Survey questions for monitoring national asthma indicators

Australian Centre for Asthma Monitoring

The Australian Institute of Health and Welfare is Australia's national health and welfare statistics and information agency. The Institute's mission is *'better health and wellbeing for Australians through better health and welfare statistics and information'*.

Survey questions for monitoring national asthma indicators

May 2007

Australian Centre for Asthma Monitoring
Woolcock Institute of Medical Research

Australian Institute of Health and Welfare
Canberra

Contents

Acknowledgments

Contributors

Australian System for Monitoring Asthma

Steering committee members

Survey questions working group members

The following working group was formed at the request of the Australian System for Monitoring Asthma Steering Committee to oversee the process of identifying survey questions for asthma monitoring. Valuable guidance and contributions were received from the members of this working group. Their input was greatly appreciated.

Professor Michael Abramson, Monash University

Ms Deborah Baker, New South Wales Department of Health

Ms Karen Brown, Australian Bureau of Statistics

Ms Patricia Correll, Australian Centre for Asthma Monitoring

Ms Jane Griffin-Warwicke, Australian Bureau of Statistics

Associate Professor Guy Marks, Australian Centre for Asthma Monitoring

Dr Gayle Pollard, Queensland Department of Health

Ms Margaret Williamson, Australian Centre for Asthma Monitoring

Expert consultation

The following experts were extremely helpful in providing their input and suggestions in this process:

Ms Margo Eyeson-Annan, NSW Department of Health

Associate Professor Alan James, Queen Elizabeth II Medical Centre

Professor Peter Sly, University of Western Australia

Associate Professor David Wilson, University of Adelaide

Summary

In this document, we provide a recommended module of survey questions that can be used to monitor national asthma indicators. This is to assist those who are conducting surveys to select reliable questions that can be used to collect key information about asthma such as prevalence, management issues, level of disease control and impacts of the disease on the health system and individuals.

The report is relevant to epidemiologists and other researchers who are conducting health surveys in the population. The nature of these surveys may vary from large national or state-wide surveys conducted by government organisations, such as the Australian Bureau of Statistics or state and territory health jurisdictions, to more targeted surveys collecting information about asthma in local populations.

These recommendations have resulted from a thorough review and development process that has involved a systematic review of relevant literature, consultation with experts in asthma, and cognitive and reliability testing of questions. It is envisaged that the recommended survey questions in this document will help ensure consistency in the data collected to monitor core national asthma indicators. The consistent use of questions will be valuable for monitoring trends over time and enable the comparison of findings between different surveys and studies in various sub-populations.

Introduction

In early 2004, the Australian Centre for Asthma Monitoring (ACAM) released the *Review of proposed national health priority area asthma indicators and data sources* (Baker et al. 2004). This report reviewed a range of proposed indicators that could be used to monitor asthma. It recommended 24 indicators for use in national asthma monitoring activities in Australia. A number of these indicators required further development to produce an operational definition and identify national data sources. Therefore, ACAM produced a Data Development Plan (ACAM 2005b) to outline a range of projects that would address current barriers to monitoring the recommended indicators. The Data Development Plan proposed several projects involving the development of survey questions to monitor selected asthma indicators in health surveys of the population. Following this, a process was implemented to develop a module of valid and reliable questions for this purpose.

Survey question development process

In late 2004, a working group was formed at the request of the ASMA Steering Committee to review the currently available questions relevant to asthma indicators. This group would address issues raised in ACAM's Data Development plan in which it was proposed that the identification or development of reliable survey questions was needed to monitor several of the asthma indicators.

The working group comprised invited representatives from state health survey programs, the Computer Assisted Telephone Interview Technical Reference Group (CATI TRG) and the Australian Bureau of Statistics (ABS), as well as ACAM staff.

This report represents the outcome of this process and presents the resulting recommendations for a module of asthma questions.

Review of available survey questions

In the first stage of the process, the working group produced an internal discussion paper that systematically reviewed questions from a wide range of existing surveys, and assessed available data on the reliability and validity of these questions. In addition, previous work by ACAM was incorporated, for example, ACAM's previous review and recommendations for questions to measure the impact of asthma on quality of life (ACAM 2004). Altogether ten asthma indicators were identified for which survey questions were a feasible source of monitoring data. From this, the working group produced a list of recommendations comprising (A) three indicators which could be monitored using questions that had established reliability and validity and could be adopted without further testing and (B) seven indicators for which questions required further testing.

