance Program (Current) ....

Communication Strategy and Stakeholder Engagement ..................................................
Report from the National Workshop on Safety and Quality in Pathology (2007) .....................
The Second National Workshop on Safety and Quality in Pathology (2008) .............................
Best Practice in Pathology Requesting and Reporting Workshop (2009) ...............................
Pathology Workforce Workshop (2011) .................................................................................

Appendix A – Report Summaries Relevant to Different Themes ...........................................
There were 74 project reports analysed, which were further divided into the following nine themes that were based on QUPP areas of focus:

46. Promoting Evidence-Based Practice  
47. Risk Minimisation  
49. eHealth Capability  
50. Pathology Requesting and Reporting – Requester and Consumer Focus  
51. Workforce Capacity and Competence  
52. Consumer Focus and Information Strategies  
53. Access Initiatives – Raising Awareness  

The number of reports within each theme is presented in Figure 1.

General Findings from the Analysis

The QUPP has contributed to the expansion of the knowledge base of pathology practice and to the quality use of pathology services in Australia. There were a number of project recommendations that were strategically followed up in subsequent projects. For example, The Australian Pathology Workforce Crisis report resulted in five other initiatives and projects.

In a broader sense, all of the themes led to a high rate of follow on initiatives and projects as outlined below:

<table>
<thead>
<tr>
<th>Theme</th>
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<th>Follow on initiatives and projects</th>
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<td>Pathology Requesting and Reporting – Requester and</td>
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Areas of significant and rapid change, such as eHealth, have been supported to enable investigation into their impact on the quality use of pathology including health and economic outcomes. For example, twelve projects in the area of eHealth have uncovered significant key project learnings such as issues with software installation and capacity, and identified strategies to facilitate the future implementation of eHealth capability.

The QUPP investment into eHealth also enabled pathology reports to integrate into the electronic age by supporting projects to develop software systems to automatically extract information from narrative pathology reports, and to standardise pathology terminology units to facilitate their use in electronic reporting.

Projects to investigate workforce issues in the pathology sector were also funded by this program. These projects identified stakeholder concerns, such as the ageing pathology workforce and the lack of a structured career path for scientists. Of the six projects funded under the Workforce Capacity and Competence theme, ten follow on projects and initiatives have been undertaken to further investigate and address these key issues.

The QUPP also facilitated increased engagement with consumers through workshops which highlighted issues predominantly based on a need for improved communication and engagement, and the need for comprehensive information strategies to address consumer concerns.

From the analysis of QUPP initiatives to date, there are few identified areas that may benefit from some further consideration. These include:

- eHealth information outlining the benefits/risks of pathology results being uploaded onto the National Electronic Health Record System for consumers.
- Standardised request forms and education of all levels of health practitioners about the importance of completing the information on these forms.
- Development of comprehensive guidelines for General Practitioners (GPs) regarding evidence-based pathology requesting.
- Investigate including patient-specific advice for GPs on pathology test results.
- Focus on increasing GPs’ understanding of the pathology testing...
Consistent Themes Identified from the Analysis

From the analysis there appears to be three consistent themes throughout all areas of the pathology spectrum. These are:

16. The need for increased information resources generated by reliable sources about pathology testing for General Practitioners (GPs) that are short, concise and easily accessed. This information should also include procedures for GPs when collecting pathology specimens from their patients, and for GPs to give to their patients for patient-collected samples.

17. Educating medical students during their training and post-graduate years about pathology was consistently viewed as a long term strategy to improve pathology knowledge and practice. This included rotating medical students through pathology laboratories as a component of their medical training.

18. Producing reliable consumer information about pathology testing, and keeping consumers informed about current issues/advances within pathology.

Conclusion

The QUPP has enabled projects to investigate and implement improvements in health and economic outcomes for the quality use of pathology. This is evidenced by the high rate of follow on initiatives and projects outlined in Table 1, and by the changes in practice that have resulted from this program’s support. For example, the Structured Pathology Reporting of Cancer projects developed cancer protocols for the structured reporting of six types of cancer. This project may lead to the possible development of a standardised reporting format for all major cancers and other major complex reporting topics.

This integrated analysis also highlighted a number of key project learnings from the past ten years of the Quality Use of Pathology Program. It also identified potential areas for future consideration across all of the themes which are presented in the analysis of each theme. This report stands as a record of the valuable investment the program has made to the quality and capacity of the pathology sector to date, and will form the basis for reflection when future programs are investigated and/or supported by this important program.

Abbreviations

AACB  Australasian Association of Clinical Biochemists
Introduction

Background

The Quality Use of Pathology Program (QUPP) was established in 1999 under the auspice of the 2nd pathology Memorandum of Understanding (MoU) with pathology stakeholders, and with up to $2 million notionally allocated per year for the funding of projects and other initiatives relating to improvements in the quality of pathology services.

The program has been managed by the Australian Government Department of Health and Ageing (DoHA) in conjunction with the Quality Use of Pathology Committee (QUPC). The QUPC was originally a sub-committee of the Pathology Consultative Committee (PCC) formed to work
with the Australian Government to manage pathology outlays under the MoU. But more recently it has been given a continued focus with the commencement of the five-year Pathology Funding Agreement (PFA) between the Commonwealth Government and key pathology stakeholders in April 2011.

The QUPC provides advice relation to strategic directions and projects and/or initiatives implemented under the program. This committee currently comprises nominees from the pathology profession, general practice, the Royal Australasian College of Physicians, Doctors-in-Training, the Consumers Health Forum of Australia, Medical Deans Australia and New Zealand and representatives from the Department of Health and Ageing.

Funding for the QUPP has been allocated by a combination of open funding rounds and targeted initiatives. The program has operated under overarching principles supported by guiding assumptions developed by DoHA and the QUPC in consultation with the broader pathology stakeholder sector.

National workshops have been held each year since 2007 with the aim of bringing pathology, requester and consumer stakeholders together to discuss pathology quality and safety issues, to inform the QUPP priority setting process and debate the ways in which priority issues could be addressed. In 2005-2006 the QUPP was reviewed and the operation of the program was refined to address strategic issues outlined in the review report. Since the review, project funding has generally been targeted to three sub-programs with the following key objectives:

16. **Quality Consumer Services**: To develop and improve consumer-focused, accessible and coordinated services that promote informed choice and meet consumer needs;

17. **Quality Referrals (Requesting/Ordering)**: To support referral practices that are informed and facilitated by best practice professional relationships and protocols between referrers and providers; that are informed by evidence; that maximise health benefits; and that inform and engage consumers; and

18. **Quality Pathology Practice**: To support professional practice standards that meet consumer and referrer needs and provide evidence-based, best practice, quality-assured services that are safe, cost effective and efficient.

In recent years there has been an increasing focus on the funding of initiatives aimed at developing and testing strategies to minimise error and promote patient safety. This work is relevant to the strategic focus of the National Pathology Accreditation Advisory Council.


**Terms of Reference for the project**

DoHA commissioned Cognitus Pty Ltd to conduct a comprehensive analysis of the Quality Use of Pathology Program project reports. The project objectives were:

- to conduct a comprehensive review of QUPP projects/initiatives to date including project results and recommendations, and

- to produce a document that will form a record of past and
present investment and will assist in determining the future strategic direction of the program.

The analysis was to cover the QUPP investment that has occurred over the past ten years which would record the investment to date made on the quality use of pathology. It is expected that this document would also provide a potential basis for any future evaluation of the program.

**Structure of the Report**

This document is structured according to nine themes based on the QUPP's areas of focus:

46. Promoting Evidence-Based Practice
47. Risk Minimisation
49. eHealth Capability
50. Pathology Requesting and Reporting – Requester and Consumer Focus
51. Workforce Capacity and Competence
52. Consumer Focus and Information Strategies
53. Access Initiatives – Raising Awareness

There were 74 reports analysed for this integrated analysis, with each report assigned to one of the above themes. Each report was set out in the following template:

- Description
- Grant Recipient/s
- Aims and/or Objectives
- Outcomes and/or Findings
- Recommendation/s
- Key Project Learning/s
- Follow on Initiatives and Projects
- Areas for Future Consideration.

_Many of the projects listed in this report fall into more than one theme – see Appendix A – Report Summaries Relevant to Different Themes._
<table>
<thead>
<tr>
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| 4 | 1 | Standardisation of Pathology Terminology and Units (Current) | Risk Minimisation |
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**Integrated Analysis of Quality Use of Pathology Program (QUPP) Final Reports**

**A Summary Report for the Australian Department of Health and Ageing Medical Benefits Division**

Canberra
22 June 2012
Table of Contents

Executive Summary
General Findings from the Integrated Analysis
Consistent Themes identified from the Integrated Analysis
Conclusion

Abbreviations

Introduction
Background
Terms of Reference
Structure of the Document

Promoting Evidence-Based Practice
An Historical Analysis of Pathology Ordering by General Practitioners between April 1998 and March 2001 from the Bettering the Evaluation and Care of Health (BEACH) Program (2002)
Evidence-Practice Gap in GP Pathology Test Ordering: A Comparison of BEACH Pathology Data and Recommended Testing (2009)
A Project to Examine the Utilisation of Pathology Tests in the Investigation of Tiredness in General Practice (2002)
Analysis of Current Laboratory Medicine (Pathology) Teaching Practice in Prevocational and General Practitioner Vocational Training (2003)
Common Sense Pathology (2006)
Common Sense Pathology Publication Series (2011)
Improved Pathology Reporting, Education and Practice (IPREP) for Colorectal Cancer (2009)
Structured Pathology Reporting Standards for Cancer (2009)
Promoting and Expanding Structured Pathology Reporting of Cancer (Stage 1) (Current)
Evidence-Based, Best-Practice Prevention of Blood Borne Virus Transmission in Health Care Settings Program (PBBV) (2009)

Risk Minimisation
RCPA – Quality Assurance Programs Key Indicator Project (2004)
Pilot Laboratory Assessment and Peer Review Mechanism for Pathology Key Performance Indicators (2007)
Performance Monitoring of External Quality Assurance (Current)
NATA File Audit – Risk Analysis of Assessment Non Conformances Identified in Pathology Laboratory Assessment Accreditation (Current)
Key Incident Monitoring & Management Systems (Current)

Quality Assurance and Capacity – New Technology
Virtual Microscope (2005)
High Resolution Scanning Microscopy for Quality Assurance and Educational Applications (2009)

Cognitus Pty Ltd
Jane Carstens
Establishment of a Molecular Genetics Quality Assurance Program (Current)
MAWSON – An Online Repository of Genetic Data to Aid Reporting of Medical Genetic Tests (Current)

eHealth Capability
Pathology and General Practice Software Integration Project (PaGSP) (2003)
Chain of Information Custody for the Pathology Request-Test-Report Cycle in Australia (Guidelines for Pathology Requesters and Pathology Providers) (2004)
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Quality Assurance for Aboriginal Medical Services (QAAMS) Quality Assurance Program (Current)
Executive Summary

The Quality Use of Pathology Program (QUPP) is a well-established program having been established in 1999. Its goal is the continual improvement in health and economic outcomes from the use of pathology in health care through the pursuit of better practice amongst requesters/referrers and providers of pathology services, and through knowledgeable and engaged consumers. It is managed by the Australian Government Department of Health and Ageing (DoHA) in conjunction with the Quality Use of Pathology Committee (QUPC).

The Australian Government Department of Health and Ageing commissioned Cognitus Pty Ltd to undertake an analysis of the projects/initiatives funded under the Quality Use of Pathology Program (QUPP). The objectives of the project were:

- to conduct a comprehensive review of QUPP projects/initiatives, including project results and recommendations; and
- to produce a document that would record the past and present investment and could inform the future strategic direction of the program.

This analysis includes a summary of the QUPP projects/initiatives over the past ten years and also provides an analysis of whether each of the projects/initiatives achieved their aims and objectives and whether there were any key project learnings.

There were 74 project reports analysed, which were further divided into the following nine themes that were based on QUPP areas of focus:

55. Promoting Evidence-Based Practice
56. Risk Minimisation
57. Quality Assurance and Capacity – New Technology
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The number of reports within each theme is presented in Figure 1.

![Figure 1 – Report numbers by Category](alt='This figure is a graph representing the number of reports under each of the nine themes')

### General Findings from the Analysis

The QUPP has contributed to the expansion of the knowledge base of pathology practice and to the quality use of pathology services in Australia. There were a number of project recommendations that were strategically followed up in subsequent projects. For example, The Australian Pathology Workforce Crisis report resulted in five other initiatives and projects.

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The QUPP also facilitated increased engagement with consumers through workshops which highlighted issues predominantly based on a need for improved communication and engagement, and the need for comprehensive information strategies to address consumer concerns.

From the analysis of QUPP initiatives to date, there are few identified areas that may benefit from some further consideration. These include:

- eHealth information outlining the benefits/risks of pathology results being uploaded onto the National Electronic Health Record System for consumers.
- Standardised request forms and education of all levels of health practitioners about the importance of completing the information on these forms.
- Development of comprehensive guidelines for General Practitioners (GPs) regarding evidence-based pathology requesting.
- Investigate including patient-specific advice for GPs on pathology test results.
- Focus on increasing GPs' understanding of the pathology testing process.

**Consistent Themes Identified from the Analysis**

From the analysis there appears to be three consistent themes throughout all areas of the pathology spectrum. These are:

19. The need for increased information resources generated by reliable sources about pathology testing for General Practitioners (GPs) that are short, concise and easily accessed. This information should also include procedures for GPs when collecting pathology specimens from their patients, and for GPs to give to their patients for patient-
collected samples.

20. Educating medical students during their training and post-graduate years about pathology was consistently viewed as a long term strategy to improve pathology knowledge and practice. This included rotating medical students through pathology laboratories as a component of their medical training.

21. Producing reliable consumer information about pathology testing, and keeping consumers informed about current issues/advances within pathology.

**Conclusion**

The QUPP has enabled projects to investigate and implement improvements in health and economic outcomes for the quality use of pathology. This is evidenced by the high rate of follow on initiatives and projects outlined in Table 1, and by the changes in practice that have resulted from this program’s support. For example, the Structured Pathology Reporting of Cancer projects developed cancer protocols for the structured reporting of six types of cancer. This project may lead to the possible development of a standardised reporting format for all major cancers and other major complex reporting topics.

This integrated analysis also highlighted a number of key project learnings from the past ten years of the Quality Use of Pathology Program. It also identified potential areas for future consideration across all of the themes which are presented in the analysis of each theme. This report stands as a record of the valuable investment the program has made to the quality and capacity of the pathology sector to date, and will form the basis for reflection when future programs are investigated and/or supported by this important program.

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<td>AAPP</td>
<td>Australian Association of Pathology Practices</td>
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<tr>
<td>AIHW</td>
<td>Australian Institute of Health and Welfare</td>
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<tr>
<td>APPN</td>
<td>Australian Point of Care Practitioners Network</td>
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<td>ACRRM</td>
<td>Australian College of Rural and Remote Medicine</td>
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<tr>
<td>AMA</td>
<td>Australian Medical Association</td>
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<td>BEACH</td>
<td>Bettering the Evaluation and Care of Health</td>
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<td>CHF</td>
<td>Consumers Health Forum of Australia</td>
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<td>DATIS</td>
<td>Drug and Therapeutics Information Service</td>
</tr>
<tr>
<td>DoHA</td>
<td>Australian Government Department of Health and Ageing</td>
</tr>
<tr>
<td>GP</td>
<td>General Practitioner</td>
</tr>
<tr>
<td>HGSA</td>
<td>Human Genetics Society of Australasia</td>
</tr>
<tr>
<td>HIC</td>
<td>Health Insurance Commission</td>
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Introduction

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The Quality Use of Pathology Program (QUPP) was established in 1999 under the auspice of the 2nd pathology Memorandum of Understanding (MoU) with pathology stakeholders, and with up to $2 million notionally allocated per year for the funding of projects and other initiatives relating to improvements in the quality of pathology services.

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**Structure of the Report**

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There were 74 reports analysed for this integrated analysis, with each report assigned to one of the above themes. Each report was set out in the following template:

- Description
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- Outcomes and/or Findings
- Recommendation/s
- Key Project Learning/s
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**Integrated Analysis of Quality Use of Pathology Program (QUPP) Final Reports**

A Summary Report for the Australian Department of Health and Ageing Medical Benefits Division

Canberra
22 June 2012
## Table of Contents

**Executive Summary**
- General Findings from the Integrated Analysis
- Consistent Themes Identified from the Integrated Analysis
- Conclusion

**Abbreviations**

**Introduction**
- Background
- Terms of Reference
- Structure of the Document

**Promoting Evidence-Based Practice**
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Appendix A – Report Summaries Relevant to Different Themes
Executive Summary

The Quality Use of Pathology Program (QUPP) is a well-established program having been established in 1999. Its goal is the continual improvement in health and economic outcomes from the use of pathology in health care through the pursuit of better practice amongst requesters/referrers and providers of pathology services, and through knowledgeable and engaged consumers. It is managed by the Australian Government Department of Health and Ageing (DoHA) in conjunction with the Quality Use of Pathology Committee (QUPC).

The Australian Government Department of Health and Ageing commissioned Cognitus Pty Ltd to undertake an analysis of the projects/initiatives funded under the Quality Use of Pathology Program (QUPP). The objectives of the project were:

- to conduct a comprehensive review of QUPP projects/initiatives, including project results and recommendations; and
- to produce a document that would record the past and present investment and could inform the future strategic direction of the program.

This analysis includes a summary of the QUPP projects/initiatives over the past ten years and also provides an analysis of whether each of the projects/initiatives achieved their aims and objectives and whether there were any key project learnings.

