

### 3.4 Extracting and summarising data

For each research question for which studies were identified, we entered results from the relevant articles into a summary table based on the NHMRC minimum requirements for clinical practice guidelines development. These results tables are provided in Appendix 4.

Each results table includes:

- the identifying number and authors of the paper
- the type of study (systematic review, prospective or retrospective cohort, case-control, case series, etc)
- information on the population under study, the risk factor, the comparator and the number of subjects
- the level of evidence (see below) and any quality information
- the main findings of the study.

Levels of evidence were based on the NHMRC additional levels of evidence (NHMRC 2005). Relevant levels for aetiology and intervention studies are shown in Table 3.1.

Table 3.1 NHMRC levels of evidence for aetiology and intervention questions

Level	Intervention	Aetiology
I	A systematic review of level II studies	A systematic review of level II studies
II	A randomised controlled trial	A prospective cohort study
III-1	A pseudo-randomised controlled trial (ie alternative allocation or some other method)	All or none <sup>a</sup>
III-2	A comparative study with concurrent controls: <ul style="list-style-type: none"> <li>• nonrandomised, experimental trial</li> <li>• cohort study</li> <li>• case-control study</li> <li>• interrupted time series with a control group</li> </ul>	A retrospective cohort study
III-3	A comparative study without concurrent controls: <ul style="list-style-type: none"> <li>• historical control study</li> <li>• two or more single-arm studies<sup>b</sup></li> <li>• interrupted time series without a parallel control group</li> </ul>	A case-control study
IV	Case series with either post-test or pre-test and post-test outcomes	A cross-sectional study

<sup>a</sup> All or none of a series of people (case series) with the risk factor(s) experience the outcome.

<sup>b</sup> Comparing single-arm studies (ie case series from two studies).

Source: *Additional Levels of Evidence and Grades of Recommendations for Developers of Guidelines: Pilot Program 2005-07* (NHMRC 2005)

Where appropriate, further information was also included on the quality of the studies. However, owing to the very large scope of this review, it was only possible to do a critical appraisal for systematic reviews. For these studies (systematic reviews), data on the study design and quality were extracted using a form based on the NHMRC minimum requirements for clinical practice guidelines development and the Scottish Intercollegiate Guidelines Network (SIGN) critical appraisal form for systematic reviews. The completed extraction forms are included in Appendix 5, organised by each paper's identifying number. The quality of each systematic review (identified as 'good', 'adequate' or 'poor') was included in the results summary table. Data on design and

quality were extracted separately from the results because a single systematic review often included results relevant to several different questions.

Some prospective cohort studies (level II evidence for aetiology questions) and cross-sectional studies (level IV) were based on large population studies that have been conducted over many years using standardised methodology (eg Blue Mountains Eye Study, Beaver Dam Study). Many papers have been published from these studies, which have thus been subject to frequent peer review. These studies are designated in the table as ‘LPS’ (large population study).

Below each results table is a summary statement that combines the overall results for the particular question. Also, to assist in the development of key findings based on this review, each summary statement is assigned to a particular group, as shown below in Table 3.2. The table lists the groups used, explains the meaning of each group and provides notes on how the findings were assigned to a specific group, based on number, type and quality of studies that supported the overall finding.

The assignment of each summary to a particular group is intended only to assist in sorting the large number of research questions according to the overall findings of the review. They should not be confused with levels of evidence and grades of recommendations.

Table 3.2 Categories of summary statements

Group	Meaning	Notes
1	Clear association/causality	Studies of at least adequate quality that show a statistically significant causality or association between the risk factor and outcome.
2	Possible association/causality (more research needed)	Some studies, but of poor quality or too underpowered to show a statistically significant causality or association.
3	Lack of association/causality	Studies of at least adequate quality that show no statistically significant association between the risk factor and outcome.
4	Possible lack of association/causality (more research needed)	Some studies, but of poor quality or too underpowered to confirm no statistically significant association.
5	Conflicting results	Some studies, but results inconsistent so that it is not possible to draw a firm conclusion.
6	Possible protection	Some studies indicating that the factor under study may protect against the particular condition, but of poor quality or too underpowered to confirm statistically significant protection.
7	No studies	No relevant studies were found in the time period (1996–2006) covered by this review. This could mean that no relevant articles were published in the time period covered by the review; however, in some situations, it could mean that studies carried out before 1996 have clearly shown an association or lack of association, and no further studies were published during the period covered by the review.