The ABS indicated that they could offer testing of some of the recommended questions that required further assessment, as part of their CATI TRG modular development work, being undertaken for the Australian Government Department of Health and Ageing. This would occur in two stages, cognitive testing and field testing.

Cognitive testing and consultation

The purpose of cognitive testing was to assess the comprehensibility of questions and investigate the interpretations of the interviewees. This was conducted by the ABS in three rounds on small samples of individuals who had asthma (approximately 12 subjects per round). These individuals were probed during the administration of the questions to seek clarification about how they had interpreted the questions and any difficulties they had experienced. The results from each round were used to fine-tune the wording of questions for the next round. Following this process, a set of proposed questions was compiled and circulated to several experts with experience in surveys, particularly relating to asthma, for consultation. Comments received from this consultation process were used to formulate the set of questions put forward for field testing.

Field testing

For the seven out of ten indicators in which the questions did not have established reliability, field testing was undertaken to assess test-retest repeatability over a short period. Repeatability is a major consideration in population monitoring as surveys are almost always periodically repeated.

The questions for six of the seven indicators proposed after the cognitive testing were field tested by ABS (ABS field testing). However, one of the indicators (Proportion of people with current asthma who use 'preventers' regularly) did not fall within the scope of the CATI TRG terms of reference. The questions for this indicator, as well as those for the indicator; 'Prevalence of current asthma', were tested by the New South Wales Health Survey Program at New South Wales Department of Health (NSW Health field testing).

The ABS field testing was done by a consortium of state health departments on a population with over-representation of people with asthma. Two versions (A and B) of a CATI survey were developed to include alternative versions of questions or response categories. Participants were interviewed on two occasions. On the first occasion, participants were randomly allocated to answer either Version A or Version B of the questionnaire. Approximately two weeks later, respondents were re-interviewed and were randomly allocated to answer either the same version again, or the alternate version. In this way, participants were randomly allocated to be interviewed as versions: AA, AB, BB or BA. Similar methodology was used by NSW Health.

In the ABS CATI module development component, 1,564 participants completed both interviews; a further 355 people completed interviews for NSW Department of Health.

Reliability was quantified using the kappa statistic for binary and categorical outcomes, and the intraclass correlation coefficient (ICC), for continuous measures (Fleiss & Cohen 1973). For categorical variables that were ordinal, ABS reported the weighted kappa. Values for reliability statistics were interpreted as in the *CATI field-testing survey of demographic asthma and diabetes modules* (Daly & Taylor 2003, 2004):

Less than 0.40: Poor reliability

0.40–0.59:   Fair reliability

0.60–0.79:   Good reliability

0.80–1.00:   Excellent reliability

Findings

Recommended questions

Table 1 summarises the recommendations arising from the process to identify valid and reliable questions for monitoring agreed asthma indicators according to the operational definition of each indicator.

Table 1: Recommended questions to monitor selected national asthma indicators

Indicator	Operational definition	Recommended questions	Response categories	Suggested for field testing
Prevalence of recent wheeze	Prevalence rate of wheeze or whistling in the chest in the last 12 months per 100,000 resident population	1: Have you had wheezing or whistling in your chest at any time in the last 12 months?	Yes No	Not required
Prevalence of ever having diagnosed asthma	Rate of people who report ever having been diagnosed with asthma by a doctor or nurse per 100,000 resident population	2: Have you ever been told by a doctor or a nurse that you have asthma? If yes,	Yes No	Yes
Prevalence of current asthma	Prevalence of people who have ever had asthma who have experienced symptoms of asthma (wheeze, shortness of breath or chest tightness) or taken treatment for asthma in the last 12 months per 100,000 resident population	2a: Have you had symptoms of asthma or taken treatment for asthma in the last 12 months?	Yes No	Yes
Rate of exacerbations of asthma	Rate of health care visits to general practices (GPs), ED and hospitals for acute asthma per year per 100,000 resident population	3: At any time in the last 12 months, was your asthma worse or out of control? If yes,	Yes No	Yes
		3a: In the last 12 months, how many times have you gone to a hospital or emergency department because your asthma was worse or out of control?	Number of times None / No times	Yes
		3b: In the last 12 months, how many times have you consulted a GP or local doctor because your asthma was worse or out of control?	Number of times None / No times	Yes