There were 74 project reports analysed, which were further divided into the following nine themes that were based on QUPP areas of focus:

64. Promoting Evidence-Based Practice  
65. Risk Minimisation  
67. eHealth Capability  
68. Pathology Requesting and Reporting – Requester and Consumer Focus  
69. Workforce Capacity and Competence  
70. Consumer Focus and Information Strategies  
71. Access Initiatives – Raising Awareness  

The number of reports within each theme is presented in Figure 1.
**General Findings from the Analysis**

The QUPP has contributed to the expansion of the knowledge base of pathology practice and to the quality use of pathology services in Australia. There were a number of project recommendations that were strategically followed up in subsequent projects. For example, The Australian Pathology Workforce Crisis report resulted in five other initiatives and projects.

In a broader sense, all of the themes led to a high rate of follow on initiatives and projects as outlined below:

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<thead>
<tr>
<th>Theme</th>
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<th>Follow on initiatives and projects</th>
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<tr>
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<td>9</td>
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<td>3</td>
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Areas of significant and rapid change, such as eHealth have been supported to enable investigation into their impact on the quality use of pathology including health and economic outcomes. For example, twelve projects in the area of eHealth have uncovered significant key project learnings such as issues with software installation and capacity, and identified strategies to facilitate the future implementation of eHealth capability.

The QUePP investment into eHealth also enabled pathology reports to integrate into the electronic age by supporting projects to develop software systems to automatically extract information from narrative pathology reports, and to standardise pathology terminology units to facilitate their use in electronic reporting.

Projects to investigate workforce issues in the pathology sector were also funded by this program. These projects identified stakeholder concerns, such as the ageing pathology workforce and the lack of a structured career path for scientists. Of the six projects funded under the Workforce Capacity and Competence theme, ten follow on projects and initiatives have been undertaken to further investigate and address these key issues.

The QUePP also facilitated increased engagement with consumers through workshops which highlighted issues predominantly based on a need for improved communication and engagement, and the need for comprehensive information strategies to address consumer concerns.

From the analysis of QUePP initiatives to date, there are few identified areas that may benefit from some further consideration. These include:

- eHealth information outlining the benefits/risks of pathology results being uploaded onto the National Electronic Health Record System for consumers.
- Standardised request forms and education of all levels of health practitioners about the importance of completing the information on these forms.
- Development of comprehensive guidelines for General Practitioners (GPs) regarding evidence-based pathology requesting.
- Investigate including patient-specific advice for GPs on pathology test results.
- Focus on increasing GPs’ understanding of the pathology testing process.

**Consistent Themes Identified from the Analysis**

From the analysis there appears to be three consistent themes throughout all areas of the pathology spectrum. These are:

22. The need for increased information resources generated by reliable sources about pathology testing for General Practitioners (GPs) that are short, concise and easily accessed. This information should also include procedures for GPs when collecting pathology specimens from their patients, and for GPs to give to their patients for patient-collected samples.

23. Educating medical students during their training and post-graduate years about pathology was consistently viewed as a long term strategy to improve pathology knowledge and practice. This included rotating medical students through pathology laboratories as a component of...
their medical training.

24. Producing reliable consumer information about pathology testing, and keeping consumers informed about current issues/advances within pathology.

**Conclusion**

The QUPP has enabled projects to investigate and implement improvements in health and economic outcomes for the quality use of pathology. This is evidenced by the high rate of follow on initiatives and projects outlined in Table 1, and by the changes in practice that have resulted from this program's support. For example, the Structured Pathology Reporting of Cancer projects developed cancer protocols for the structured reporting of six types of cancer. This project may lead to the possible development of a standardised reporting format for all major cancers and other major complex reporting topics.

This integrated analysis also highlighted a number of key project learnings from the past ten years of the Quality Use of Pathology Program. It also identified potential areas for future consideration across all of the themes which are presented in the analysis of each theme. This report stands as a record of the valuable investment the program has made to the quality and capacity of the pathology sector to date, and will form the basis for reflection when future programs are investigated and/or supported by this important program.

**Abbreviations**

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>AACB</td>
<td>Australasian Association of Clinical Biochemists</td>
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<tr>
<td>AAPP</td>
<td>Australian Association of Pathology Practices</td>
</tr>
<tr>
<td>AIHW</td>
<td>Australian Institute of Health and Welfare</td>
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<tr>
<td>APPN</td>
<td>Australian Point of Care Practitioners Network</td>
</tr>
<tr>
<td>ACRRM</td>
<td>Australian College of Rural and Remote Medicine</td>
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<tr>
<td>AMA</td>
<td>Australian Medical Association</td>
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<td>BEACH</td>
<td>Bettering the Evaluation and Care of Health</td>
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<tr>
<td>CHF</td>
<td>Consumers Health Forum of Australia</td>
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<tr>
<td>DATIS</td>
<td>Drug and Therapeutics Information Service</td>
</tr>
<tr>
<td>DoHA</td>
<td>Australian Government Department of Health and Ageing</td>
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<tr>
<td>GP</td>
<td>General Practitioner</td>
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<tr>
<td>HGSA</td>
<td>Human Genetics Society of Australasia</td>
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<tr>
<td>HIC</td>
<td>Health Insurance Commission</td>
</tr>
<tr>
<td>HISA</td>
<td>Health Informatics Society of Australia</td>
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<tr>
<td>KPI</td>
<td>Key Performance Indicators</td>
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<td>LTO</td>
<td>Lab Tests Online</td>
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<tr>
<td>MBS</td>
<td>Medicare Benefits Schedule</td>
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<td>MTAAC</td>
<td>Medical Testing Accreditation Advisory Committee</td>
</tr>
</tbody>
</table>
Introduction

Background

The Quality Use of Pathology Program (QUPP) was established in 1999 under the auspice of the 2nd pathology Memorandum of Understanding (MoU) with pathology stakeholders, and with up to $2 million notionally allocated per year for the funding of projects and other initiatives relating to improvements in the quality of pathology services.

The program has been managed by the Australian Government Department of Health and Ageing (DoHA) in conjunction with the Quality Use of Pathology Committee (QUPC). The QUPC was originally a sub-committee of the Pathology Consultative Committee (PCC) formed to work with the Australian Government to manage pathology outlays under the MoU. But more recently it has been given a continued focus with the commencement of the five-year Pathology Funding Agreement (PFA) between the Commonwealth Government and key pathology stakeholders in April 2011.

The QUPC provides advice relation to strategic directions and projects and/or initiatives implemented under the program. This committee currently comprises nominees from the pathology profession, general practice, the Royal Australasian College of Physicians, Doctors-in-Training, the Consumers Health Forum of Australia, Medical Deans Australia and New Zealand and representatives from the Department of Health and Ageing.

Funding for the QUPP has been allocated by a combination of open funding rounds and targeted initiatives. The program has operated under overarching principles supported by guiding assumptions developed by
DoHA and the QUPC in consultation with the broader pathology stakeholder sector.

National workshops have been held each year since 2007 with the aim of bringing pathology, requester and consumer stakeholders together to discuss pathology quality and safety issues, to inform the QUPP priority setting process and debate the ways in which priority issues could be addressed. In 2005-2006 the QUPP was reviewed and the operation of the program was refined to address strategic issues outlined in the review report. Since the review, project funding has generally been targeted to three sub-programs with the following key objectives:

22. **Quality Consumer Services**: To develop and improve consumer-focused, accessible and coordinated services that promote informed choice and meet consumer needs;

23. **Quality Referrals (Requesting/Ordering)**: To support referral practices that are informed and facilitated by best practice professional relationships and protocols between referrers and providers; that are informed by evidence; that maximise health benefits; and that inform and engage consumers; and

24. **Quality Pathology Practice**: To support professional practice standards that meet consumer and referrer needs and provide evidence-based, best practice, quality-assured services that are safe, cost effective and efficient.

In recent years there has been an increasing focus on the funding of initiatives aimed at developing and testing strategies to minimise error and promote patient safety. This work is relevant to the strategic focus of the National Pathology Accreditation Advisory Council.


**Terms of Reference for the project**

DoHA commissioned Cognitus Pty Ltd to conduct a comprehensive analysis of the Quality Use of Pathology Program project reports. The project objectives were:

- to conduct a comprehensive review of QUPP projects/initiatives to date including project results and recommendations, and

- to produce a document that will form a record of past and present investment and will assist in determining the future strategic direction of the program.

The analysis was to cover the QUPP investment that has occurred over the past ten years which would record the investment to date made on the quality use of pathology. It is expected that this document would also provide a potential basis for any future evaluation of the program.

**Structure of the Report**

This document is structured according to nine themes based on the QUPP’s areas of focus:

- 64. Promoting Evidence-Based Practice
- 65. Risk Minimisation
- 67. eHealth Capability
- 68. Pathology Requesting and Reporting – Requester and Consumer Focus
69. Workforce Capacity and Competence
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There were 74 reports analysed for this integrated analysis, with each report assigned to one of the above themes. Each report was set out in the following template:

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Cognitus Pty Ltd
Jane Carstens

Table of Contents
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Promoting and Expanding Structured Pathology Reporting of Cancer (Stage 2) (Current)

Evidence-Based, Best-Practice Prevention of Blood Borne Virus Transmission in Health Care Settings Program (PBBV) (2009)

Risk Minimisation

RCPA – Quality Assurance Programs Key Indicator Project (2004)

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Performance Monitoring of External Quality Assurance (Current)

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Key Incident Monitoring & Management Systems (Current)

Quality Assurance and Capacity – New Technology

Virtual Microscope (2005)

High Resolution Scanning Microscopy for Quality Assurance and Educational Applications (2009)


PoCT Training, Certification, Support and Skill Maintenance Program (Australian PoCT Practitioners Network – APPN) (Current)

Establishment of a Molecular Genetics Quality Assurance Program (Current)

MAWSON – An Online Repository of Genetic Data to Aid Reporting of Medical Genetic Tests (Current)

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Pathology and General Practice Software Integration Project (PaGPSS) (2003)

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Supporting HL7 for Health Informatics Standards (2004)


Application of Pathology Informatics to Reporting of Critical/Abnormal Results for Improved Requester/Provider Communication and Improved Patient Care (2004)

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- The Impact of the Implementation of Electronic Ordering of Pathology Requesting and the Quality and Effectiveness of Hospital Pathology Services – Building a Robust Evidence Base and Benefits Framework for Successful e-Health Diffusions (Current)
- iInvestigate: Online Patient Simulations for Education in the Rational Use of Investigations (Current)
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*The number of reports within each theme is presented in Figure 1.*
General Findings from the Analysis

The QUPP has contributed to the expansion of the knowledge base of pathology practice and to the quality use of pathology services in Australia. There were a number of project recommendations that were strategically followed up in subsequent projects. For example, The Australian Pathology Workforce Crisis report resulted in five other initiatives and projects.

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Figure 1 – Report numbers by Category
[alt = 'This figure is a graph representing the number of reports under each of the nine themes']
Table 1: Summary of Follow On Initiatives and Projects

Areas of significant and rapid change, such as eHealth have been supported to enable investigation into their impact on the quality use of pathology including health and economic outcomes. For example, twelve projects in the area of eHealth have uncovered significant key project learnings such as issues with software installation and capacity, and identified strategies to facilitate the future implementation of eHealth capability.

The QUPP investment into eHealth also enabled pathology reports to integrate into the electronic age by supporting projects to develop software systems to automatically extract information from narrative pathology reports, and to standardise pathology terminology units to facilitate their use in electronic reporting.

Projects to investigate workforce issues in the pathology sector were also funded by this program. These projects identified stakeholder concerns, such as the ageing pathology workforce and the lack of a structured career path for scientists. Of the six projects funded under the Workforce Capacity and Competence theme, ten follow on projects and initiatives have been undertaken to further investigate and address these key issues.

The QUPP also facilitated increased engagement with consumers through workshops which highlighted issues predominantly based on a need for improved communication and engagement, and the need for comprehensive information strategies to address consumer concerns.

From the analysis of QUPP initiatives to date, there are few identified areas that may benefit from some further consideration. These include:

- eHealth information outlining the benefits/risks of pathology results being uploaded onto the National Electronic Health Record System for consumers.
- Standardised request forms and education of all levels of health practitioners about the importance of completing the information on these forms.
- Development of comprehensive guidelines for General Practitioners (GPs) regarding evidence-based pathology requesting.
- Investigate including patient-specific advice for GPs on pathology test results.
- Focus on increasing GPs’ understanding of the pathology testing process.

Consistent Themes Identified from the Analysis

From the analysis there appears to be three consistent themes throughout all areas of the pathology spectrum. These are:

25. The need for increased information resources generated by reliable sources about pathology testing for General Practitioners (GPs) that are short, concise and easily accessed. This information should also include procedures for GPs when collecting pathology specimens from their patients, and for GPs to give to their patients for patient-collected samples.

26. Educating medical students during their training and post-graduate years about pathology was consistently viewed as a long term strategy to improve pathology knowledge and practice. This included rotating medical students through pathology laboratories as a component of
their medical training.

27. Producing reliable consumer information about pathology testing, and keeping consumers informed about current issues/advances within pathology.

**Conclusion**

The QUPP has enabled projects to investigate and implement improvements in health and economic outcomes for the quality use of pathology. This is evidenced by the high rate of follow on initiatives and projects outlined in Table 1, and by the changes in practice that have resulted from this program's support. For example, the Structured Pathology Reporting of Cancer projects developed cancer protocols for the structured reporting of six types of cancer. This project may lead to the possible development of a standardised reporting format for all major cancers and other major complex reporting topics.

This integrated analysis also highlighted a number of key project learnings from the past ten years of the Quality Use of Pathology Program. It also identified potential areas for future consideration across all of the themes which are presented in the analysis of each theme. This report stands as a record of the valuable investment the program has made to the quality and capacity of the pathology sector to date, and will form the basis for reflection when future programs are investigated and/or supported by this important program.

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The program has been managed by the Australian Government Department of Health and Ageing (DoHA) in conjunction with the Quality Use of Pathology Committee (QUPC). The QUPC was originally a sub-committee of the Pathology Consultative Committee (PCC) formed to work with the Australian Government to manage pathology outlays under the MoU. But more recently it has been given a continued focus with the commencement of the five-year Pathology Funding Agreement (PFA) between the Commonwealth Government and key pathology stakeholders in April 2011.

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Funding for the QUPP has been allocated by a combination of open funding rounds and targeted initiatives. The program has operated under overarching principles supported by guiding assumptions developed by
DoHA and the QUPC in consultation with the broader pathology stakeholder sector.

National workshops have been held each year since 2007 with the aim of bringing pathology, requester and consumer stakeholders together to discuss pathology quality and safety issues, to inform the QUPP priority setting process and debate the ways in which priority issues could be addressed. In 2005-2006 the QUPP was reviewed and the operation of the program was refined to address strategic issues outlined in the review report. Since the review, project funding has generally been targeted to three sub-programs with the following key objectives:

25. **Quality Consumer Services**: To develop and improve consumer-focused, accessible and coordinated services that promote informed choice and meet consumer needs;

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In recent years there has been an increasing focus on the funding of initiatives aimed at developing and testing strategies to minimise error and promote patient safety. This work is relevant to the strategic focus of the National Pathology Accreditation Advisory Council.


**Terms of Reference for the project**

DoHA commissioned Cognitus Pty Ltd to conduct a comprehensive analysis of the Quality Use of Pathology Program project reports. The project objectives were:

- to conduct a comprehensive review of QUPP projects/initiatives to date including project results and recommendations, and

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The analysis was to cover the QUPP investment that has occurred over the past ten years which would record the investment to date made on the quality use of pathology. It is expected that this document would also provide a potential basis for any future evaluation of the program.

**Structure of the Report**

This document is structured according to nine themes based on the QUPP's areas of focus:

73. Promoting Evidence-Based Practice
74. Risk Minimisation
75. Quality Assurance and Capacity – New Technology
76. eHealth Capability
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There were 74 reports analysed for this integrated analysis, with each report assigned to one of the above themes. Each report was set out in the following template:

- Description
- Grant Recipient/s
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- Recommendation/s
- Key Project Learning/s
- Follow on Initiatives and Projects
- Areas for Future Consideration.

*Many of the projects listed in this report fall into more than one theme – see Appendix A – Report Summaries Relevant to Different Themes.*

**Integrated Analysis of Quality Use of Pathology Program (QUPP) Final Reports**

A Summary Report for the Australian Department of Health and Ageing Medical Benefits Division

Canberra
22 June 2012

Cognitus Pty Ltd
Jane Carstens

**Table of Contents**
Executive Summary

General Findings from the Integrated Analysis

Consistent Themes identified from the Integrated Analysis

Conclusion

Abbreviations

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Terms of Reference

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Consumer Focus and Information Strategies

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- Lab Tests Online® Stage 1 (Current)

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This analysis includes a summary of the QUPP projects/initiatives over the past ten years and also provides an analysis of whether each of the projects/initiatives achieved their aims and objectives and whether there were any key project learnings.

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84. Quality Assurance and Capacity – New Technology
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The number of reports within each theme is presented in Figure 1.
General Findings from the Analysis

The QUPP has contributed to the expansion of the knowledge base of pathology practice and to the quality use of pathology services in Australia. There were a number of project recommendations that were strategically followed up in subsequent projects. For example, The Australian Pathology Workforce Crisis report resulted in five other initiatives and projects.

