

4 Discussion

Asthma data monitoring provides valuable information on changes in the impact of disease at a population level and for examining the effectiveness of health policy and management strategies over time. Currently, there are 24 national asthma indicators that measure selected aspects of the disease. It was believed that some of these indicators were no longer relevant or feasible; therefore a systematic review was recommended to simplify the asthma monitoring system. In this report we are presenting results from two independent processes: a Delphi survey and a correlation analysis conducted in order to reassess the current indicators and to recommend a priority list of core indicators that will provide high quality information for future asthma monitoring activities.

Asthma experts around Australia took part in a two-round Delphi survey where asthma indicators were rated and ranked based on their value for guiding policy, prioritising strategies for effective management and providing information about effectiveness of these strategies. The similarity between the first and second rounds indicated that there was no need to have a third round, therefore the research team stopped the process after the second round. The results presented above revealed that there are some indicators preferred by the respondents and that others might be excluded from the monitoring system.

The asthma indicators most strongly endorsed by panellists, and hence recommended by the research team for retention, were *current asthma*, *deaths (all ages)* and *hospitalisations*. Free text answers provided by some respondents supported these results. For instance, participants declared that *hospitalisations* provided a 'measure of severity' and 'serious adverse event' and it was claimed as 'harder data'. *Asthma control* was also highly ranked by participants in both survey rounds. However, there were conflicting views in regards to *asthma control* as it was believed it could be 'difficult to measure' and might not be 'policy relevant'. This variation may reflect varying levels of knowledge by different respondents about standardised methods for assessing asthma control. Finally, *costs of asthma* was given a low priority by respondents but quite a high preference for inclusion. Panellists commented that *costs of asthma* was relevant for 'prioritising' and for identifying 'strategies to guide policy'. The research team also recommended the retention of the following indicators: *general practice encounters*, *asthma action plans*, *quality of life* and *preventer use*. Although these indicators did not score as highly as some of the other indicators in the sum score for retention, few people recommended them for exclusion. For people with persistent asthma, current guidelines recommend use of preventer medications and ownership of an asthma action plan. Hence, the research team felt that the *preventer use* and *asthma action plans* indicators needed to be retained. It should be noted that the Australian term 'preventer' corresponds to medications called 'controllers' in many other countries and clinical practice guidelines, so the meaning of the indicator '*preventer use*' should be defined in any publication accessible to an international audience. *General practice encounters* enables the quantification of one of the main health service utilisation measures for asthma. *Quality of life* represents an holistic outcome not encompassed by other measures. For these reasons, *general practice encounters*, *asthma action plans*, *quality of life* and *preventer use* were recommended as indicators to be retained in the core indicator list.

Panellists who participated in the Delphi survey recommended the following indicators for exclusion: *individual hospitalisations*, *re-attendances*, *occupational asthma*, *hospital patient days*, *airway hyperresponsiveness*, *children residing with smokers*, *current wheeze*, *Asthma Cycle of Care uptake* and *spirometry*. Although most respondents agreed that these indicators should be excluded, there were some alternative comments that advocated indicators for inclusion. For example, some panellists commented that *individual hospitalisations* determined 'effectiveness of asthma control and severity' and that *current wheeze* was 'needed for population prevalence'.

The whole population correlation analysis did not identify any of the six indicators assessed that could be eliminated on the basis of redundancy. In the case of the *hospital patient days* and *hospitalisations* indicators, the whole population results showed that the two indicators provide

independent information, as shown by the low correlation coefficient. However, when the data were analysed separately by broad age group (0–14 years, 15–34 years, 35 years and over), the correlation coefficients met the criterion for redundancy and it was found that it was only necessary to measure either *hospital patient days* or *hospitalisations* since they provide similar information. Thus, based on the results from both the Delphi survey and the correlation analysis, *hospital patient days* was added to the list of indicators recommended for exclusion.

For many of the indicators, the results of the Delphi survey provided a clear indication of whether or not the indicator should be included or excluded from the final list. However, in some cases the decision was not immediately apparent. In these instances, the research team steering committee determined whether to include or exclude the indicator based on the results from the Delphi survey and the correlation analysis (where available), as well as by drawing on knowledge gained through monitoring the indicators in the past.

The research team proposed to exclude *Emergency Department attendances* because of incomplete national coverage from existing datasets. Although *urgent asthma visits* is an accepted indicator at an international level, it is not feasible for use in Australia as the urgency of visits is not able to be assessed from currently available administrative datasets. Therefore, the research team recommended exclusion of *urgent asthma visits* from the core indicator list. The exclusion of *individual hospitalisations* and *ever asthma* was also recommended for the reasons that follow. The research team decided to exclude *individual hospitalisations* from the list of recommended indicators since there was a similar proportion of respondents in the Delphi survey that recommended retention of the indicator as there was recommending exclusion of the indicator. Furthermore, total hospitalisations would already provide a good indication of the burden of asthma in the health care system, and this had already been included in the core indicator list on the basis of the Delphi results. *Ever asthma* was excluded since the *current asthma* indicator provided similar (though not identical) information about the diagnosis of asthma but with the added value of taking into account recent symptoms or treatment.

Deaths (age 5 to 34 years) was included in the final indicator list. Panellists consistently rated the indicator highly in the two rounds of the Delphi survey. Furthermore, information from the correlation analysis indicated that it provided independent information from the *deaths (all ages)* indicator. Free text answers from the Delphi survey process such as ‘simple non-controversial indicator’ and ‘deaths among young people for whom the asthma diagnosis is reasonably clear’ also supported the inclusion of the *deaths (5 to 34 years)* indicator.

Smoking was identified as ‘one public health factor proven to reduce the frequency and severity of asthma’ but was seen as ‘a separate issue’ by other respondents. *Hospital re-admissions* was declared as ‘an indication of potential for improvement in delivery of care’ and a ‘measure of quality of hospital and GP care’. However, there was no final agreement about these two indicators.

The process of the Delphi survey also gained information on additional indicators that panellists felt had been excluded from the initial set of 24 asthma indicators. Relevant experts suggested that it may be important to monitor *reliever use* and *asthma knowledge* and panellists agreed that these were quite important asthma indicators in terms of their value in providing information to policy makers about the status of asthma in Australia.

While the aim of these analyses was to recommend a short list of core asthma indicators, it should be noted that monitoring some of the other indicators at a population level and in smaller areas should still be conducted where relevant and necessary. Furthermore, some of those recommended for exclusion from the core indicator list may still be useful for monitoring the outcomes of specific interventions that target these indicators. The list of core asthma indicators has been formulated on the basis of the analyses described in this report as a guide for indicators which will provide the most important information about asthma at a national level. The list is intended as an indication of the key areas that should be monitored if limited resources were available and a snapshot of the national burden of asthma was required. It may be necessary to further refine this list in the future, or to add new asthma indicators as the need arises.