(continued)

3

Table 2 (continued): Recommended questions to monitor selected national asthma indicators

Indicator	Operational definition	Recommended questions	Response categories	Suggested for field testing
Number of people with current asthma who have an action asthma plan	Proportion of people with current asthma who have an individualised, written asthma action plan containing information about how to recognise, and what action to take in response to, the onset of an exacerbation	4: Do you have a written asthma action plan, that is, written instructions of what to do if your asthma is worse or out of control?	Yes No	Yes
Impact of asthma on quality of life[a]	The proportion of people with current asthma who report having poor health-related quality of life	5.2: Sydney Asthma Quality of Life Questionnaire (20 items)	Full questionnaire reproduced in Appendix A	Not required
	As above, but alternative for children	5.3: Paediatric Asthma Quality of Life Questionnaire (23 items)	Permission required for use from Elizabeth Juniper <www.qoltech.co.uk>	Not required
	As above, but where comprehensive measures cannot be included	5.1: During the last 4 weeks how often did your asthma interfere with your daily activities?	All of the time Most of the time Some of the time None of the time	Yes
Asthma control in people with current asthma	A composite indicator comprising measures of asthma severity and control among people with current asthma	6.1: In the last 12 months, has wheezing ever been severe enough to limit your speech to only one or two words at a time between breaths?	Yes No	Yes
		6.2: In the last 4 weeks, how often did you have symptoms of asthma; that is wheezing, chest tightness, coughing or shortness of breath?	Every day 3 or more times a week 1 to 2 times a week Less than once a week	Yes
		6.3: In the last 4 weeks, have you been woken by asthma or wheezing? If yes,	Yes No	Yes
		6.3a: In the last 4 weeks, how many nights have you been woken by asthma or wheezing?	Number of times None / No times	Yes
		6.4: See also questions 11 and 11a. For this indicator, these questions will be used to assess the use of reliever medications as an indicator of asthma control.		

(continued)

4

Table 3 (continued): Recommended questions to monitor selected national asthma indicators

Indicator	Operational definition	Recommended questions	Response categories	Suggested for field testing
Prevalence of smoking in the household where children with asthma reside[b]	The number of people aged less than 15 years with (a) current asthma or (b) wheeze in the last 12 months and who live in a household where one or more regular smokers resides	7: Which of the following best describes your home situation?	- My home is smoke free - People occasionally smoke in the house - People frequently smoke in the house	Not required
Prevalence of smoking in people with current asthma[b]	Proportion of people aged 18 years and over who have current asthma and who smoke any tobacco product weekly or more frequently	8: Do you currently smoke? If yes,	Yes No	Not required
		8a: Do you smoke at least once a week?	Yes No	Not required
Proportion of people with current asthma who use preventers regularly	Proportion of people with current asthma who use a preventer medication regularly (3 or more times a week).	9: What are the names or brands of all the asthma medications you have used in the last 4 weeks? If any medications identified:	Interviewers will have an updated list of currently available asthma medications. All responses in the list to be checked. Medications stated but not in the list to be recorded under 'other'	Yes
		9a: How often did you use {name of medication} in the last 4 weeks? (loop for each type of medication) For this indicator, these questions will be used to assess the frequency of use of preventer medications.	Every day 3 or more times a week 1 to 2 times a week Less than once a week Not at all	Yes

(a)   Only asthma specific health related quality of life measures have been included in this asthma module. However generic quality of life measures may also be used in many surveys that, when used in conjunction with the questions identifying people with current asthma, can be useful for comparing people with and without asthma.

(b)   These questions are not asthma-specific and, for asthma monitoring purposes, would need to be used in conjunction with the questions identifying people with current asthma. However the selected questions were included in the asthma module because they are able to measure the established asthma indicator consistently with its operational definition.

Evaluation of questions

Prevalence of recent wheeze

Operational definition: Number of people who report wheeze or whistling in the chest in the last 12 months per 100,000 resident population.

A number of questions were reviewed that had been used in previous surveys. The question proposed for this indicator had been used extensively in previous studies including the European Community Respiratory Health Survey and the International Study of Asthma and Allergies in Childhood. It had previously demonstrated good to excellent reliability (Kappa 0.73 to 0.95, (Burney et al. 1989)).