In a broader sense, all of the themes led to a high rate of follow on initiatives and projects as outlined below:

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<td>9</td>
</tr>
<tr>
<td>Promoting Evidence-Based Practice</td>
<td>16</td>
<td>10</td>
</tr>
<tr>
<td>eHealth Capability</td>
<td>12</td>
<td>9</td>
</tr>
<tr>
<td>Quality Assurance and Capacity – New Technology</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
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<td>6</td>
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<td>3</td>
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</tr>
<tr>
<td>Access Initiatives – Raising Awareness – 2 out of 3</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>
Table 1: Summary of Follow On Initiatives and Projects

<table>
<thead>
<tr>
<th>Areas of significant and rapid change, such as eHealth have been supported to enable investigation into their impact on the quality use of pathology including health and economic outcomes. For example, twelve projects in the area of eHealth have uncovered significant key project learnings such as issues with software installation and capacity, and identified strategies to facilitate the future implementation of eHealth capability.</th>
</tr>
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<tbody>
<tr>
<td>The QUPP investment into eHealth also enabled pathology reports to integrate into the electronic age by supporting projects to develop software systems to automatically extract information from narrative pathology reports, and to standardise pathology terminology units to facilitate their use in electronic reporting.</td>
</tr>
<tr>
<td>Projects to investigate workforce issues in the pathology sector were also funded by this program. These projects identified stakeholder concerns, such as the ageing pathology workforce and the lack of a structured career path for scientists. Of the six projects funded under the Workforce Capacity and Competence theme, ten follow on projects and initiatives have been undertaken to further investigate and address these key issues.</td>
</tr>
<tr>
<td>The QUPP also facilitated increased engagement with consumers through workshops which highlighted issues predominantly based on a need for improved communication and engagement, and the need for comprehensive information strategies to address consumer concerns.</td>
</tr>
<tr>
<td>From the analysis of QUPP initiatives to date, there are few identified areas that may benefit from some further consideration. These include:</td>
</tr>
<tr>
<td>• eHealth information outlining the benefits/risks of pathology results being uploaded onto the National Electronic Health Record System for consumers.</td>
</tr>
<tr>
<td>• Standardised request forms and education of all levels of health practitioners about the importance of completing the information on these forms.</td>
</tr>
<tr>
<td>• Development of comprehensive guidelines for General Practitioners (GPs) regarding evidence-based pathology requesting.</td>
</tr>
<tr>
<td>• Investigate including patient-specific advice for GPs on pathology test results.</td>
</tr>
<tr>
<td>• Focus on increasing GPs' understanding of the pathology testing process.</td>
</tr>
</tbody>
</table>

Consistent Themes Identified from the Analysis

From the analysis there appears to be three consistent themes throughout all areas of the pathology spectrum. These are:

28. The need for increased information resources generated by reliable sources about pathology testing for General Practitioners (GPs) that are short, concise and easily accessed. This information should also include procedures for GPs when collecting pathology specimens from their patients, and for GPs to give to their patients for patient-collected samples.

29. Educating medical students during their training and postgraduate years about pathology was consistently viewed as a long term strategy to improve pathology knowledge and practice. This included rotating medical students through pathology laboratories as a component of
their medical training.

30. Producing reliable consumer information about pathology testing, and keeping consumers informed about current issues/advances within pathology.

Conclusion

The QUPP has enabled projects to investigate and implement improvements in health and economic outcomes for the quality use of pathology. This is evidenced by the high rate of follow on initiatives and projects outlined in Table 1, and by the changes in practice that have resulted from this program’s support. For example, the Structured Pathology Reporting of Cancer projects developed cancer protocols for the structured reporting of six types of cancer. This project may lead to the possible development of a standardised reporting format for all major cancers and other major complex reporting topics.

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Pathology Requesting and Reporting – Requester and Consumer Focus

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Home Monitoring of Warfarin Therapy in Children using the Coaguchek® Point of Care INR Monitor (2003)
Facilitating Best Practice Pathology Utilisation by the Use of Hand-Held Decision Support Devices (2004)
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Quality Use of Pathology Services Education Program (2006)
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The number of reports within each theme is presented in Figure 1.
Figure 1 – Report numbers by Category
[alt = 'This figure is a graph representing the number of reports under each of the nine themes']

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The QUPP has contributed to the expansion of the knowledge base of pathology practice and to the quality use of pathology services in Australia. There were a number of project recommendations that were strategically followed up in subsequent projects. For example, The Australian Pathology Workforce Crisis report resulted in five other initiatives and projects.

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<td>3</td>
<td>2</td>
</tr>
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Table 1: Summary of Follow On Initiatives and Projects

<table>
<thead>
<tr>
<th>Areas of significant and rapid change, such as eHealth have been supported to enable investigation into their impact on the quality use of pathology including health and economic outcomes. For example, twelve projects in the area of eHealth have uncovered significant key project learnings such as issues with software installation and capacity, and identified strategies to facilitate the future implementation of eHealth capability.</th>
</tr>
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<tbody>
<tr>
<td>The QUPP investment into eHealth also enabled pathology reports to integrate into the electronic age by supporting projects to develop software systems to automatically extract information from narrative pathology reports, and to standardise pathology terminology units to facilitate their use in electronic reporting.</td>
</tr>
<tr>
<td>Projects to investigate workforce issues in the pathology sector were also funded by this program. These projects identified stakeholder concerns, such as the ageing pathology workforce and the lack of a structured career path for scientists. Of the six projects funded under the Workforce Capacity and Competence theme, ten follow on projects and initiatives have been undertaken to further investigate and address these key issues.</td>
</tr>
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<td>The QUPP also facilitated increased engagement with consumers through workshops which highlighted issues predominantly based on a need for improved communication and engagement, and the need for comprehensive information strategies to address consumer concerns.</td>
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<td>From the analysis of QUPP initiatives to date, there are few identified areas that may benefit from some further consideration. These include:</td>
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<td>- Development of comprehensive guidelines for General Practitioners (GPs) regarding evidence-based pathology requesting.</td>
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<tr>
<td>From the analysis there appears to be three consistent themes throughout all areas of the pathology spectrum. These are:</td>
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<tr>
<td>31. The need for increased information resources generated by reliable sources about pathology testing for General Practitioners (GPs) that are short, concise and easily accessed. This information should also include procedures for GPs when collecting pathology specimens from their patients, and for GPs to give to their patients for patient-collected samples.</td>
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| 32. Educating medical students during their training and post-graduate years about pathology was consistently viewed as a long term strategy to improve pathology knowledge and practice. This included rotating medical students through pathology laboratories as a component of
their medical training.

33. Producing reliable consumer information about pathology testing, and keeping consumers informed about current issues/advances within pathology.

**Conclusion**

The QUPP has enabled projects to investigate and implement improvements in health and economic outcomes for the quality use of pathology. This is evidenced by the high rate of follow on initiatives and projects outlined in Table 1, and by the changes in practice that have resulted from this program’s support. For example, the Structured Pathology Reporting of Cancer projects developed cancer protocols for the structured reporting of six types of cancer. This project may lead to the possible development of a standardised reporting format for all major cancers and other major complex reporting topics.

This integrated analysis also highlighted a number of key project learnings from the past ten years of the Quality Use of Pathology Program. It also identified potential areas for future consideration across all of the themes which are presented in the analysis of each theme. This report stands as a record of the valuable investment the program has made to the quality and capacity of the pathology sector to date, and will form the basis for reflection when future programs are investigated and/or supported by this important program.

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DoHA and the QUPC in consultation with the broader pathology stakeholder sector.

National workshops have been held each year since 2007 with the aim of bringing pathology, requester and consumer stakeholders together to discuss pathology quality and safety issues, to inform the QUPP priority setting process and debate the ways in which priority issues could be addressed. In 2005-2006 the QUPP was reviewed and the operation of the program was refined to address strategic issues outlined in the review report. Since the review, project funding has generally been targeted to three sub-programs with the following key objectives:

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In recent years there has been an increasing focus on the funding of initiatives aimed at developing and testing strategies to minimise error and promote patient safety. This work is relevant to the strategic focus of the National Pathology Accreditation Advisory Council.


**Terms of Reference for the project**

DoHA commissioned Cognitus Pty Ltd to conduct a comprehensive analysis of the Quality Use of Pathology Program project reports. The project objectives were:

- to conduct a comprehensive review of QUPP projects/initiatives to date including project results and recommendations, and

- to produce a document that will form a record of past and present investment and will assist in determining the future strategic direction of the program.

The analysis was to cover the QUPP investment that has occurred over the past ten years which would record the investment to date made on the quality use of pathology. It is expected that this document would also provide a potential basis for any future evaluation of the program.

**Structure of the Report**

This document is structured according to nine themes based on the QUPP's areas of focus:

91. Promoting Evidence-Based Practice
92. Risk Minimisation
94. eHealth Capability
95. Pathology Requesting and Reporting – Requester and Consumer Focus
96. Workforce Capacity and Competence
97. Consumer Focus and Information Strategies
98. Access Initiatives – Raising Awareness

There were 74 reports analysed for this integrated analysis, with each report assigned to one of the above themes. Each report was set out in the following template:
- Description
- Grant Recipient/s
- Aims and/or Objectives
- Outcomes and/or Findings
- Recommendation/s
- Key Project Learning/s
- Follow on Initiatives and Projects
- Areas for Future Consideration.

Many of the projects listed in this report fall into more than one theme – see Appendix A – Report Summaries Relevant to Different Themes.
Integrated Analysis of Quality Use of Pathology Program (QUPP) Final Reports

A Summary Report for the Australian Department of Health and Ageing Medical Benefits Division

Canberra
22 June 2012

Cognitus Pty Ltd
Jane Carstens

Table of Contents
### Executive Summary

General Findings from the Integrated Analysis

Consistent Themes identified from the Integrated Analysis

Conclusion

### Abbreviations

### Introduction

Background

Terms of Reference

Structure of the Document

### Promoting Evidence-Based Practice


An Historical Analysis of Pathology Ordering by General Practitioners between April 1998 and March 2001 from the Bettering the Evaluation and Care of Health (BEACH) Program (2002)

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Common Sense Pathology (2006)

Common Sense Pathology Publication Series (2011)

Improved Pathology Reporting, Education and Practice (IPREP) for Colorectal Cancer (2009)

Structured Pathology Reporting Standards for Cancer (2009)

Promoting and Expanding Structured Pathology Reporting of Cancer (Stage 2) (Current)

Evidence-Based, Best-Practice Prevention of Blood Borne Virus Transmission in Health Care Settings Program (PBBV) (2009)

### Risk Minimisation

RCPA – Quality Assurance Programs Key Indicator Project (2004)

Pilot Laboratory Assessment and Peer Review Mechanism for Pathology Key Performance Indicators (2007)

Performance Monitoring of External Quality Assurance (Current)

NATA File Audit – Risk Analysis of Assessment Non Conformances Identified in Pathology Laboratory Assessment Accreditation (Current)

Key Incident Monitoring & Management Systems (Current)

### Quality Assurance and Capacity – New Technology

Virtual Microscope (2005)

High Resolution Scanning Microscopy for Quality Assurance and Educational Applications (2009)


Policies, Procedures and Guidelines for Point-of-Care Testing (2011)

PoCT Training, Certification, Support and Skill Maintenance Program (Australian PoCT Practitioners Network – APPN) (Current)

Establishment of a Molecular Genetics Quality Assurance Program (Current)

MAWSON – An Online Repository of Genetic Data to Aid Reporting of Medical Genetic Tests (Current)

### eHealth Capability


Pathology and General Practice Software Integration Project (PaGSSIP) (2003)

Chair of Information Custody for the Pathology Request-Test-Report Cycle in Australia (Guidelines for Pathology Requesters and Pathology Providers) (2004)

Supporting HL7 for Health Informatics Standards (2004)


Application of Pathology Informatics to Reporting of Critical/Abnormal Results for Improved Requester/Provider Communication and Improved Patient Care (2004)

Pathlok On-line Pathology Ordering System (2005)
Pathology Requesting and Reporting – Requester and Consumer Focus

Guidelines for Patient/Consumer Access to Pathology Test Reports (2001)

AUSLAB Retest Interval Trial Project (2003)

AUSLAB Retest Interval Project (2004)

Home Monitoring of Warfarin Therapy in Children using the CoaguChek® Point of Care INR Monitor (2003)

Facilitating Best Practice Pathology Utilisation by the Use of Hand-Held Decision Support Devices (2004)

Improving GP Access to and Use of Retrospective and Current Pathology Data to Increase Detection of Early Diabetes (IGT and IFG) in General Practice (2005)

Quality Use of Pathology Services Education Program (2006)

Investigation into the Reasons for Incorrect or Incomplete Pathology Request Forms (2006)

Enhancing the Quality Use of Pathology for GP Registrars and International Medical Graduates – Assessing the Need (2009)

Effect of a Structured Microbiology Laboratory Report on Antimicrobial Prescribing for Asymptomatic Bacteriuria in Elderly Females (2010)

Identifying how Electronic Decision Support (EDS) in Computerised Pathology Order Entry Systems can Improve Pathology Practice, Rational Ordering and Patient Outcomes (2010)

The Impact of the Implementation of Electronic Ordering of Pathology Requesting and the Quality and Effectiveness of Hospital Pathology Services – Building a Robust Evidence Base and Benefits Framework for Successful e-Health Diffusions (Current)


iInvestigate: Online Patient Simulations for Education in the Rational Use of Investigations – Final Report for Phase 2 (2011)

iInvestigate: Online Patient Simulations for Education in the Rational Use of Investigations (Current)

Encouraging Quality Pathology Ordering in Australia’s Public Hospitals (2011)

Effective Communication of Pathology Results in Requesting Practitioners and Consumers (Current)

Workforce Capacity and Competence

PathWay (2005)

The Australian Pathology Workforce Crisis (2008)

Review of Pathology Specialist Development Pathways (2010)

Impact of Workload of Anatomical Pathologists on Quality and Safety (2011)

Survey of the Pathology Workforce (2011)

Career Structures and Pathways for the Scientific Workforce in Medical Pathology Laboratories (2011)

Consumer Focus and Information Strategies

Quality Use of Pathology Consumer Consultation Project (2010)

Benefits and Risks of Pathology Testing (Current)

Lab Tests Online® Stage 1 (Current)

Access Initiatives – Raising Awareness

Optimising Health Benefits for Aboriginal People who take Warfarin (2009)

Quality Assurance for Aboriginal Medical Services (QAAMS) (Current)

Quality Assurance for Aboriginal Medical Services (QAAMS) Quality Assurance Program (Current)

Communication Strategy and Stakeholder Engagement

Report from the National Workshop on Safety and Quality in Pathology (2007)

The Second National Workshop on Safety and Quality in Pathology (2008)

Best Practice in Pathology Requesting and Reporting Workshop (2009)

Pathology Workforce Workshop (2011)

Appendix A – Report Summaries Relevant to Different Themes
Executive Summary

The Quality Use of Pathology Program (QUPP) is a well-established program having been established in 1999. Its goal is the continual improvement in health and economic outcomes from the use of pathology in health care through the pursuit of better practice amongst requesters/referrers and providers of pathology services, and through knowledgeable and engaged consumers. It is managed by the Australian Government Department of Health and Ageing (DoHA) in conjunction with the Quality Use of Pathology Committee (QUPC).

The Australian Government Department of Health and Ageing commissioned Cognitus Pty Ltd to undertake an analysis of the projects/initiatives funded under the Quality Use of Pathology Program (QUPP). The objectives of the project were:

- to conduct a comprehensive review of QUPP projects/initiatives, including project results and recommendations; and
- to produce a document that would record the past and present investment and could inform the future strategic direction of the program.

This analysis includes a summary of the QUPP projects/initiatives over the past ten years and also provides an analysis of whether each of the projects/initiatives achieved their aims and objectives and whether there were any key project learnings.

There were 74 project reports analysed, which were further divided into the following nine themes that were based on QUPP areas of focus:

100. Promoting Evidence-Based Practice
101. Risk Minimisation
102. Quality Assurance and Capacity – New Technology
103. eHealth Capability
104. Pathology Requesting and Reporting – Requester and Consumer Focus
105. Workforce Capacity and Competence
106. Consumer Focus and Information Strategies
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_The number of reports within each theme is presented in Figure 1._
General Findings from the Analysis

The QUPP has contributed to the expansion of the knowledge base of pathology practice and to the quality use of pathology services in Australia. There were a number of project recommendations that were strategically followed up in subsequent projects. For example, The Australian Pathology Workforce Crisis report resulted in five other initiatives and projects.

In a broader sense, all of the themes led to a high rate of follow on initiatives and projects as outlined below:

<table>
<thead>
<tr>
<th>Theme</th>
<th>Original projects</th>
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</tr>
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<tbody>
<tr>
<td>Pathology Requesting and Reporting – Requester and Consumer Focus</td>
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The QUPP investment into eHealth also enabled pathology reports to integrate into the electronic age by supporting projects to develop software systems to automatically extract information from narrative pathology reports, and to standardise pathology terminology units to facilitate their use in electronic reporting.

Projects to investigate workforce issues in the pathology sector were also funded by this program. These projects identified stakeholder concerns, such as the ageing pathology workforce and the lack of a structured career path for scientists. Of the six projects funded under the Workforce Capacity and Competence theme, ten follow on projects and initiatives have been undertaken to further investigate and address these key issues.

The QUPP also facilitated increased engagement with consumers through workshops which highlighted issues predominantly based on a need for improved communication and engagement, and the need for comprehensive information strategies to address consumer concerns.

From the analysis of QUPP initiatives to date, there are few identified areas that may benefit from some further consideration. These include:

- eHealth information outlining the benefits/risks of pathology results being uploaded onto the National Electronic Health Record System for consumers.
- Standardised request forms and education of all levels of health practitioners about the importance of completing the information on these forms.
- Development of comprehensive guidelines for General Practitioners (GPs) regarding evidence-based pathology requesting.
- Investigate including patient-specific advice for GPs on pathology test results.
- Focus on increasing GPs' understanding of the pathology testing process.

**Consistent Themes Identified from the Analysis**

From the analysis there appears to be three consistent themes throughout all areas of the pathology spectrum. These are:

34. The need for increased information resources generated by reliable sources about pathology testing for General Practitioners (GPs) that are short, concise and easily accessed. This information should also include procedures for GPs when collecting pathology specimens from their patients, and for GPs to give to their patients for patient-collected samples.

35. Educating medical students during their training and post-graduate years about pathology was consistently viewed as a long term strategy to improve pathology knowledge and practice. This included rotating medical students through pathology laboratories as a component of
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# Table of Contents

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- Evidence-Based, Best-Practice Prevention of Blood Borne Virus Transmission in Health Care Settings Program (PBV) (2009)

## Risk Minimisation
- Pilot Laboratory Assessment and Peer Review Mechanism for Pathology Key Performance Indicators (2007)
- Performance Monitoring of External Quality Assurance (Current)
- NATA File Audit – Risk Analysis of Assessment Non Conformances Identified in Pathology Laboratory Assessment Accreditation (Current)
- Key Incident Monitoring & Management Systems (Current)

## Quality Assurance and Capacity – New Technology
- Virtual Microscope (2005)
- Policies, Procedures and Guidelines for Point-of-Care Testing (2011)
- PoCT Training, Certification, Support and Skill Maintenance Program (Australian PoCT Practitioners Network – APPN) (Current)
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- MAWSON – An Online Repository of Genetic Data to Aid Reporting of Medical Genetic Tests (Current)

## eHealth Capability
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Pathology Requesting and Reporting – Requester and Consumer Focus

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Executive Summary

The Quality Use of Pathology Program (QUPP) is a well-established program having been established in 1999. Its goal is the continual improvement in health and economic outcomes from the use of pathology in health care through the pursuit of better practice amongst requesters/referrers and providers of pathology services, and through knowledgeable and engaged consumers. It is managed by the Australian Government Department of Health and Ageing (DoHA) in conjunction with the Quality Use of Pathology Committee (QUPC).

The Australian Government Department of Health and Ageing commissioned Cognitus Pty Ltd to undertake an analysis of the projects/initiatives funded under the Quality Use of Pathology Program (QUPP). The objectives of the project were:

- to conduct a comprehensive review of QUPP projects/initiatives, including project results and recommendations; and
- to produce a document that would record the past and present investment and could inform the future strategic direction of the program.

This analysis includes a summary of the QUPP projects/initiatives over the past ten years and also provides an analysis of whether each of the projects/initiatives achieved their aims and objectives and whether there were any key project learnings.

There were 74 project reports analysed, which were further divided into the following nine themes that were based on QUPP areas of focus:

109. Promoting Evidence-Based Practice
110. Risk Minimisation
111. Quality Assurance and Capacity – New Technology
112. eHealth Capability
113. Pathology Requesting and Reporting – Requester and Consumer Focus
114. Workforce Capacity and Competence
115. Consumer Focus and Information Strategies
116. Access Initiatives – Raising Awareness

*The number of reports within each theme is presented in Figure 1.*
General Findings from the Analysis

The QUPP has contributed to the expansion of the knowledge base of pathology practice and to the quality use of pathology services in Australia. There were a number of project recommendations that were strategically followed up in subsequent projects. For example, The Australian Pathology Workforce Crisis report resulted in five other initiatives and projects.

In a broader sense, all of the themes led to a high rate of follow on initiatives and projects as outlined below:

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Areas of significant and rapid change, such as eHealth have been supported to enable investigation into their impact on the quality use of pathology including health and economic outcomes. For example, twelve projects in the area of eHealth have uncovered significant key project learnings such as issues with software installation and capacity, and identified strategies to facilitate the future implementation of eHealth capability.

The QUPP investment into eHealth also enabled pathology reports to integrate into the electronic age by supporting projects to develop software systems to automatically extract information from narrative pathology reports, and to standardise pathology terminology units to facilitate their use in electronic reporting.

Projects to investigate workforce issues in the pathology sector were also funded by this program. These projects identified stakeholder concerns, such as the ageing pathology workforce and the lack of a structured career path for scientists. Of the six projects funded under the Workforce Capacity and Competence theme, ten follow on projects and initiatives have been undertaken to further investigate and address these key issues.

The QUPP also facilitated increased engagement with consumers through workshops which highlighted issues predominantly based on a need for improved communication and engagement, and the need for comprehensive information strategies to address consumer concerns.

From the analysis of QUPP initiatives to date, there are few identified areas that may benefit from some further consideration. These include:

- eHealth information outlining the benefits/risks of pathology results being uploaded onto the National Electronic Health Record System for consumers.
- Standardised request forms and education of all levels of health practitioners about the importance of completing the information on these forms.
- Development of comprehensive guidelines for General Practitioners (GPs) regarding evidence-based pathology requesting.
- Investigate including patient-specific advice for GPs on pathology test results.
- Focus on increasing GPs’ understanding of the pathology testing process.

**Consistent Themes Identified from the Analysis**

From the analysis there appears to be three consistent themes throughout all areas of the pathology spectrum. These are:

37. The need for increased information resources generated by reliable sources about pathology testing for General Practitioners (GPs) that are short, concise and easily accessed. This information should also include procedures for GPs when collecting pathology specimens from their patients, and for GPs to give to their patients for patient-collected samples.

38. Educating medical students during their training and post-graduate years about pathology was consistently viewed as a long term strategy.
to improve pathology knowledge and practice. This included rotating medical students through pathology laboratories as a component of their medical training.

39. Producing reliable consumer information about pathology testing, and keeping consumers informed about current issues/advances within pathology.

**Conclusion**

The QUPP has enabled projects to investigate and implement improvements in health and economic outcomes for the quality use of pathology. This is evidenced by the high rate of follow on initiatives and projects outlined in Table 1, and by the changes in practice that have resulted from this program’s support. For example, the Structured Pathology Reporting of Cancer projects developed cancer protocols for the structured reporting of six types of cancer. This project may lead to the possible development of a standardised reporting format for all major cancers and other major complex reporting topics.

This integrated analysis also highlighted a number of key project learnings from the past ten years of the Quality Use of Pathology Program. It also identified potential areas for future consideration across all of the themes which are presented in the analysis of each theme. This report stands as a record of the valuable investment the program has made to the quality and capacity of the pathology sector to date, and will form the basis for reflection when future programs are investigated and/or supported by this important program.

**Abbreviations**

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<td>Consumers Health Forum of Australia</td>
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<td>DATIS</td>
<td>Drug and Therapeutics Information Service</td>
</tr>
<tr>
<td>DoHA</td>
<td>Australian Government Department of Health and Ageing</td>
</tr>
<tr>
<td>GP</td>
<td>General Practitioner</td>
</tr>
<tr>
<td>HGSA</td>
<td>Human Genetics Society of Australasia</td>
</tr>
<tr>
<td>HIC</td>
<td>Health Insurance Commission</td>
</tr>
<tr>
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<td>Health Informatics Society of Australia</td>
</tr>
<tr>
<td>KPI</td>
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Introduction

Background

The Quality Use of Pathology Program (QUPP) was established in 1999 under the auspice of the 2nd pathology Memorandum of Understanding (MoU) with pathology stakeholders, and with up to $2 million notionally allocated per year for the funding of projects and other initiatives relating to improvements in the quality of pathology services.

The program has been managed by the Australian Government Department of Health and Ageing (DoHA) in conjunction with the Quality Use of Pathology Committee (QUPC). The QUPC was originally a subcommittee of the Pathology Consultative Committee (PCC) formed to work with the Australian Government to manage pathology outlays under the MoU. But more recently it has been given a continued focus with the commencement of the five-year Pathology Funding Agreement (PFA) between the Commonwealth Government and key pathology stakeholders in April 2011.

The QUPC provides advice relation to strategic directions and projects and/or initiatives implemented under the program. This committee currently comprises nominees from the pathology profession, general practice, the Royal Australasian College of Physicians, Doctors-in-Training, the Consumers Health Forum of Australia, Medical Deans Australia and New Zealand and representatives from the Department of Health and Ageing.

Funding for the QUPP has been allocated by a combination of open funding
rounds and targeted initiatives. The program has operated under overarching principles supported by guiding assumptions developed by DoHA and the QUPC in consultation with the broader pathology stakeholder sector.

National workshops have been held each year since 2007 with the aim of bringing pathology, requester and consumer stakeholders together to discuss pathology quality and safety issues, to inform the QUPP priority setting process and debate the ways in which priority issues could be addressed. In 2005-2006 the QUPP was reviewed and the operation of the program was refined to address strategic issues outlined in the review report. Since the review, project funding has generally been targeted to three sub-programs with the following key objectives:

37. **Quality Consumer Services:** To develop and improve consumer-focused, accessible and coordinated services that promote informed choice and meet consumer needs;

38. **Quality Referrals (Requesting/Ordering):** To support referral practices that are informed and facilitated by best practice professional relationships and protocols between referrers and providers; that are informed by evidence; that maximise health benefits; and that inform and engage consumers; and

39. **Quality Pathology Practice:** To support professional practice standards that meet consumer and referrer needs and provide evidence-based, best practice, quality-assured services that are safe, cost effective and efficient.

In recent years there has been an increasing focus on the funding of initiatives aimed at developing and testing strategies to minimise error and promote patient safety. This work is relevant to the strategic focus of the National Pathology Accreditation Advisory Council.


**Terms of Reference for the project**

DoHA commissioned Cognitus Pty Ltd to conduct a comprehensive analysis of the Quality Use of Pathology Program project reports. The project objectives were:

- to conduct a comprehensive review of QUPP projects/initiatives to date including project results and recommendations, and

- to produce a document that will form a record of past and present investment and will assist in determining the future strategic direction of the program.

The analysis was to cover the QUPP investment that has occurred over the past ten years which would record the investment to date made on the quality use of pathology. It is expected that this document would also provide a potential basis for any future evaluation of the program.

**Structure of the Report**

This document is structured according to nine themes based on the QUPP’s areas of focus:

- 109. Promoting Evidence-Based Practice
- 110. Risk Minimisation
- 111. Quality Assurance and Capacity – New Technology
There were 74 reports analysed for this integrated analysis, with each report assigned to one of the above themes. Each report was set out in the following template:

- Description
- Grant Recipient/s
- Aims and/or Objectives
- Outcomes and/or Findings
- Recommendation/s
- Key Project Learning/s
- Follow on Initiatives and Projects
- Areas for Future Consideration.

Many of the projects listed in this report fall into more than one theme – see Appendix A – Report Summaries Relevant to Different Themes.
Effect of a Structured Microbiology Laboratory Report on Antimicrobial Prescribing for Asymptomatic Bacteriuria in Elderly Females (2010)

Integrated Analysis of Quality Use of Pathology Program (QUPP) Final Reports

A Summary Report for the Australian Department of Health and Ageing Medical Benefits Division

Canberra
22 June 2012

Cognitus Pty Ltd
Jane Carstens

Table of Contents
Executive Summary
General Findings from the Integrated Analysis
Consistent Themes identified from the Integrated Analysis
Conclusion

Abbreviations

Introduction
Background
Terms of Reference
Structure of the Document

Promoting Evidence-Based Practice
An Historical Analysis of Pathology Ordering by General Practitioners between April 1998 and March 2001 from the Bettering the Evaluation and Care of Health (BEACH) Program (2002)
Evidence-Practice Gap in GP Pathology Test Ordering: A Comparison of BEACH Pathology Data and Recommended Testing (2009)
A Project to Examine the Utilisation of Pathology Tests in the Investigation of Tiredness in General Practice (2002)
Analysis of Current Laboratory Medicine (Pathology) Teaching Practice in Prevocational and General Practitioner Vocational Training (2003)
Common Sense Pathology (2006)
Common Sense Pathology Publication Series (2011)
Improved Pathology Reporting, Education and Practice (PREP) for Colorectal Cancer (2009)
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eHealth Capability
Pathology and General Practice Software Integration Project (PaGSIP) (2003)
Change of Information Custody for the Pathology Request-Test-Report Cycle in Australia (Guidelines for Pathology Requesters and Pathology Providers) (2004)
Supporting HL7 for Health Informatics Standards (2004)
Application of Pathology Informatics to Reporting of Critical/Abnormal Results for Improved Requester/Provider Communication and Improved Patient Care (2004)
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</tr>
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<td>2</td>
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From the analysis there appears to be three consistent themes throughout all areas of the pathology spectrum. These are:

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**Conclusion**

The QUPP has enabled projects to investigate and implement improvements in health and economic outcomes for the quality use of pathology. This is evidenced by the high rate of follow on initiatives and projects outlined in Table 1, and by the changes in practice that have resulted from this program’s support. For example, the Structured Pathology Reporting of Cancer projects developed cancer protocols for the structured reporting of six types of cancer. This project may lead to the possible development of a standardised reporting format for all major cancers and other major complex reporting topics.

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HISA  Health Informatics Society of Australia  
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MTAAC  Medical Testing Accreditation Advisory Committee
Introduction

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40. **Quality Consumer Services**: To develop and improve consumer-focused, accessible and coordinated services that promote informed choice and meet consumer needs;

41. **Quality Referrals (Requesting/Ordering)**: To support referral practices that are informed and facilitated by best practice professional relationships and protocols between referrers and providers; that are informed by evidence; that maximise health benefits; and that inform and engage consumers; and

42. **Quality Pathology Practice**: To support professional practice standards that meet consumer and referrer needs and provide evidence-based, best practice, quality-assured services that are safe, cost effective and efficient.

In recent years there has been an increasing focus on the funding of initiatives aimed at developing and testing strategies to minimise error and promote patient safety. This work is relevant to the strategic focus of the National Pathology Accreditation Advisory Council.


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123. Workforce Capacity and Competence
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There were 74 reports analysed for this integrated analysis, with each report assigned to one of the above themes. Each report was set out in the following template:

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<thead>
<tr>
<th>52</th>
<th>Identifying how Electronic Decision Support (EDS) in Computerised Pathology Order Entry Systems can Improve Pathology Practice, Rational Ordering and Patient Outcomes (2010)</th>
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Quality Assurance and Capacity – New Technology

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**A Summary Report for the Australian Department of Health and Ageing Medical Benefits Division**

*Canberra*

*22 June 2012*

*Cognitus Pty Ltd*

*Jane Carstens*
Table of Contents

Executive Summary ........................................................................................................................................
General Findings from the Integrated Analysis .........................................................................................
Consistent Themes Identified from the Integrated Analysis ........................................................................
Conclusion ......................................................................................................................................................

Abbreviations................................................................................................................................................

Introduction ...................................................................................................................................................
Background ......................................................................................................................................................
Terms of Reference ........................................................................................................................................
Structure of the Document ..............................................................................................................................

Promoting Evidence-Based Practice ...........................................................................................................
Evaluation of the Impact on Pathology Practice of the Manual of Use and Interpretation of
Pathology Tests (2001) ................................................................................................................................
Revision of Manual of Use and Interpretation of Pathology Tests (2004) ..................................................
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March 2001 from the Bettering the Evaluation and Care of Health (BEACH) Program (2002) ..............
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and Recommended Testing (2009) ..................................................................................................................
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(2003) ............................................................................................................................................................
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Practice Clinical Guidelines to Facilitate Quality Use of Pathology Tests (2003) ....................................
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Common Sense Pathology Publication Series (2011) ..................................................................................
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Virtual Microscope (2005) ...........................................................................................................................
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Preparation for Genomic Medicine: National Audit and Development of a Best Practice Approach
(2009) ............................................................................................................................................................
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(Current) ..........................................................................................................................................................

eHealth Capability ......................................................................................................................................
Development of on-line Maintenance System for the Australian Pathology Request and Result
Code Sets (2003) ...........................................................................................................................................
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<tr>
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<tr>
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</tr>
<tr>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Workforce Capacity and Competence</th>
</tr>
</thead>
<tbody>
<tr>
<td>PathWay (2005)</td>
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</tr>
<tr>
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<tr>
<td>Quality Use of Pathology Consumer Consultation Project (2010)</td>
</tr>
<tr>
<td>Benefits and Risks of Pathology Testing (Current)</td>
</tr>
<tr>
<td>Lab Tests Online&lt;sup&gt;TM&lt;/sup&gt; Stage 1 (Current)</td>
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</tbody>
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</tr>
</thead>
<tbody>
<tr>
<td>Report from the National Workshop on Safety and Quality in Pathology (2007)</td>
</tr>
<tr>
<td>The Second National Workshop on Safety and Quality in Pathology (2008)</td>
</tr>
<tr>
<td>Best Practice in Pathology Requesting and Reporting Workshop (2009)</td>
</tr>
<tr>
<td>Pathology Workforce Workshop (2011)</td>
</tr>
</tbody>
</table>

| Appendix A – Report Summaries Relevant to Different Themes |
Executive Summary

The Quality Use of Pathology Program (QUPP) is a well-established program having been established in 1999. Its goal is the continual improvement in health and economic outcomes from the use of pathology in health care through the pursuit of better practice amongst requesters/referrers and providers of pathology services, and through knowledgeable and engaged consumers. It is managed by the Australian Government Department of Health and Ageing (DoHA) in conjunction with the Quality Use of Pathology Committee (QUPC).

The Australian Government Department of Health and Ageing commissioned Cognitus Pty Ltd to undertake an analysis of the projects/initiatives funded under the Quality Use of Pathology Program (QUPP). The objectives of the project were:

- to conduct a comprehensive review of QUPP projects/initiatives, including project results and recommendations; and
- to produce a document that would record the past and present investment and could inform the future strategic direction of the program.