Recommendation: It was decided to recommend this question without further testing:

> **Have you had wheezing or whistling in your chest at any time in the last 12 months?**

Prevalence of ever having diagnosed asthma

Operational definition: Number of people who report ever having been diagnosed with asthma by a doctor or nurse per 100,000 resident population.

During the initial evaluation process, several questions were considered that had good reliability. It was determined that, in order to validly measure this indicator, it was important that it be established that asthma was diagnosed by a health professional (usually a doctor). A reliable question was identified 'Have you ever been told by a doctor that you have asthma?' However it was also noted that the ABS had recommended the inclusion of nurse diagnoses in order to be relevant to people living in remote areas, particularly Indigenous populations. During consultation, some experts raised concerns about the validity of including the 'nurse' component. The impact of nurse diagnosis was assessed in field testing, as follows:

Question	Kappa (95% Confidence interval (CI))
Version A	0.85 (0.79–0.91)
Have you ever been told by a doctor or a nurse that you have asthma?	
Version B	
1. Have you ever been told by a doctor that you have asthma?	0.87 (0.82–0.89)
2. Have you ever been told by a nurse that you have asthma?	Insufficient data

During field testing only one person out of 108 who did not answer 'yes' to Version B question 1 reported their diagnosis had been by a nurse in Interview 1 and three people in Interview 2. This was insufficient information to analyse the effect of including diagnosis by a nurse.

Both Version A and Version B question 1 had equally excellent reliability in this population. From the field testing, the words 'or a nurse' appeared to have little impact on the general population. However including it in general surveys has the advantage of consistency with surveys conducted in remote and Indigenous populations.

This supports adopting the ABS recommendation to include nurse diagnoses for all populations.

Recommendation: The question tested in Version A is recommended.

Prevalence of current asthma

Operational definition: Number of people who have ever had asthma who have experienced symptoms of asthma (wheeze, shortness of breath or chest tightness) or taken treatment for asthma in the last 12 months per 100,000 resident population.

The presence of current asthma is assessed among people who had answered 'yes' to the preceding question about ever having diagnosed asthma. A number of questions were reviewed by the working group, most of which had no data on reliability. Some questions that were reviewed did not have face validity as a measure of current asthma using the above operational definition. ACAM had previously proposed a single question to measure

this indicator that would establish whether individuals who had been diagnosed with asthma had experienced symptoms or treatment for asthma in the preceding 12 months. However, the reliability of this question had not been tested. The working group also expressed some concern about using a 'double barrelled' question and suggested separate questions for treatment and symptoms may be more reliable. It was resolved to test the single question proposed by ACAM against a two question version to establish reliability and validity.

During ABS field testing, two questions were tested in Version A of the questionnaire and one in Version B:

Question	Kappa (95% CI)
Version A	
1. Symptoms of asthma include wheezing, shortness of breath, coughing and chest tightness. During the last 12 months did you have symptoms of asthma?	0.61 (0.50–0.71)
2. Medications for asthma include inhalers, puffers, nebulisers and pills. During the last 12 months did you take medication for asthma?	0.82 (0.74–0.91)
Version B	
Have you had symptoms of asthma or taken treatment for asthma in the last 12 months?	0.70 (0.61–0.89)

In Version A, the kappa estimate for question 1 fell within the 'good' range and for question 2, the kappa fell within the excellent range. In Version B, the kappa estimate fell within the good range.

It was not possible to compare the agreement between these two versions using data from the ABS field testing as they were preceded by different versions of the question about diagnosed asthma. However, these questions were also field tested by NSW Health who reported that there was no difference between the single question (Version B) and the two questions (Version A) (convergent validity kappa estimate: 0.58 (0.37 to 0.79). Overall, these results suggest that Version B (one question) is similarly reliable to Version A but has considerably less respondent burden.

Recommendation: The question tested in Version B is recommended for the asthma module.

Rate of exacerbations of asthma

Operational definition: Number of health care visits to general practices, emergency departments and hospitals for acute asthma per year per 100,000 resident population.

Population-based surveys allow respondents to be asked about how frequently they visited the primary care physician for asthma in a given time period and for information on the nature of the visit, particularly whether the visit was for acute care, or routine management. While self-reported data may be an over- or under-estimation of the actual number of visits, the consumer or patient perspective on primary care activity derived from health surveys is a useful addition to the limited data derived from the providers.