This analysis includes a summary of the QUPP projects/initiatives over the past ten years and also provides an analysis of whether each of the projects/initiatives achieved their aims and objectives and whether there were any key project learnings.

There were 74 project reports analysed, which were further divided into the following nine themes that were based on QUPP areas of focus:

127. Promoting Evidence-Based Practice
128. Risk Minimisation
129. Quality Assurance and Capacity – New Technology
130. eHealth Capability
131. Pathology Requesting and Reporting – Requester and Consumer Focus
132. Workforce Capacity and Competence
133. Consumer Focus and Information Strategies
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The number of reports within each theme is presented in Figure 1.
General Findings from the Analysis

The QUPP has contributed to the expansion of the knowledge base of pathology practice and to the quality use of pathology services in Australia. There were a number of project recommendations that were strategically followed up in subsequent projects. For example, The Australian Pathology Workforce Crisis report resulted in five other initiatives and projects.

In a broader sense, all of the themes led to a high rate of follow on initiatives and projects as outlined below:

<table>
<thead>
<tr>
<th>Theme</th>
<th>Original projects</th>
<th>Follow on initiatives and projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pathology Requesting and Reporting – Requester and Consumer Focus</td>
<td>17</td>
<td>9</td>
</tr>
<tr>
<td>Promoting Evidence-Based Practice</td>
<td>16</td>
<td>10</td>
</tr>
<tr>
<td>eHealth Capability</td>
<td>12</td>
<td>9</td>
</tr>
<tr>
<td>Quality Assurance and Capacity – New Technology</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>Workforce Capacity and Competence</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>Risk Minimisation</td>
<td>5</td>
<td>4</td>
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<tr>
<td>Communication Strategy and Stakeholder Engagement</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Consumer Focus and Information Strategies</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Access Initiatives – Raising Awareness – 2 out of 3</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>
Table 1: Summary of Follow On Initiatives and Projects

Areas of significant and rapid change, such as eHealth have been supported to enable investigation into their impact on the quality use of pathology including health and economic outcomes. For example, twelve projects in the area of eHealth have uncovered significant key project learnings such as issues with software installation and capacity, and identified strategies to facilitate the future implementation of eHealth capability.

The QUPP investment into eHealth also enabled pathology reports to integrate into the electronic age by supporting projects to develop software systems to automatically extract information from narrative pathology reports, and to standardise pathology terminology units to facilitate their use in electronic reporting.

Projects to investigate workforce issues in the pathology sector were also funded by this program. These projects identified stakeholder concerns, such as the ageing pathology workforce and the lack of a structured career path for scientists. Of the six projects funded under the Workforce Capacity and Competence theme, ten follow on projects and initiatives have been undertaken to further investigate and address these key issues.

The QUPP also facilitated increased engagement with consumers through workshops which highlighted issues predominantly based on a need for improved communication and engagement, and the need for comprehensive information strategies to address consumer concerns.

From the analysis of QUPP initiatives to date, there are few identified areas that may benefit from some further consideration. These include:

- eHealth information outlining the benefits/risks of pathology results being uploaded onto the National Electronic Health Record System for consumers.
- Standardised request forms and education of all levels of health practitioners about the importance of completing the information on these forms.
- Development of comprehensive guidelines for General Practitioners (GPs) regarding evidence-based pathology requesting.
- Investigate including patient-specific advice for GPs on pathology test results.
- Focus on increasing GPs’ understanding of the pathology testing process.

Consistent Themes Identified from the Analysis

From the analysis there appears to be three consistent themes throughout all areas of the pathology spectrum. These are:

43. The need for increased information resources generated by reliable sources about pathology testing for General Practitioners (GPs) that are short, concise and easily accessed. This information should also include procedures for GPs when collecting pathology specimens from their patients, and for GPs to give to their patients for patient-collected samples.

44. Educating medical students during their training and post-graduate years about pathology was consistently viewed as a long term strategy to improve pathology knowledge and practice. This included rotating medical students through pathology laboratories as a component of
their medical training.

45. Producing reliable consumer information about pathology testing, and keeping consumers informed about current issues/advances within pathology.

**Conclusion**

The QUPP has enabled projects to investigate and implement improvements in health and economic outcomes for the quality use of pathology. This is evidenced by the high rate of follow on initiatives and projects outlined in Table 1, and by the changes in practice that have resulted from this program’s support. For example, the Structured Pathology Reporting of Cancer projects developed cancer protocols for the structured reporting of six types of cancer. This project may lead to the possible development of a standardised reporting format for all major cancers and other major complex reporting topics.

This integrated analysis also highlighted a number of key project learnings from the past ten years of the Quality Use of Pathology Program. It also identified potential areas for future consideration across all of the themes which are presented in the analysis of each theme. This report stands as a record of the valuable investment the program has made to the quality and capacity of the pathology sector to date, and will form the basis for reflection when future programs are investigated and/or supported by this important program.

**Abbreviations**

<table>
<thead>
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<th>Abbreviation</th>
<th>Description</th>
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<tr>
<td>AACB</td>
<td>Australasian Association of Clinical Biochemists</td>
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<td>AAPP</td>
<td>Australian Association of Pathology Practices</td>
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<tr>
<td>AIHW</td>
<td>Australian Institute of Health and Welfare</td>
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<tr>
<td>APPN</td>
<td>Australian Point of Care Practitioners Network</td>
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<tr>
<td>ACRRM</td>
<td>Australian College of Rural and Remote Medicine</td>
</tr>
<tr>
<td>AMA</td>
<td>Australian Medical Association</td>
</tr>
<tr>
<td>BEACH</td>
<td>Bettering the Evaluation and Care of Health</td>
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<tr>
<td>CHF</td>
<td>Consumers Health Forum of Australia</td>
</tr>
<tr>
<td>DATIS</td>
<td>Drug and Therapeutics Information Service</td>
</tr>
<tr>
<td>DoHA</td>
<td>Australian Government Department of Health and Ageing</td>
</tr>
<tr>
<td>GP</td>
<td>General Practitioner</td>
</tr>
<tr>
<td>HGSA</td>
<td>Human Genetics Society of Australasia</td>
</tr>
<tr>
<td>HIC</td>
<td>Health Insurance Commission</td>
</tr>
<tr>
<td>HISA</td>
<td>Health Informatics Society of Australia</td>
</tr>
<tr>
<td>KPI</td>
<td>Key Performance Indicators</td>
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<tr>
<td>LTO</td>
<td>Lab Tests Online</td>
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<tr>
<td>MBS</td>
<td>Medicare Benefits Schedule</td>
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<tr>
<td>MTAAC</td>
<td>Medical Testing Accreditation Advisory Committee</td>
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</tbody>
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Introduction

Background

The Quality Use of Pathology Program (QUPP) was established in 1999 under the auspice of the 2nd pathology Memorandum of Understanding (MoU) with pathology stakeholders, and with up to $2 million notionally allocated per year for the funding of projects and other initiatives relating to improvements in the quality of pathology services.

The program has been managed by the Australian Government Department of Health and Ageing (DoHA) in conjunction with the Quality Use of Pathology Committee (QUPC). The QUPC was originally a sub-committee of the Pathology Consultative Committee (PCC) formed to work with the Australian Government to manage pathology outlays under the MoU. But more recently it has been given a continued focus with the commencement of the five-year Pathology Funding Agreement (PFA) between the Commonwealth Government and key pathology stakeholders in April 2011.

The QUPC provides advice relation to strategic directions and projects and/or initiatives implemented under the program. This committee currently comprises nominees from the pathology profession, general practice, the Royal Australasian College of Physicians, Doctors-in-Training, the Consumers Health Forum of Australia, Medical Deans Australia and New Zealand and representatives from the Department of Health and Ageing.

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# Table of Contents

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Executive Summary

The Quality Use of Pathology Program (QUPP) is a well-established program having been established in 1999. Its goal is the continual improvement in health and economic outcomes from the use of pathology in health care through the pursuit of better practice amongst requesters/referrers and providers of pathology services, and through knowledgeable and engaged consumers. It is managed by the Australian Government Department of Health and Ageing (DoHA) in conjunction with the Quality Use of Pathology Committee (QUPC).

The Australian Government Department of Health and Ageing commissioned Cognitus Pty Ltd to undertake an analysis of the projects/initiatives funded under the Quality Use of Pathology Program (QUPP). The objectives of the project were:

- to conduct a comprehensive review of QUPP projects/initiatives, including project results and recommendations; and
- to produce a document that would record the past and present investment and could inform the future strategic direction of the program.

This analysis includes a summary of the QUPP projects/initiatives over the past ten years and also provides an analysis of whether each of the projects/initiatives achieved their aims and objectives and whether there were any key project learnings.

There were 74 project reports analysed, which were further divided into the following nine themes that were based on QUPP areas of focus:

136. Promoting Evidence-Based Practice
137. Risk Minimisation
139. eHealth Capability
140. Pathology Requesting and Reporting – Requester and Consumer Focus
141. Workforce Capacity and Competence
142. Consumer Focus and Information Strategies
143. Access Initiatives – Raising Awareness
144. Communication Strategy and Stakeholder Engagement.

The number of reports within each theme is presented in Figure 1.
**General Findings from the Analysis**

The QUPP has contributed to the expansion of the knowledge base of pathology practice and to the quality use of pathology services in Australia. There were a number of project recommendations that were strategically followed up in subsequent projects. For example, The Australian Pathology Workforce Crisis report resulted in five other initiatives and projects.

In a broader sense, all of the themes led to a high rate of follow on initiatives and projects as outlined below:

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**Table 1: Summary of Follow On Initiatives and Projects**

Areas of significant and rapid change, such as eHealth have been supported to enable investigation into their impact on the quality use of pathology including health and economic outcomes. For example, twelve projects in the area of eHealth have uncovered significant key project learnings such as issues with software installation and capacity, and identified strategies to facilitate the future implementation of eHealth capability.

The QUPP investment into eHealth also enabled pathology reports to integrate into the electronic age by supporting projects to develop software systems to automatically extract information from narrative pathology reports, and to standardise pathology terminology units to facilitate their use in electronic reporting.

Projects to investigate workforce issues in the pathology sector were also funded by this program. These projects identified stakeholder concerns, such as the ageing pathology workforce and the lack of a structured career path for scientists. Of the six projects funded under the Workforce Capacity and Competence theme, ten follow on projects and initiatives have been undertaken to further investigate and address these key issues.

The QUPP also facilitated increased engagement with consumers through workshops which highlighted issues predominantly based on a need for improved communication and engagement, and the need for comprehensive information strategies to address consumer concerns.

From the analysis of QUPP initiatives to date, there are few identified areas that may benefit from some further consideration. These include:

- eHealth information outlining the benefits/risks of pathology results being uploaded onto the National Electronic Health Record System for consumers.
- Standardised request forms and education of all levels of health practitioners about the importance of completing the information on these forms.
- Development of comprehensive guidelines for General Practitioners (GPs) regarding evidence-based pathology requesting.
- Investigate including patient-specific advice for GPs on pathology test results.
- Focus on increasing GPs' understanding of the pathology testing process.

**Consistent Themes Identified from the Analysis**

From the analysis there appears to be three consistent themes throughout all areas of the pathology spectrum. These are:

46. The need for increased information resources generated by reliable sources about pathology testing for General Practitioners (GPs) that are short, concise and easily accessed. This information should also include procedures for GPs when collecting pathology specimens from their patients, and for GPs to give to their patients for patient-collected samples.

47. Educating medical students during their training and post-graduate years about pathology was consistently viewed as a long term strategy to improve pathology knowledge and practice. This included rotating medical students through pathology laboratories as a component of...
their medical training.

48. Producing reliable consumer information about pathology testing, and keeping consumers informed about current issues/advances within pathology.

**Conclusion**

The QUPP has enabled projects to investigate and implement improvements in health and economic outcomes for the quality use of pathology. This is evidenced by the high rate of follow on initiatives and projects outlined in Table 1, and by the changes in practice that have resulted from this program's support. For example, the Structured Pathology Reporting of Cancer projects developed cancer protocols for the structured reporting of six types of cancer. This project may lead to the possible development of a standardised reporting format for all major cancers and other major complex reporting topics.

This integrated analysis also highlighted a number of key project learnings from the past ten years of the Quality Use of Pathology Program. It also identified potential areas for future consideration across all of the themes which are presented in the analysis of each theme. This report stands as a record of the valuable investment the program has made to the quality and capacity of the pathology sector to date, and will form the basis for reflection when future programs are investigated and/or supported by this important program.

**Abbreviations**

AACB  Australasian Association of Clinical Biochemists  
AAPP  Australian Association of Pathology Practices  
AIHW  Australian Institute of Health and Welfare  
APPN  Australian Point of Care Practitioners Network  
ACRRM  Australian College of Rural and Remote Medicine  
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LTO  Lab Tests Online  
MBS  Medicare Benefits Schedule  
MTAAC  Medical Testing Accreditation Advisory Committee
Introduction

Background

The Quality Use of Pathology Program (QUPP) was established in 1999 under the auspice of the 2nd pathology Memorandum of Understanding (MoU) with pathology stakeholders, and with up to $2 million notionally allocated per year for the funding of projects and other initiatives relating to improvements in the quality of pathology services.

The program has been managed by the Australian Government Department of Health and Ageing (DoHA) in conjunction with the Quality Use of Pathology Committee (QUPC). The QUPC was originally a sub-committee of the Pathology Consultative Committee (PCC) formed to work with the Australian Government to manage pathology outlays under the MoU. But more recently it has been given a continued focus with the commencement of the five-year Pathology Funding Agreement (PFA) between the Commonwealth Government and key pathology stakeholders in April 2011.

The QUPC provides advice relation to strategic directions and projects and/or initiatives implemented under the program. This committee currently comprises nominees from the pathology profession, general practice, the Royal Australasian College of Physicians, Doctors-in-Training, the Consumers Health Forum of Australia, Medical Deans Australia and New Zealand and representatives from the Department of Health and Ageing.

Funding for the QUPP has been allocated by a combination of open funding rounds and targeted initiatives. The program has operated under overarching principles supported by guiding assumptions developed by
DoHA and the QUPC in consultation with the broader pathology stakeholder sector.

National workshops have been held each year since 2007 with the aim of bringing pathology, requester and consumer stakeholders together to discuss pathology quality and safety issues, to inform the QUPP priority setting process and debate the ways in which priority issues could be addressed. In 2005-2006 the QUPP was reviewed and the operation of the program was refined to address strategic issues outlined in the review report. Since the review, project funding has generally been targeted to three sub-programs with the following key objectives:

46. **Quality Consumer Services:** To develop and improve consumer-focused, accessible and coordinated services that promote informed choice and meet consumer needs;

47. **Quality Referrals (Requesting/Ordering):** To support referral practices that are informed and facilitated by best practice professional relationships and protocols between referrers and providers; that are informed by evidence; that maximise health benefits; and that inform and engage consumers; and

48. **Quality Pathology Practice:** To support professional practice standards that meet consumer and referrer needs and provide evidence-based, best practice, quality-assured services that are safe, cost effective and efficient.

In recent years there has been an increasing focus on the funding of initiatives aimed at developing and testing strategies to minimise error and promote patient safety. This work is relevant to the strategic focus of the National Pathology Accreditation Advisory Council.


**Terms of Reference for the project**
DoHA commissioned Cognitus Pty Ltd to conduct a comprehensive analysis of the Quality Use of Pathology Program project reports. The project objectives were:

- to conduct a comprehensive review of QUPP projects/initiatives to date including project results and recommendations, and

- to produce a document that will form a record of past and present investment and will assist in determining the future strategic direction of the program.

The analysis was to cover the QUPP investment that has occurred over the past ten years which would record the investment to date made on the quality use of pathology. It is expected that this document would also provide a potential basis for any future evaluation of the program.

**Structure of the Report**
This document is structured according to nine themes based on the QUPP’s areas of focus:

136. Promoting Evidence-Based Practice
137. Risk Minimisation
139. eHealth Capability
140. Pathology Requesting and Reporting – Requester and Consumer
Focus
141. Workforce Capacity and Competence
142. Consumer Focus and Information Strategies
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144. Communication Strategy and Stakeholder Engagement.

There were 74 reports analysed for this integrated analysis, with each report assigned to one of the above themes. Each report was set out in the following template:
• Description
• Grant Recipient/s
• Aims and/or Objectives
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• Recommendation/s
• Key Project Learning/s
• Follow on Initiatives and Projects
• Areas for Future Consideration.

Many of the projects listed in this report fall into more than one theme – see Appendix A – Report Summaries Relevant to Different Themes.
Integrated Analysis of Quality Use of Pathology Program (QUPP) Final Reports

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Canberra
22 June 2012

Cognitus Pty Ltd
Jane Carstens

Table of Contents
Executive Summary

General Findings from the Integrated Analysis

Consistent Themes identified from the Integrated Analysis

Conclusion

Abbreviations

Introduction

Background

Terms of Reference

Structure of the Document

Promoting Evidence-Based Practice


An Historical Analysis of Pathology Ordering by General Practitioners between April 1998 and March 2001 from the Bettering the Evaluation and Care of Health (BEACH) Program (2002)

Evidence-Practice Gap in GP Pathology Test Ordering: A Comparison of BEACH Pathology Data and Recommended Testing (2009)

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Analysis of Current Laboratory Medicine (Pathology) Teaching Practice in Prevocational and General Practitioner Vocational Training (2003)


Common Sense Pathology (2006)

Common Sense Pathology Publication Series (2011)

Improved Pathology Reporting, Education and Practice (IPREP) for Colorectal Cancer (2009)

Structured Pathology Reporting Standards for Cancer (2009)

Promoting and Expanding Structured Pathology Reporting of Cancer (Stage 2) (Current)

Evidence-Based, Best-Practice Prevention of Blood Borne Virus Transmission in Health Care Settings Program (PBBV) (2009)

Risk Minimisation

RCPA – Quality Assurance Programs Key Indicator Project (2004)

Pilot Laboratory Assessment and Peer Review Mechanism for Pathology Key Performance Indicators (2007)

Performance Monitoring of External Quality Assurance (Current)

NATA File Audit – Risk Analysis of Assessment Non Conformances Identified in Pathology Laboratory Assessment Accreditation (Current)

Key Incident Monitoring & Management Systems (Current)

Quality Assurance and Capacity – New Technology

Virtual Microscope (2005)

High Resolution Scanning Microscopy for Quality Assurance and Educational Applications (2009)


PoCT Training, Certification, Support and Skill Maintenance Program (Australian PoCT Practitioners Network – APPN) (Current)

Establishment of a Molecular Genetics Quality Assurance Program (Current)

MAWSON – An Online Repository of Genetic Data to Aid Reporting of Medical Genetic Tests (Current)

eHealth Capability


Pathology and General Practice Software Integration Project (PaGSIP) (2003)

Chain of Information Custody for the Pathology Request-Test-Report Cycle in Australia (Guidelines for Pathology Requesters and Pathology Providers) (2004)

Supporting HL7 for Health Informatics Standards (2004)


Application of Pathology Informatics to Reporting of Critical/Abnormal Results for Improved Requester/Provider Communication and Improved Patient Care (2004)

PaDlok On-line Pathology Ordering System (2005)
Pathology Requesting and Reporting – Requester and Consumer Focus

- Guidelines for Patient/Consumer Access to Pathology Test Reports (2001)
- AUSLAB Retest Interval Trial Project (2003)
- Facilitating Best Practice Pathology Utilisation by the Use of Hand-Held Decision Support Devices (2004)
- Improving GP Access to and Use of Retrospective and Current Pathology Data to Increase Detection of Early Diabetes (IGT and IFG) in General Practice (2005)
- Quality Use of Pathology Services Education Program (2006)
- Evaluation of the Impact of the Implementation of Electronic Ordering of Pathology Requesting and the Quality and Effectiveness of Hospital Pathology Services – Building a Robust Evidence Base and Benefits Framework for Successful e-Health Diffusions (Current)
- iInvestigate: Online Patient Simulations for Education in the Rational Use of Investigations (Current)
- Encouraging Quality Pathology Ordering in Australia’s Public Hospitals (2011)
- Effective Communication of Pathology Results in Requesting Practitioners and Consumers (Current)

Workforce Capacity and Competence

- PathWay (2005)
- The Australian Pathology Workforce Crisis (2008)
- Review of Pathology Specialist Development Pathways (2010)
- Impact of Workload of Anatomical Pathologists on Quality and Safety (2011)
- Survey of the Pathology Workforce (2011)
- Career Structures and Pathways for the Scientific Workforce in Medical Pathology Laboratories (2011)

Consumer Focus and Information Strategies

- Quality Use of Pathology Consumer Consultation Project (2010)
- Benefits and Risks of Pathology Testing (Current)
- Lab Tests Online 2nd Stage 1 (Current)

Access Initiatives – Raising Awareness

- Optimising Health Benefits for Aboriginal People who take Warfarin (2009)
- Quality Assurance for Aboriginal Medical Services (QAAMS) (Current)
- Quality Assurance for Aboriginal Medical Services (QAAMS) Quality Assurance Program (Current)

Communication Strategy and Stakeholder Engagement

- Report from the National Workshop on Safety and Quality in Pathology (2007)
- The Second National Workshop on Safety and Quality in Pathology (2008)
- Best Practice in Pathology Requesting and Reporting Workshop (2009)
- Pathology Workforce Workshop (2011)

Appendix A – Report Summaries Relevant to Different Themes

- Information Extraction from Narrative Pathology Reports on Melanoma (2008)
- Automatic Compilation of Synoptic Reports from Narrative Pathology Reports (Stage 2) (2010)
- Submitted with the title: The Pathology Reporter
- Automatic Population of Synoptic Reports from Narrative Pathology Reports (Stage 3) (Current)
- Standardisation of Pathology Terminology and Units (Current)
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*The number of reports within each theme is presented in Figure 1.*
Figure 1 – Report numbers by Category

[alt = 'This figure is a graph representing the number of reports under each of the nine themes']

**General Findings from the Analysis**

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The QUPP also facilitated increased engagement with consumers through workshops which highlighted issues predominantly based on a need for improved communication and engagement, and the need for comprehensive information strategies to address consumer concerns.

From the analysis of QUPP initiatives to date, there are few identified areas that may benefit from some further consideration. These include:

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### Consistent Themes Identified from the Analysis

From the analysis there appears to be three consistent themes throughout all areas of the pathology spectrum. These are:

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**Structure of the Report**

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There were 74 reports analysed for this integrated analysis, with each report assigned to one of the above themes. Each report was set out in the following template:

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Canberra
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Cognitus Pty Ltd
Jane Carstens

Table of Contents
### Executive Summary

General Findings from the Integrated Analysis

Consistent Themes identified from the Integrated Analysis

Conclusion

### Abbreviations

<table>
<thead>
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</thead>
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<td>RCPA</td>
<td>Royal College of Pathologists of Australasia</td>
</tr>
<tr>
<td>BEACH</td>
<td>Bettering the Evaluation and Care of Health</td>
</tr>
<tr>
<td>PoCT</td>
<td>Point-of-Care Testing</td>
</tr>
<tr>
<td>PBBV</td>
<td>Point-of-Care Blood Borne Virus</td>
</tr>
<tr>
<td>Common Sense Pathology</td>
<td>A program aimed at improving the quality of pathology reporting</td>
</tr>
<tr>
<td>Academic Detailing</td>
<td>A educational strategy for improving healthcare outcomes</td>
</tr>
<tr>
<td>Laboratory Assessment Accreditation</td>
<td>The accreditation process for laboratory services</td>
</tr>
<tr>
<td>NATA</td>
<td>National Association of Testing Authorities</td>
</tr>
<tr>
<td>KEY</td>
<td>Key Incident Monitoring &amp; Management Systems</td>
</tr>
<tr>
<td>RCPA Manual Transformation Project</td>
<td>A project aimed at transforming the RCPA manual</td>
</tr>
<tr>
<td>RCPA Manual</td>
<td>The manual used by pathology laboratories</td>
</tr>
<tr>
<td>RCPA Manual Revision</td>
<td>The revised version of the RCPA manual</td>
</tr>
<tr>
<td>RCPA Manual Transformation</td>
<td>The process of updating the RCPA manual</td>
</tr>
<tr>
<td>RCPA Manual Revision Project</td>
<td>The project aimed at revising the RCPA manual</td>
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Terms of Reference

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Evidence-Based, Best-Practice Prevention of Blood Borne Virus Transmission in Health Care Settings Program (PBBV) (2009)

### Risk Minimisation

RCPA – Quality Assurance Programs Key Indicator Project (2004)

Pilot Laboratory Assessment and Peer Review Mechanism for Pathology Key Performance Indicators (2007)

Performance Monitoring of External Quality Assurance (Current)

NATA File Audit – Risk Analysis of Assessment Non Conformances Identifed in Pathology Laboratory Assessment Accreditation (Current)

Key Incident Monitoring & Management Systems (Current)

### Quality Assurance and Capacity – New Technology

Virtual Microscope (2005)

High Resolution Scanning Microscopy for Quality Assurance and Educational Applications (2009)


PoCT Training, Certification, Support and Skill Maintenance Program (Australian PoCT Practitioners Network – APPN) (Current)

Establishment of a Molecular Genetics Quality Assurance Program (Current)

MAWSON – An Online Repository of Genetic Data to Aid Reporting of Medical Genetic Tests (Current)

### eHealth Capability


Pathology and General Practice Software Integration Project (PaGSSIP) (2003)

Chain of Information Custody for the Pathology Request-Test-Report Cycle in Australia (Guidelines for Pathology Requesters and Pathology Providers) (2004)

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Application of Pathology Informatics to Reporting of Critical/Abnormal Results for Improved Requester/Provider Communication and Improved Patient Care (2004)

Patholok On-line Pathology Ordering System (2005)
### Pathology Requesting and Reporting – Requester and Consumer Focus

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### Workforce Capacity and Competence

- Pathway (2005)
- The Australian Pathology Workforce Crisis (2008)
- Review of Pathology Specialist Development Pathways (2010)
- Impact of Workload of Anatomical Pathologists on Quality and Safety (2011)
- Survey of the Pathology Workforce (2011)
- Impact of the Implementation of Electronic Ordering of Pathology Requesting and the Quality and Effectiveness of Hospital Pathology Services – Building a Robust Evidence Base and Benefits Framework for Successful e-Health Diffusions (Current)
- iInvestigate: Online Patient Simulations for Education in the Rational Use of Investigations (Current)
- Encouraging Quality Pathology Ordering in Australia’s Public Hospitals (2011)
- Effective Communication of Pathology Results in Requesting Practitioners and Consumers (Current)

### Consumer Focus and Information Strategies

- Quality Use of Pathology Consumer Consultation Project (2010)
- Lab Tests Online™ Stage 1 (Current)

### Access Initiatives – Raising Awareness

- Optimising Health Benefits for Aboriginal People who take Warfarin (2009)
- Quality Assurance for Aboriginal Medical Services (QAAMS) (Current)
- Quality Assurance for Aboriginal Medical Services (QAAMS) Quality Assurance Program (Current)

### Communication Strategy and Stakeholder Engagement

- Report from the National Workshop on Safety and Quality in Pathology (2007)
- The Second National Workshop on Safety and Quality in Pathology (2008)
- Best Practice in Pathology Requesting and Reporting Workshop (2009)
- Pathology Workforce Workshop (2011)

### Appendix A – Report Summaries Relevant to Different Themes
Executive Summary

The Quality Use of Pathology Program (QUPP) is a well-established program having been established in 1999. Its goal is the continual improvement in health and economic outcomes from the use of pathology in health care through the pursuit of better practice amongst requesters/referrers and providers of pathology services, and through knowledgeable and engaged consumers. It is managed by the Australian Government Department of Health and Ageing (DoHA) in conjunction with the Quality Use of Pathology Committee (QUPC).

The Australian Government Department of Health and Ageing commissioned Cognitus Pty Ltd to undertake an analysis of the projects/initiatives funded under the Quality Use of Pathology Program (QUPP). The objectives of the project were:

- to conduct a comprehensive review of QUPP projects/initiatives, including project results and recommendations; and
- to produce a document that would record the past and present investment and could inform the future strategic direction of the program.

This analysis includes a summary of the QUPP projects/initiatives over the past ten years and also provides an analysis of whether each of the projects/initiatives achieved their aims and objectives and whether there were any key project learnings.

There were 74 project reports analysed, which were further divided into the following nine themes that were based on QUPP areas of focus:

154. Promoting Evidence-Based Practice
155. Risk Minimisation
156. Quality Assurance and Capacity – New Technology
157. eHealth Capability
158. Pathology Requesting and Reporting – Requester and Consumer Focus
159. Workforce Capacity and Competence
160. Consumer Focus and Information Strategies
161. Access Initiatives – Raising Awareness

*The number of reports within each theme is presented in Figure 1.*
Figure 1 – Report numbers by Category

[alt = 'This figure is a graph representing the number of reports under each of the nine themes']

**General Findings from the Analysis**

The QUPP has contributed to the expansion of the knowledge base of pathology practice and to the quality use of pathology services in Australia. There were a number of project recommendations that were strategically followed up in subsequent projects. For example, The Australian Pathology Workforce Crisis report resulted in five other initiatives and projects.

In a broader sense, all of the themes led to a high rate of follow on initiatives and projects as outlined below:

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Areas of significant and rapid change, such as eHealth have been supported to enable investigation into their impact on the quality use of pathology including health and economic outcomes. For example, twelve projects in the area of eHealth have uncovered significant key project learnings such as issues with software installation and capacity, and identified strategies to facilitate the future implementation of eHealth capability.

The QUPP investment into eHealth also enabled pathology reports to integrate into the electronic age by supporting projects to develop software systems to automatically extract information from narrative pathology reports, and to standardise pathology terminology units to facilitate their use in electronic reporting.

Projects to investigate workforce issues in the pathology sector were also funded by this program. These projects identified stakeholder concerns, such as the ageing pathology workforce and the lack of a structured career path for scientists. Of the six projects funded under the Workforce Capacity and Competence theme, ten follow on projects and initiatives have been undertaken to further investigate and address these key issues.

The QUPP also facilitated increased engagement with consumers through workshops which highlighted issues predominantly based on a need for improved communication and engagement, and the need for comprehensive information strategies to address consumer concerns.

From the analysis of QUPP initiatives to date, there are few identified areas that may benefit from some further consideration. These include:

- eHealth information outlining the benefits/risks of pathology results being uploaded onto the National Electronic Health Record System for consumers.
- Standardised request forms and education of all levels of health practitioners about the importance of completing the information on these forms.
- Development of comprehensive guidelines for General Practitioners (GPs) regarding evidence-based pathology requesting.
- Investigate including patient-specific advice for GPs on pathology test results.
- Focus on increasing GPs’ understanding of the pathology testing process.

### Consistent Themes Identified from the Analysis

From the analysis there appears to be three consistent themes throughout all areas of the pathology spectrum. These are:

52. The need for increased information resources generated by reliable sources about pathology testing for General Practitioners (GPs) that are short, concise and easily accessed. This information should also include procedures for GPs when collecting pathology specimens from their patients, and for GPs to give to their patients for patient-collected samples.

53. Educating medical students during their training and postgraduate years about pathology was consistently viewed as a long term strategy to improve pathology knowledge and practice. This included rotating medical students through pathology laboratories as a component of
their medical training.

54. Producing reliable consumer information about pathology testing, and keeping consumers informed about current issues/advances within pathology.

**Conclusion**

The QUPP has enabled projects to investigate and implement improvements in health and economic outcomes for the quality use of pathology. This is evidenced by the high rate of follow on initiatives and projects outlined in Table 1, and by the changes in practice that have resulted from this program’s support. For example, the Structured Pathology Reporting of Cancer projects developed cancer protocols for the structured reporting of six types of cancer. This project may lead to the possible development of a standardised reporting format for all major cancers and other major complex reporting topics.

This integrated analysis also highlighted a number of key project learnings from the past ten years of the Quality Use of Pathology Program. It also identified potential areas for future consideration across all of the themes which are presented in the analysis of each theme. This report stands as a record of the valuable investment the program has made to the quality and capacity of the pathology sector to date, and will form the basis for reflection when future programs are investigated and/or supported by this important program.

**Abbreviations**

AACB  Australasian Association of Clinical Biochemists
AAPP  Australian Association of Pathology Practices
AIHW  Australian Institute of Health and Welfare
APPN  Australian Point of Care Practitioners Network
ACRRM  Australian College of Rural and Remote Medicine
AMA  Australian Medical Association
BEACH  Bettering the Evaluation and Care of Health
CHF  Consumers Health Forum of Australia
DATIS  Drug and Therapeutics Information Service
DoHA  Australian Government Department of Health and Ageing
GP  General Practitioner
HGSA  Human Genetics Society of Australasia
HIC  Health Insurance Commission
HISA  Health Informatics Society of Australia
KPI  Key Performance Indicators
LTO  Lab Tests Online
MBS  Medicare Benefits Schedule
MTAAC  Medical Testing Accreditation Advisory Committee
Introduction

Background

The Quality Use of Pathology Program (QUPP) was established in 1999 under the auspice of the 2nd pathology Memorandum of Understanding (MoU) with pathology stakeholders, and with up to $2 million notionally allocated per year for the funding of projects and other initiatives relating to improvements in the quality of pathology services.

The program has been managed by the Australian Government Department of Health and Ageing (DoHA) in conjunction with the Quality Use of Pathology Committee (QUPC). The QUPC was originally a subcommittee of the Pathology Consultative Committee (PCC) formed to work with the Australian Government to manage pathology outlays under the MoU. But more recently it has been given a continued focus with the commencement of the five-year Pathology Funding Agreement (PFA) between the Commonwealth Government and key pathology stakeholders in April 2011.

The QUPC provides advice relation to strategic directions and projects and/or initiatives implemented under the program. This committee currently comprises nominees from the pathology profession, general practice, the Royal Australasian College of Physicians, Doctors-in-Training the Consumers Health Forum of Australia, Medical Deans Australia and New Zealand and representatives from the Department of Health and Ageing.

Funding for the QUPP has been allocated by a combination of open funding rounds and targeted initiatives. The program has operated under overarching principles supported by guiding assumptions developed by
DoHA and the QUPC in consultation with the broader pathology stakeholder sector.

National workshops have been held each year since 2007 with the aim of bringing pathology, requester and consumer stakeholders together to discuss pathology quality and safety issues, to inform the QUPP priority setting process and debate the ways in which priority issues could be addressed. In 2005-2006 the QUPP was reviewed and the operation of the program was refined to address strategic issues outlined in the review report. Since the review, project funding has generally been targeted to three sub-programs with the following key objectives:

52. **Quality Consumer Services:** To develop and improve consumer-focused, accessible and coordinated services that promote informed choice and meet consumer needs;

53. **Quality Referrals (Requesting/Ordering):** To support referral practices that are informed and facilitated by best practice professional relationships and protocols between referrers and providers; that are informed by evidence; that maximise health benefits; and that inform and engage consumers; and

54. **Quality Pathology Practice:** To support professional practice standards that meet consumer and referrer needs and provide evidence-based, best practice, quality-assured services that are safe, cost effective and efficient.