The review of existing questions did not identify any that were suitable for measuring the operational definition of this indicator. Therefore, the review and consultation process resulted in the development of a series of new questions that ask about times when asthma was out of control and the number of times that the person went to their general practitioner or hospital emergency department because their asthma was out of control.

As these were new questions that did not have established reliability, the following questions were tested in ABS field testing:

Questions (Version B)	Kappa (95% CI)
1. At any time in the last 12 months, was your asthma worse or out of control?	0.62 (0.51–0.73)
2. In the last 12 months, how many times have you gone to a hospital or emergency department because your asthma was worse or out of control?	0.68 (0.57–0.78)
3. In the last 12 months, how many times have you consulted a GP or local doctor because your asthma was worse or out of control?	0.50 (0.43–0.57)

Version B asked if asthma was out of control at any time within the last twelve months *before* questions on Emergency Department and GP visits (as shown above). Version A differed only slightly, in that it asked if at any 'other' time was asthma out of control *after* questions about Emergency Department and GP visits. The Version B question had a higher kappa estimate (0.62) than that estimated for Version A (0.44, 95% CI: 0.32–0.56). This suggests the placement of the question in Version B is more reliable. Note, individuals who respond 'no' to question 1 should still be asked questions 2 and 3.

Question 2 had a kappa estimate within the good range and question 3 was within the fair range. The lower 95% confidence interval for question 3 was 0.43, just above the 0.40 cut point for poor reliability.

Recommendation: These questions are recommended for the asthma module in the order represented in Version B of the ABS field testing questionnaire.

Number of people with current asthma who have an asthma action plan

Operational definition: Proportion of people with current asthma who have an individualised, written asthma action plan containing information about how to recognise, and what action to take in response to, the onset of an exacerbation.

The working group reviewed the existing questions relevant to this indicator. Previously, state health surveys have asked about the possession of an asthma action plan, however testing undertaken through the CATI TRG found that these questions only had fair reliability. The National Health Survey has also included questions about asthma action plans, however these do not clarify what is meant by the term 'asthma action plan'. The working group, therefore, proposed a modification to questions that had been used in previous Australian surveys. It uses detailed wording to describe asthma action plans in order to provide a clear indication of what was meant by an asthma action plan. As these were new questions, they were submitted for testing.

Cognitive testing of these questions was made difficult because many of the test subjects did not know what an asthma action plan was. This is consistent with the low rates of possession reported in other studies (ACAM 2005a). Three questions were field tested in Version A of the ABS field testing and one question in version B.

The kappa estimate for question 1 was within the good range. There were too few responses to questions 2 and 3 to assess reliability (46 responses). Version B was virtually the same question as Version A question 1. The kappa estimate for this was also within the good range.

Question	Kappa (95% CI)
Version A	
1. Do you have an asthma action plan, written instructions of what to do if your asthma is worse or out of control?	0.62 (0.51–0.73)
2. Does it explain how to recognise when your asthma is worse or out of control?	Insufficient data
3. Does it say what to do when your asthma is worse or out of control?	Insufficient data
Version B	
Do you have a written asthma action plan, that is, written instructions of what to do if your asthma is worse or out of control?	0.69 (0.59–0.79)

Either Version A question 1 or Version B have good reliability with virtually no difference and there was insufficient data to draw conclusions about the two other questions asked in Version A. While all could be recommended, some surveys may only opt to use the first question because of respondent burden.

Recommendation: As there is no difference between Version A question 1 and Version B, Version A is recommended, although some surveys may not choose to use questions 2 and 3 from Version A.

Impact of asthma on quality of life

Operational definition: The proportion of people with current asthma who report having poor health-related quality of life.

The questions considered for the asthma survey module only related to asthma-specific quality of life, not generic health-related quality of life, which would also be commonly included in health surveys, but is beyond the scope of the asthma module. ACAM have previously reviewed and recommended widely used, reliable and well validated quality of life measurement instruments for measuring generic and asthma-specific health-related quality of life in population health surveys (ACAM 2004). In particular, this report recommended the *Sydney Asthma Quality of Life Questionnaire* (ICC 0.8 (Marks et al. 1992)) reproduced in Appendix A) and for children, the *Paediatric Asthma Quality of Life Questionnaire* (Juniper et al. 1996), (ICC 0.71 to 0.95 (Clarke et al. 1999; Juniper et al. 1996)), permission required for use, see <http://www.qoltech.co.uk>). These questionnaires provide comprehensive measurement of asthma-specific health-related quality of life and are recommended for use whenever possible.

However, it was recognised that comprehensive multi-item quality of life questionnaires, particularly those focusing on asthma, are not always acceptable in general population health surveys. The working group, therefore, further identified simple asthma-specific quality of life questions that had been used in previous general surveys. As these did not have data on reliability, the following were field tested by ABS:

Question	Kappa (95% CI)
Version A	
During the last 4 weeks did your asthma interfere with your daily activities? If yes,	0.42 (0.28–0.56)
a. How often did your asthma interfere with your daily activities?	0.58 (0.27–0.89) (weighted kappa)
Version B	
During the last 4 weeks how often did your asthma interfere with your daily activities?	0.58 (0.48–0.68)

Version A includes a filter question, that if answered 'yes' continues with question (a). The kappa estimate for the filter question fell within the poor range. The weighted kappa estimate for question (a) demonstrated only fair reliability, with the lower 95% CI also falling within the poor range.

In Version B, the filter question was omitted, and with this, the weighted kappa was somewhat better, within the fair range. These results suggested that the filter question contributed to less reliable responses.

Recommendation: The *Sydney Asthma Quality of Life Questionnaire* and the *Paediatric Asthma Quality of Life Questionnaire* are recommended. If these comprehensive measures cannot be included, the question in Version B is recommended.

Asthma control in people with current asthma

Operational definition: A composite indicator comprising measures of asthma severity and control.

A range of questions that could contribute information to measure this indicator were reviewed. Suggested questions were also circulated to experts for further input. This resulted in three questions which were then submitted for field testing because there were limited data on reliability. The first was suggested from the International Survey on Asthma and Allergies in Children (ISAAC), with the suggestion that this might also be extended to use in adults. Further questions were proposed that were modified from the European Community Respiratory Health Survey. The ABS field tested the following questions:

Question	Kappa (95% CI)
1. In the last 12 months, has wheezing ever been severe enough to limit your speech to only one or two words at a time between breaths?	0.47 (0.32–0.62)
2. In the last 4 weeks, how often did you have symptoms of asthma; that is wheezing, chest tightness, coughing or shortness of breath?	0.60 (0.52–0.67)
3. In the last 4 weeks, have you been woken by asthma or wheezing? If yes,	0.67 (0.52–0.82
a. In the last 4 weeks, how many nights have you been woken by asthma or wheezing?	0.78 (0.64–0.91) (weighted kappa)

In relation to questions about being woken by asthma, it was considered important to word these in such a way to specifically identify being woken from sleep rather than having difficulty getting to sleep.

The kappa estimate for the first question was within the fair range. For question 2, the weighted kappa estimate bordered on the fair to good range. Question 3 was a filter question with good reliability and the kappa estimate for the subsequent question was also good.

There are also a number of short questionnaires which have been widely used. These include the Asthma Control Questionnaire (Juniper et al. 2000, permission required for use, see <www.qoltech.co.uk>) and the Asthma Control Test (Nathan et al. 2004, permission required for use, see <www.qualitymetric.com>). These provide a more comprehensive measure of asthma control for use in clinical studies, however their use as a population based indicator of asthma control has not been assessed.

Additionally, information on the use of 'reliever' medications may also be useful for assessing asthma control (see questions in "Proportion of people with current asthma who use 'preventers 'regularly").

Recommendation: All three questions are recommended for population monitoring.

Prevalence of smoking in the household where children with asthma reside

Operational definition: The number of people aged less than 15 years with (a) current asthma or (b) wheeze in the last 12 months and who live in a household where one or more regular smokers resides.

A number of questions that related to this indicator were reviewed from previous surveys. The question proposed had previously undergone reliability assessment by ABS and was recommended for use (Daly & Taylor 2004). It had already demonstrated excellent reliability (kappa: 0.85 (95% CI: 0.78-0.91)). It has also been implemented in the South Australian Monitoring and Surveillance System and NSW Health Survey Program.

Recommendation: The following question is recommended without further testing:

Which of the following best describes your home situation?