In recent years there has been an increasing focus on the funding of initiatives aimed at developing and testing strategies to minimise error and promote patient safety. This work is relevant to the strategic focus of the National Pathology Accreditation Advisory Council.


**Terms of Reference for the project**

DoHA commissioned Cognitus Pty Ltd to conduct a comprehensive analysis of the Quality Use of Pathology Program project reports. The project objectives were:

- to conduct a comprehensive review of QUPP projects/initiatives to date including project results and recommendations, and

- to produce a document that will form a record of past and present investment and will assist in determining the future strategic direction of the program.

The analysis was to cover the QUPP investment that has occurred over the past ten years which would record the investment to date made on the quality use of pathology. It is expected that this document would also provide a potential basis for any future evaluation of the program.

**Structure of the Report**

This document is structured according to nine themes based on the QUPP’s areas of focus:

154. Promoting Evidence-Based Practice
155. Risk Minimisation
156. Quality Assurance and Capacity – New Technology
157. eHealth Capability
158. Pathology Requesting and Reporting – Requester and Consumer
Focus
159. Workforce Capacity and Competence
160. Consumer Focus and Information Strategies
161. Access Initiatives – Raising Awareness

There were 74 reports analysed for this integrated analysis, with each report assigned to one of the above themes. Each report was set out in the following template:
- Description
- Grant Recipient/s
- Aims and/or Objectives
- Outcomes and/or Findings
- Recommendation/s
- Key Project Learning/s
- Follow on Initiatives and Projects
- Areas for Future Consideration.

Many of the projects listed in this report fall into more than one theme – see Appendix A – Report Summaries Relevant to Different Themes.
Integrated Analysis of Quality Use of Pathology Program (QUPP) Final Reports

A Summary Report for the Australian Department of Health and Ageing Medical Benefits Division

Canberra
22 June 2012

Cognitus Pty Ltd
Jane Carstens
Table of Contents

Executive Summary..................................................................................................................
General Findings from the Integrated Analysis .....................................................................
Consistent Themes Identified from the Integrated Analysis ......................................................
Conclusion ................................................................................................................................

Abbreviations ..........................................................................................................................

Introduction .................................................................................................................................
Background .................................................................................................................................
Terms of Reference ....................................................................................................................
Structure of the Document .......................................................................................................... 357

Promoting Evidence-Based Practice .........................................................................................
Evaluation of the Impact on Pathology Practice of the Manual of Use and Interpretation of 
Pathology Tests (2001) ...........................................................................................................
Revision of Manual of Use and Interpretation of Pathology Tests (2004) ................................
An Historical Analysis of Pathology Ordering by General Practitioners between April 1998 and
March 2001 from the Bettering the Evaluation and Care of Health (BEACH) Program (2002) ....
Evidence-Practice Gap in GP Pathology Test Ordering: A Comparison of BEACH Pathology Data
and Recommended Testing (2009) ...........................................................................................
A Project to Examine the Utilisation of Pathology Tests in the Investigation of Tiredness in General
Practice (2002) ........................................................................................................................
Analysis of Current Practices in Relation to the Teaching of Pathology (Laboratory Medicine)
(2003) ........................................................................................................................................
Analysis of Current Laboratory Medicine (Pathology) Teaching Practice in Prevocational and
General Practitioner Vocational Training (2003) ....................................................................
A Mechanism for the Development, Implementation and Evaluation of Evidence-Based, Best-
Practice Clinical Guidelines to Facilitate Quality Use of Pathology Tests (2003) ......................
Common Sense Pathology (2006) ............................................................................................
Common Sense Pathology Publication Series (2011) ............................................................... 357
Improved Pathology Reporting, Education and Practice (IPREP) for Colorectal Cancer (2009) ..
Structured Pathology Reporting Standards for Cancer (2009) ................................................
Promoting and Expanding Structured Pathology Reporting of Cancer (Stage 2) (Current) ..........
Evidence-Based, Best-Practice Prevention of Blood Borne Virus Transmission in Health Care
Settings Program (PBVBT) (2009) ...........................................................................................

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Quality Assurance and Capacity – New Technology .................................................................
Virtual Microscope (2005) ....................................................................................................... 357
High Resolution Scanning Microscopy for Quality Assurance and Educational Applications (2009)
Preparing for Genomic Medicine: National Audit and Development of a Best Practice Approach
(2009) ........................................................................................................................................
Policies, Procedures and Guidelines for Point-of-Care Testing (2011) ........................................
PoCT Training, Certification, Support and Skill Maintenance Program (Australian PoCT
Practitioners Network – APPNP) (Current) ............................................................................... 357
Establishment of a Molecular Genetics Quality Assurance Program (Current) .........................
MAWSON – An Online Repository of Genetic Data to Aid Reporting of Medical Genetic Tests
(Current) ....................................................................................................................................

eHealth Capability ..................................................................................................................
Pathology Informatics Working Party (2003) ............................................................................
Development of an On-line Maintenance System for the Australian Pathology Request and Result
Code Sets (2003) ......................................................................................................................
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Chain of Information Custody for the Pathology Request-Test-Report Cycle in Australia (Guidelines
for Pathology Requesters and Pathology Providers) (2004) ....................................................

Integrated Analysis of QUPP Final Reports – 22 June 2012 – v0.3
Supporting HL7 for Health Informatics Standards (2004) .................................................................
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Pathology (2004) ...........................................................................................................................
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AUSLAB Retest Interval Trial Project (2003) ...................................................................................
AUSLAB Retest Interval Project (2004) ............................................................................................
Home Monitoring of Warfarin Therapy in Children using the Coagucheck® Point of Care INR
Improving GP Access to and Use of Retrospective and Current Pathology Data to Increase
Detection of Early Diabetes (IGT and IFG) in General Practice (2005) ...........................................
Quality Use of Pathology Services Education Program (2006) .......................................................
Investigation into the Reasons for Incorrect or Incomplete Pathology Request Forms (2008)
Enhancing the Quality Use of Pathology for GP Registrars and International Medical Graduates –
Assessing the Need (2009). Effect of a Structured Microbiology Laboratory Report on Antimicrobial Prescribing for
Asymptomatic Bacteriuria in Elderly Females (2010) .....................................................................
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The number of reports within each theme is presented in Figure 1.
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The QUUP also facilitated increased engagement with consumers through workshops which highlighted issues predominantly based on a need for improved communication and engagement, and the need for comprehensive information strategies to address consumer concerns.

From the analysis of QUUP initiatives to date, there are few identified areas that may benefit from some further consideration. These include:

- eHealth information outlining the benefits/risks of pathology results being uploaded onto the National Electronic Health Record System for consumers.
- Standardised request forms and education of all levels of health practitioners about the importance of completing the information on these forms.
- Development of comprehensive guidelines for General Practitioners (GPs) regarding evidence-based pathology requesting.
- Investigate including patient-specific advice for GPs on pathology test results.
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**Consistent Themes Identified from the Analysis**

From the analysis there appears to be three consistent themes throughout all areas of the pathology spectrum. These are:

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Conclusion

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National workshops have been held each year since 2007 with the aim of bringing pathology, requester and consumer stakeholders together to discuss pathology quality and safety issues, to inform the QUPP priority setting process and debate the ways in which priority issues could be addressed. In 2005-2006 the QUPP was reviewed and the operation of the program was refined to address strategic issues outlined in the review report. Since the review, project funding has generally been targeted to three sub-programs with the following key objectives:

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56. Quality Referrals (Requesting/Ordering): To support referral practices that are informed and facilitated by best practice professional relationships and protocols between referrers and providers; that are informed by evidence; that maximise health benefits; and that inform and engage consumers; and

57. Quality Pathology Practice: To support professional practice standards that meet consumer and referrer needs and provide evidence-based, best practice, quality-assured services that are safe, cost effective and efficient.

In recent years there has been an increasing focus on the funding of initiatives aimed at developing and testing strategies to minimise error and promote patient safety. This work is relevant to the strategic focus of the National Pathology Accreditation Advisory Council.


Terms of Reference for the project
DoHA commissioned Cognitus Pty Ltd to conduct a comprehensive analysis of the Quality Use of Pathology Program project reports. The project objectives were:

- to conduct a comprehensive review of QUPP projects/initiatives to date including project results and recommendations, and

- to produce a document that will form a record of past and present investment and will assist in determining the future strategic direction of the program.

The analysis was to cover the QUPP investment that has occurred over the past ten years which would record the investment to date made on the quality use of pathology. It is expected that this document would also provide a potential basis for any future evaluation of the program.

Structure of the Report
This document is structured according to nine themes based on the QUPP’s areas of focus:

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165. Quality Assurance and Capacity – New Technology
166. eHealth Capability
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170. Access Initiatives – Raising Awareness

There were 74 reports analysed for this integrated analysis, with each report assigned to one of the above themes. Each report was set out in the following template:
• Description
• Grant Recipient/s
• Aims and/or Objectives
• Outcomes and/or Findings
• Recommendation/s
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Many of the projects listed in this report fall into more than one theme – see Appendix A – Report Summaries Relevant to Different Themes.
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A Summary Report for the Australian Department of Health and Ageing Medical Benefits Division

Canberra
22 June 2012

Cognitus Pty Ltd
Jane Carstens

Table of Contents
Executive Summary

General Findings from the Integrated Analysis
Consistent Themes identified from the Integrated Analysis
Conclusion

Abbreviations

Introduction

Background
Terms of Reference
Structure of the Document

Promoting Evidence-Based Practice

An Historical Analysis of Pathology Ordering by General Practitioners between April 1998 and March 2001 from the Bettering the Evaluation and Care of Health (BEACH) Program (2002)
Evidence-Practice Gap in GP Pathology Test Ordering: A Comparison of BEACH Pathology Data and Recommended Testing (2009)
A Project to Examine the Utilisation of Pathology Tests in the Investigation of Tiredness in General Practice (2002)
Analysis of Current Laboratory Medicine (Pathology) Teaching Practice in Prevocational and General Practitioner Vocational Training (2003)
Common Sense Pathology (2006)
Common Sense Pathology Publication Series (2011)
Improved Pathology Reporting, Education and Practice (IPREP) for Colorectal Cancer (2009)
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Risk Minimisation

RCPA – Quality Assurance Programs Key Indicator Project (2004)
Pilot Laboratory Assessment and Peer Review Mechanism for Pathology Key Performance Indicators (2007)
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Quality Assurance and Capacity – New Technology

Virtual Microscope (2005)
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Pathology and General Practice Software Integration Project (PaGSIP) (2003)
Chain of Information Custody for the Pathology Request-Test-Report Cycle in Australia (Guidelines for Pathology Requesters and Pathology Providers) (2004)
Supporting HL7 for Health Informatics Standards (2004)
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Workforce Capacity and Competence

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Appendix A – Report Summaries Relevant to Different Themes
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The Australian Government Department of Health and Ageing commissioned Cognitus Pty Ltd to undertake an analysis of the projects/initiatives funded under the Quality Use of Pathology Program (QUPP). The objectives of the project were:

- to conduct a comprehensive review of QUPP projects/initiatives, including project results and recommendations; and
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This analysis includes a summary of the QUPP projects/initiatives over the past ten years and also provides an analysis of whether each of the projects/initiatives achieved their aims and objectives and whether there were any key project learnings.

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The number of reports within each theme is presented in Figure 1.
General Findings from the Analysis

The QUPP has contributed to the expansion of the knowledge base of pathology practice and to the quality use of pathology services in Australia. There were a number of project recommendations that were strategically followed up in subsequent projects. For example, The Australian Pathology Workforce Crisis report resulted in five other initiatives and projects.

In a broader sense, all of the themes led to a high rate of follow on initiatives and projects as outlined below:

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</tr>
</thead>
<tbody>
<tr>
<td>Pathology Requesting and Reporting – Requester and Consumer Focus</td>
<td>17</td>
<td>9</td>
</tr>
<tr>
<td>Promoting Evidence-Based Practice</td>
<td>16</td>
<td>10</td>
</tr>
<tr>
<td>eHealth Capability</td>
<td>12</td>
<td>9</td>
</tr>
<tr>
<td>Quality Assurance and Capacity – New Technology</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>Workforce Capacity and Competence</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>Risk Minimisation</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Communication Strategy and Stakeholder Engagement</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Consumer Focus and Information Strategies</td>
<td>3</td>
<td>4</td>
</tr>
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<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>
Areas of significant and rapid change, such as eHealth have been supported to enable investigation into their impact on the quality use of pathology including health and economic outcomes. For example, twelve projects in the area of eHealth have uncovered significant key project learnings such as issues with software installation and capacity, and identified strategies to facilitate the future implementation of eHealth capability.

The QUPP investment into eHealth also enabled pathology reports to integrate into the electronic age by supporting projects to develop software systems to automatically extract information from narrative pathology reports, and to standardise pathology terminology units to facilitate their use in electronic reporting.

Projects to investigate workforce issues in the pathology sector were also funded by this program. These projects identified stakeholder concerns, such as the ageing pathology workforce and the lack of a structured career path for scientists. Of the six projects funded under the Workforce Capacity and Competence theme, ten follow on projects and initiatives have been undertaken to further investigate and address these key issues.

The QUPP also facilitated increased engagement with consumers through workshops which highlighted issues predominantly based on a need for improved communication and engagement, and the need for comprehensive information strategies to address consumer concerns.

From the analysis of QUPP initiatives to date, there are few identified areas that may benefit from some further consideration. These include:

- eHealth information outlining the benefits/risks of pathology results being uploaded onto the National Electronic Health Record System for consumers.
- Standardised request forms and education of all levels of health practitioners about the importance of completing the information on these forms.
- Development of comprehensive guidelines for General Practitioners (GPs) regarding evidence-based pathology requesting.
- Investigate including patient-specific advice for GPs on pathology test results.
- Focus on increasing GPs’ understanding of the pathology testing process.

**Consistent Themes Identified from the Analysis**

From the analysis there appears to be three consistent themes throughout all areas of the pathology spectrum. These are:

58. The need for increased information resources generated by reliable sources about pathology testing for General Practitioners (GPs) that are short, concise and easily accessed. This information should also include procedures for GPs when collecting pathology specimens from their patients, and for GPs to give to their patients for patient-collected samples.

59. Educating medical students during their training and post-graduate years about pathology was consistently viewed as a long term strategy to improve pathology knowledge and practice. This included rotating medical students through pathology laboratories as a component of...
their medical training.

60. Producing reliable consumer information about pathology testing, and keeping consumers informed about current issues/advances within pathology.

Conclusion
The QUPP has enabled projects to investigate and implement improvements in health and economic outcomes for the quality use of pathology. This is evidenced by the high rate of follow on initiatives and projects outlined in Table 1, and by the changes in practice that have resulted from this program’s support. For example, the Structured Pathology Reporting of Cancer projects developed cancer protocols for the structured reporting of six types of cancer. This project may lead to the possible development of a standardised reporting format for all major cancers and other major complex reporting topics.

This integrated analysis also highlighted a number of key project learnings from the past ten years of the Quality Use of Pathology Program. It also identified potential areas for future consideration across all of the themes which are presented in the analysis of each theme. This report stands as a record of the valuable investment the program has made to the quality and capacity of the pathology sector to date, and will form the basis for reflection when future programs are investigated and/or supported by this important program.

Abbreviations
AACB Australasian Association of Clinical Biochemists
AAPP Australian Association of Pathology Practices
AIHW Australian Institute of Health and Welfare
APPN Australian Point of Care Practitioners Network
ACRRM Australian College of Rural and Remote Medicine
AMA Australian Medical Association
BEACH Bettering the Evaluation and Care of Health
CHF Consumers Health Forum of Australia
DATIS Drug and Therapeutics Information Service
DoHA Australian Government Department of Health and Ageing
GP General Practitioner
HGSA Human Genetics Society of Australasia
HIC Health Insurance Commission
HISA Health Informatics Society of Australia
KPI Key Performance Indicators
LTO Lab Tests Online
MBS Medicare Benefits Schedule
MTAAC Medical Testing Accreditation Advisory Committee
Introduction

Background

The Quality Use of Pathology Program (QUPP) was established in 1999 under the auspice of the 2nd pathology Memorandum of Understanding (MoU) with pathology stakeholders, and with up to $2 million notionally allocated per year for the funding of projects and other initiatives relating to improvements in the quality of pathology services.

The program has been managed by the Australian Government Department of Health and Ageing (DoHA) in conjunction with the Quality Use of Pathology Committee (QUPC). The QUPC was originally a sub-committee of the Pathology Consultative Committee (PCC) formed to work with the Australian Government to manage pathology outlays under the MoU. But more recently it has been given a continued focus with the commencement of the five-year Pathology Funding Agreement (PFA) between the Commonwealth Government and key pathology stakeholders in April 2011.

The QUPC provides advice relation to strategic directions and projects and/or initiatives implemented under the program. This committee currently comprises nominees from the pathology profession, general practice, the Royal Australasian College of Physicians, Doctors-in-Training, the Consumers Health Forum of Australia, Medical Deans Australia and New Zealand and representatives from the Department of Health and Ageing.

Funding for the QUPP has been allocated by a combination of open funding rounds and targeted initiatives. The program has operated under overarching principles supported by guiding assumptions developed by
DoHA and the QUPC in consultation with the broader pathology stakeholder sector.