My home is smoke free

People occasionally smoke in the house

People frequently smoke in the house

Prevalence of smoking in people with current asthma

Operational definition: Proportion of people aged 18 years and over who have current asthma and who smoke any tobacco product weekly or more frequently

'Smoking' needs to be defined in terms of frequency of smoking or quantity of cigarettes smoked. The definition of 'Tobacco smoking status' in the *National Health Data Dictionary* states that someone who smokes at least weekly is considered a regular smoker. This was the basis for the operational definition for this indicator, and it was, therefore, desirable to identify an appropriate question for this definition. It had been previously established that reliable national data for this indicator was already available in the questions on smoking implemented in the National Health Survey (ACAM 2005b).

Recommendation: The following questions from the 2004–05 National Health Survey are recommended without further testing:

Do you currently smoke? If yes,

Do you smoke at least once a week?

Proportion of people with current asthma who use 'preventers' regularly

Operational definition: Proportion of people with current asthma who use a 'preventer' medication regularly.

This is an important indicator to monitor. It is useful for both clinicians and policy makers in facilitating the delivery of optimal asthma management. Data from previous surveys has shown that up to 30% of people for whom 'preventers' were indicated were not using them appropriately (Marks et al. 2000).

Medications used in the treatment of asthma are complex and often used for more than one purpose. For example, Symbicort™ is now marketed for use as both a 'preventer' and a 'reliever'. People with asthma may not be able to identify whether the medication that they

are taking is a 'preventer'. The only valid way of describing treatment for asthma is to ascertain what medications people are taking and how frequently they are taking them. All previous questions identified during the review process have been limited in being able to effectively measure this indicator. Therefore, after consideration by the working group and other experts, new questions were proposed and submitted for testing:

The next questions are about medication that you may have used or taken for your asthma in the last 4 weeks. For this question it might be easier to answer if you have your asthma medications in front of you.

What are the names or brands of all the asthma medications you have used in the last 4 weeks?

How often did you use {name of medication} in the last 4 weeks? (loop for each type of medication)

The first question was tested by NSW Health. This question would then be followed up by the second question for each drug identified to indicate how often the medication was used. However, the second question has not been field tested at the time of this report due to the small number of participants in the NSW Health field study. Further testing is required to establish the reliability and validity of a range of alternative response options for this frequency question.

Analysis of these data requires classification of medications according to their mode of use and action. This should be done in consultation with experts who are familiar with current evidence and practice in this field.

Recommendation: These questions are recommended for inclusion in the asthma module:

What are the names or brands of all the asthma medications you have used in the last 4 weeks?

How often did you use {name of medication} in the last 4 weeks? (loop for each type of medication)

Conclusions

Asthma remains a significant health problem in Australia, with prevalence rates that are high by international standards. This has been recognised by its inclusion as a National Health Priority Area. It is essential that high quality data are available in order to address the burden of asthma.

This report provides the outcomes of an extensive and thorough process to establish reliable questions that can be used consistently in Australian health surveys to monitor national asthma indicators. If these questions are widely adopted and used over a reasonable time period, they will enable comparisons and pooling of data from different surveys and generate useful time trends.

The consistent use of standard asthma questions in population health surveys will improve our understanding about asthma, particularly as time series evolve and comparisons can be made across different surveys in Australia. It is anticipated that this will support policies that will reduce the asthma burden and improve the quality of life for people who have this disease.

References

ACAM (Australian Centre for Asthma Monitoring) 2004. Measuring the impact of asthma on quality of life in the Australian population. Cat. no. ACM 3. Available at <www.asthmamonitoring.org> and <www.aihw.gov.au>. Canberra: Australian Institute of Health and Welfare.

ACAM (Australian Centre for Asthma Monitoring) 2005a. Asthma in Australia 2005. Cat. no. ACM 6. Available at <www.asthmamonitoring.org> and <www.aihw.gov.au>. Canberra: Australian Institute of Health and Welfare.

ACAM (Australian Centre for Asthma Monitoring) 2005b. Enhancing asthma-related information for population monitoring. Cat. no. ACM 4. Available at <www.asthmamonitoring.org> and <www.aihw.gov.au>. Canberra: Australian Institute of Health and Welfare.

Baker DF, Marks GB, Poulos LM & Williamson M 2004. Review of proposed National Health Priority Area asthma indicators and data sources. Cat. no. ACM 2. Available at <www.asthmamonitoring.org> and <www.aihw.gov.au>. Canberra: Australian Institute of Health and Welfare.

Burney P, Laitinen L, Perdrizet S, Huckauf H, Tattersfield A, Chinn S et al. 1989. Validity and repeatability of the IUATLD (1984) bronchial symptoms questionnaire: an international comparison. European Respiratory Journal 2:940–5.

Clarke E, Sulaiman S, Tim CF, Chi SLP, Mital R & Bee-Wah L 1999. Pediatric asthma quality of life questionnaire: validation in children from Singapore. Asian Pacific Journal of Allergy & Immunology 17:155–161.

Daly A & Taylor A 2003. Population Health Monitoring and Surveillance: Question development and field testing. Field Test 1 Report: Asthma, demographic characteristics and diabetes. CATI Technical Reference Group, National Public Health Partnership.

Daly A & Taylor A 2004. Population health monitoring and surveillance: Question development and field testing. Field test 2 report: Alcohol consumption, cardiovascular disease and tobacco consumption. Perth: CATI Technical Reference Group, National Public Health Partnership.

Fleiss J & Cohen J 1973. The equivalence of weighted kappa and the intraclass correlation coefficient as measures of reliability. Educational & Psychological Measurement 33:613–19.

Juniper EF, Guyatt GH, Feeny DH, Ferrie PJ, Jaeschke R & Hiller TK 1996. Measuring quality of life in children with asthma. Quality of Life Research 5(1):35–46.

Juniper EF, O'Byrne PM, Ferrie PJ, King DR & Roberts JN 2000. Measuring asthma control: clinic questionnaire or daily diary? American Journal of Respiratory & Critical Care Medicine 162:1330–4.

Marks GB, Dunn SM & Woolcock AJ 1992. A scale for the measurement of quality of life in adults with asthma. Journal of Clinical Epidemiology 45(5):461–72.

Marks GB, Jalaludin BB, Williamson M, Atkin NL & Bauman A 2000. Use of 'preventer' medications and written asthma management plans among adults with asthma in New South Wales. Medical Journal of Australia 173(8):407–10.

Nathan RA, Sorkness C, Kosinski M, Schastz M, Li J, Marcus P et al. 2004. Development of the asthma control test: a survey for assessing asthma control. Journal of Allergy & Clinical Immunology 113:59–65.

Appendix

Sydney Asthma Quality of Life Questionnaire

The following preamble accompanies the questionnaire:

Thank you for taking this questionnaire. It is part of a research project to learn about the way asthma affects people's lives.

All your answers will be treated confidentially. The information will not be entered into your medical record.

What follows is a series of statements describing the way in which asthma (or its treatment) affects some people. You are asked to tick the response to each statement which closely applies to you over the past four weeks.

The following response options apply to each question: **'not at all', 'mildly', 'moderately', 'severely'** *and* **'very severely'.**

1. I have been troubled by episodes of shortness of breath. {B}
2. I have been troubled by wheezing attacks. {B}
3. I have been troubled by tightness in the chest. {B}
4. I have been restricted in walking down the street on level ground or doing light housework because of asthma. {B}
5. I have been restricted in walking up hills or doing heavy housework because of asthma. {B}
6. I have felt tired or a general lack of energy. {M}
7. I have been unable to sleep at night. {M}
8. I have felt sad or depressed. {M}
9. I have felt frustrated with myself. {M and C}
10. I have felt anxious, under tension or stressed. {M}
11. I have felt that asthma is preventing me from achieving what I want from life. {S and C}
12. Asthma has interfered with my social life. {S}
13. I have been limited in going to certain places because they are bad for my asthma. {S}
14. I have been limited in going to certain places because I have been afraid of getting an asthma attack and not being able to get help. {S and C}
15. I have been restricted in the sports, hobbies or other recreations I can engage in because of my asthma. {S}
16. I have felt generally restricted. {S}
17. I have felt that asthma is controlling my life. {S and C}
18. I have been worried about my present or future health because of asthma. {C}
19. I have worried about asthma shortening my life. {C}
20. I have felt dependent on my asthma sprays. {C}

The subscale to which each item contributes is indicated by the accompanying letter:
B = Breathlessness; M = Mood; S = Social; C = Concerns.