National workshops have been held each year since 2007 with the aim of bringing pathology, requester and consumer stakeholders together to discuss pathology quality and safety issues, to inform the QUPP priority setting process and debate the ways in which priority issues could be addressed. In 2005-2006 the QUPP was reviewed and the operation of the program was refined to address strategic issues outlined in the review report. Since the review, project funding has generally been targeted to three sub-programs with the following key objectives:

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Medical Benefits Division

Canberra
22 June 2012

Cognitus Pty Ltd
Jane Carstens

Table of Contents
<table>
<thead>
<tr>
<th>Executive Summary</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>General Findings from the Integrated Analysis</td>
<td>Consistent Themes identified from the Integrated Analysis</td>
</tr>
<tr>
<td>Conclusion</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Abbreviations</th>
<th></th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Introduction</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Background</td>
<td>Terms of Reference</td>
</tr>
<tr>
<td>Structure of the Document</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
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<th></th>
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</tr>
<tr>
<td>Appendix A – Report Summaries Relevant to Different Themes</td>
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<tr>
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</tr>
</thead>
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</tr>
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The QUUP also facilitated increased engagement with consumers through workshops which highlighted issues predominantly based on a need for improved communication and engagement, and the need for comprehensive information strategies to address consumer concerns.

From the analysis of QUUP initiatives to date, there are few identified areas that may benefit from some further consideration. These include:

- eHealth information outlining the benefits/risks of pathology results being uploaded onto the National Electronic Health Record System for consumers.
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From the analysis there appears to be three consistent themes throughout all areas of the pathology spectrum. These are:

61. The need for increased information resources generated by reliable sources about pathology testing for General Practitioners (GPs) that are short, concise and easily accessed. This information should also include procedures for GPs when collecting pathology specimens from their patients, and for GPs to give to their patients for patient-collected samples.

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their medical training.

63. Producing reliable consumer information about pathology testing, and keeping consumers informed about current issues/advances within pathology.

Conclusion

The QUPP has enabled projects to investigate and implement improvements in health and economic outcomes for the quality use of pathology. This is evidenced by the high rate of follow on initiatives and projects outlined in Table 1, and by the changes in practice that have resulted from this program’s support. For example, the Structured Pathology Reporting of Cancer projects developed cancer protocols for the structured reporting of six types of cancer. This project may lead to the possible development of a standardised reporting format for all major cancers and other major complex reporting topics.

This integrated analysis also highlighted a number of key project learnings from the past ten years of the Quality Use of Pathology Program. It also identified potential areas for future consideration across all of the themes which are presented in the analysis of each theme. This report stands as a record of the valuable investment the program has made to the quality and capacity of the pathology sector to date, and will form the basis for reflection when future programs are investigated and/or supported by this important program.

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Introduction

Background

The Quality Use of Pathology Program (QUPP) was established in 1999 under the auspice of the 2nd pathology Memorandum of Understanding (MoU) with pathology stakeholders, and with up to $2 million notionally allocated per year for the funding of projects and other initiatives relating to improvements in the quality of pathology services.

The program has been managed by the Australian Government Department of Health and Ageing (DoHA) in conjunction with the Quality Use of Pathology Committee (QUPC). The QUPC was originally a sub-committee of the Pathology Consultative Committee (PCC) formed to work with the Australian Government to manage pathology outlays under the MoU. But more recently it has been given a continued focus with the commencement of the five-year Pathology Funding Agreement (PFA) between the Commonwealth Government and key pathology stakeholders in April 2011.

The QUPC provides advice relation to strategic directions and projects and/or initiatives implemented under the program. This committee currently comprises nominees from the pathology profession, general practice, the Royal Australasian College of Physicians, Doctors-in-Training, the Consumers Health Forum of Australia, Medical Deans Australia and New Zealand and representatives from the Department of Health and Ageing.

Funding for the QUPP has been allocated by a combination of open funding rounds and targeted initiatives. The program has operated under overarching principles supported by guiding assumptions developed by
DoHA and the QUPC in consultation with the broader pathology stakeholder sector.

National workshops have been held each year since 2007 with the aim of bringing pathology, requester and consumer stakeholders together to discuss pathology quality and safety issues, to inform the QUPP priority setting process and debate the ways in which priority issues could be addressed. In 2005-2006 the QUPP was reviewed and the operation of the program was refined to address strategic issues outlined in the review report. Since the review, project funding has generally been targeted to three sub-programs with the following key objectives:

61. **Quality Consumer Services:** To develop and improve consumer-focused, accessible and coordinated services that promote informed choice and meet consumer needs;

62. **Quality Referrals (Requesting/Ordering):** To support referral practices that are informed and facilitated by best practice professional relationships and protocols between referrers and providers; that are informed by evidence; that maximise health benefits; and that inform and engage consumers; and

63. **Quality Pathology Practice:** To support professional practice standards that meet consumer and referrer needs and provide evidence-based, best practice, quality-assured services that are safe, cost effective and efficient.

In recent years there has been an increasing focus on the funding of initiatives aimed at developing and testing strategies to minimise error and promote patient safety. This work is relevant to the strategic focus of the National Pathology Accreditation Advisory Council.


**Terms of Reference for the project**

DoHA commissioned Cognitus Pty Ltd to conduct a comprehensive analysis of the Quality Use of Pathology Program project reports. The project objectives were:

- to conduct a comprehensive review of QUPP projects/initiatives to date including project results and recommendations, and

- to produce a document that will form a record of past and present investment and will assist in determining the future strategic direction of the program.

The analysis was to cover the QUPP investment that has occurred over the past ten years which would record the investment to date made on the quality use of pathology. It is expected that this document would also provide a potential basis for any future evaluation of the program.

**Structure of the Report**

This document is structured according to nine themes based on the QUPP’s areas of focus:

181. Promoting Evidence-Based Practice
182. Risk Minimisation
183. Quality Assurance and Capacity – New Technology
184. eHealth Capability
185. Pathology Requesting and Reporting – Requester and Consumer
Focus
186. Workforce Capacity and Competence
187. Consumer Focus and Information Strategies
188. Access Initiatives – Raising Awareness

There were 74 reports analysed for this integrated analysis, with each report assigned to one of the above themes. Each report was set out in the following template:

- Description
- Grant Recipient/s
- Aims and/or Objectives
- Outcomes and/or Findings
- Recommendation/s
- Key Project Learning/s
- Follow on Initiatives and Projects
- Areas for Future Consideration.

Many of the projects listed in this report fall into more than one theme – see Appendix A – Report Summaries Relevant to Different Themes.
Integrated Analysis of Quality Use of Pathology Program (QUPP) Final Reports

A Summary Report for the Australian Department of Health and Ageing Medical Benefits Division

Canberra
22 June 2012

Cognitus Pty Ltd
Jane Carstens
## Table of Contents

**Executive Summary**
- General Findings from the Integrated Analysis
- Consistent Themes Identified from the Integrated Analysis
- Conclusion

**Abbreviations**

**Introduction**
- Background
- Terms of Reference
- Structure of the Document

**Promoting Evidence-Based Practice**
- An Historical Analysis of Pathology Ordering by General Practitioners between April 1998 and March 2001 from the Bettering the Evaluation and Care of Health (BEACH) Program (2002)
- Evidence-Practice Gap in GP Pathology Test Ordering: A Comparison of BEACH Pathology Data and Recommended Testing (2009)
- A Project to Examine the Utilisation of Pathology Tests in the Investigation of Tiredness in General Practice (2002)
- Analysis of Current Laboratory Medicine (Pathology) Teaching Practice in Prevocational and General Practitioner Vocational Training (2003)
- Common Sense Pathology (2006)
- Common Sense Pathology Publication Series (2011)
- Improved Pathology Reporting, Education and Practice (IPREP) for Colorectal Cancer (2009)
- Structured Pathology Reporting Standards for Cancer (2009)
- Promoting and Expanding Structured Pathology Reporting of Cancer (Stage 2) (Current)
- Evidence-Based, Best-Practice Prevention of Blood Borne Virus Transmission in Health Care Settings Program (PBV) (2009)

**Risk Minimisation**
- Pilot Laboratory Assessment and Peer Review Mechanism for Pathology Key Performance Indicators (2007)
- Performance Monitoring of External Quality Assurance (Current)
- NATA File Audit – Risk Analysis of Assessment Non Conformances Identified in Pathology Laboratory Assessment Accreditation (Current)
- Key Incident Monitoring & Management Systems (Current)

**Quality Assurance and Capacity – New Technology**
- Virtual Microscope (2005)
- Policies, Procedures and Guidelines for Point-of-Care Testing (2011)
- PoCT Training, Certification, Support and Skill Maintenance Program (Australian PoCT Practitioners Network – APPN) (Current)
- Establishment of a Molecular Genetics Quality Assurance Program (Current)
- MAWSON – An Online Repository of Genetic Data to Aid Reporting of Medical Genetic Tests (Current)

**eHealth Capability**
- Pathology and General Practice Software Integration Project (PaGSSIP) (2003)
- Chain of Information Custody for the Pathology Request-Test-Report Cycle in Australia (Guidelines for Pathology Requesters and Pathology Providers) (2004)
<table>
<thead>
<tr>
<th>Report Title</th>
<th>Author(s)</th>
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<tr>
<td>Application of Pathology Informatics to Reporting of Critical/Abnormal Results for Improved Requester/Provider Communication and Improved Patient Care (2004)</td>
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<td>Padlock On-line Pathology Ordering System (2005)</td>
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<td>Information Extraction from Narrative Pathology Reports on Melanoma (2008)</td>
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<td>Guidelines for Patient/Consumer Access to Pathology Test Reports (2001)</td>
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<td>AUSLAB Retest Interval Trial Project (2003)</td>
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<td>Facilitating Best Practice Pathology Utilisation by the Use of Hand-Held Decision Support Devices (2004)</td>
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<td>The Impact of the Implementation of Electronic Ordering of Pathology Requesting and the Quality and Effectiveness of Hospital Pathology Services – Building Good Evidence Base and Benefits Framework for Successful e-Health Diffusions (Current)</td>
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<td>Effective Communication of Pathology Results in Requesting Practitioners and Consumers (Current)</td>
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<td>The Australian Pathology Workforce Crisis (2008)</td>
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Executive Summary

The Quality Use of Pathology Program (QUPP) is a well-established program having been established in 1999. Its goal is the continual improvement in health and economic outcomes from the use of pathology in health care through the pursuit of better practice amongst requesters/referrers and providers of pathology services, and through knowledgeable and engaged consumers. It is managed by the Australian Government Department of Health and Ageing (DoHA) in conjunction with the Quality Use of Pathology Committee (QUPC).

The Australian Government Department of Health and Ageing commissioned Cognitus Pty Ltd to undertake an analysis of the projects/initiatives funded under the Quality Use of Pathology Program (QUPP). The objectives of the project were:

- to conduct a comprehensive review of QUPP projects/initiatives, including project results and recommendations; and
- to produce a document that would record the past and present investment and could inform the future strategic direction of the program.

This analysis includes a summary of the QUPP projects/initiatives over the past ten years and also provides an analysis of whether each of the projects/initiatives achieved their aims and objectives and whether there were any key project learnings.

There were 74 project reports analysed, which were further divided into the following nine themes that were based on QUPP areas of focus:

190. Promoting Evidence-Based Practice
191. Risk Minimisation
193. eHealth Capability
194. Pathology Requesting and Reporting – Requester and Consumer Focus
195. Workforce Capacity and Competence
196. Consumer Focus and Information Strategies
197. Access Initiatives – Raising Awareness

The number of reports within each theme is presented in Figure 1.
General Findings from the Analysis

The QUPP has contributed to the expansion of the knowledge base of pathology practice and to the quality use of pathology services in Australia. There were a number of project recommendations that were strategically followed up in subsequent projects. For example, The Australian Pathology Workforce Crisis report resulted in five other initiatives and projects.

In a broader sense, all of the themes led to a high rate of follow on initiatives and projects as outlined below:

<table>
<thead>
<tr>
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<th>Follow on initiatives and projects</th>
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Table 1: Summary of Follow On Initiatives and Projects

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From the analysis of QUPP initiatives to date, there are few identified areas that may benefit from some further consideration. These include:

- eHealth information outlining the benefits/risks of pathology results being uploaded onto the National Electronic Health Record System for consumers.
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**Conclusion**

The QUPP has enabled projects to investigate and implement improvements in health and economic outcomes for the quality use of pathology. This is evidenced by the high rate of follow on initiatives and projects outlined in Table 1, and by the changes in practice that have resulted from this program’s support. For example, the Structured Pathology Reporting of Cancer projects developed cancer protocols for the structured reporting of six types of cancer. This project may lead to the possible development of a standardised reporting format for all major cancers and other major complex reporting topics.

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<td>NeHTA</td>
<td>National E-Health Transition Authority</td>
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<td>NCPP</td>
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<td>Quality Assurance for Aboriginal and Torres Strait Islander Medical Services</td>
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<td>QASEC</td>
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<td>QUPC</td>
<td>Quality Use of Pathology Committee</td>
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<td>QUPP</td>
<td>Quality Use of Pathology Program</td>
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<td>WAC</td>
<td>Workforce Advisory Committee</td>
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**Introduction**

**Background**

The Quality Use of Pathology Program (QUPP) was established in 1999 under the auspice of the 2nd pathology Memorandum of Understanding (MoU) with pathology stakeholders, and with up to $2 million notionally allocated per year for the funding of projects and other initiatives relating to improvements in the quality of pathology services.

The program has been managed by the Australian Government Department of Health and Ageing (DoHA) in conjunction with the Quality Use of Pathology Committee (QUPC). The QUPC was originally a sub-committee of the Pathology Consultative Committee (PCC) formed to work with the Australian Government to manage pathology outlays under the MoU. But more recently it has been given a continued focus with the commencement of the five-year Pathology Funding Agreement (PFA) between the Commonwealth Government and key pathology stakeholders in April 2011.

The QUPC provides advice relation to strategic directions and projects and/or initiatives implemented under the program. This committee currently comprises nominees from the pathology profession, general practice, the Royal Australasian College of Physicians, Doctors-in-Training, the Consumers Health Forum of Australia, Medical Deans Australia and New Zealand and representatives from the Department of Health and Ageing.

Funding for the QUPP has been allocated by a combination of open funding rounds and targeted initiatives. The program has operated under overarching principles supported by guiding assumptions developed by
DoHA and the QUPC in consultation with the broader pathology stakeholder sector.

National workshops have been held each year since 2007 with the aim of bringing pathology, requester and consumer stakeholders together to discuss pathology quality and safety issues, to inform the QUPP priority setting process and debate the ways in which priority issues could be addressed. In 2005-2006 the QUPP was reviewed and the operation of the program was refined to address strategic issues outlined in the review report. Since the review, project funding has generally been targeted to three sub-programs with the following key objectives:

64. **Quality Consumer Services:** To develop and improve consumer-focused, accessible and coordinated services that promote informed choice and meet consumer needs;

65. **Quality Referrals (Requesting/Ordering):** To support referral practices that are informed and facilitated by best practice professional relationships and protocols between referrers and providers; that are informed by evidence; that maximise health benefits; and that inform and engage consumers; and

66. **Quality Pathology Practice:** To support professional practice standards that meet consumer and referrer needs and provide evidence-based, best practice, quality-assured services that are safe, cost effective and efficient.

In recent years there has been an increasing focus on the funding of initiatives aimed at developing and testing strategies to minimise error and promote patient safety. This work is relevant to the strategic focus of the National Pathology Accreditation Advisory Council.


**Terms of Reference for the project**

DoHA commissioned Cognitus Pty Ltd to conduct a comprehensive analysis of the Quality Use of Pathology Program project reports. The project objectives were:

- to conduct a comprehensive review of QUPP projects/initiatives to date including project results and recommendations, and

- to produce a document that will form a record of past and present investment and will assist in determining the future strategic direction of the program.

The analysis was to cover the QUPP investment that has occurred over the past ten years which would record the investment to date made on the quality use of pathology. It is expected that this document would also provide a potential basis for any future evaluation of the program.

**Structure of the Report**

This document is structured according to nine themes based on the QUPP’s areas of focus:

190. Promoting Evidence-Based Practice
191. Risk Minimisation
193. eHealth Capability
194. Pathology Requesting and Reporting – Requester and Consumer
Focus
195. Workforce Capacity and Competence
196. Consumer Focus and Information Strategies
197. Access Initiatives – Raising Awareness

There were 74 reports analysed for this integrated analysis, with each report assigned to one of the above themes. Each report was set out in the following template:
- Description
- Grant Recipient/s
- Aims and/or Objectives
- Outcomes and/or Findings
- Recommendation/s
- Key Project Learning/s
- Follow on Initiatives and Projects
- Areas for Future Consideration.

Many of the projects listed in this report fall into more than one theme – see Appendix A – Report Summaries Relevant to Different Themes.
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<th>#</th>
<th>Title</th>
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<tr>
<td>60</td>
<td>The Australian Pathology Workforce Crisis (2008)</td>
<td>Communication Strategy and Stakeholder Engagement</td>
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<td>62</td>
<td>Impact of Workload of Anatomical Pathologists on Quality and Safety (2011)</td>
<td>Risk Minimisation</td>
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<tr>
<td>63</td>
<td>Survey of the Pathology Workforce (2011)</td>
<td>Communication Strategy and Stakeholder Engagement</td>
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<td>Benefits and Risks of Pathology Testing (Current)</td>
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</tr>
<tr>
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<td>Report from the National Workshop on Safety and Quality in Pathology (2007)</td>
<td>Workforce Capacity and Competence</td>
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<td>7 3</td>
<td>Best Practice in Pathology Requesting and Reporting Workshop (2009)</td>
<td>Pathology Requesting and Reporting – Requester and Consumer Focus</td>
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<td>7 4</td>
<td>Pathology Workforce Workshop (2011)</td>
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Consumer Focus and Information Strategies