



How to get the most out of your surveys: Designing and using questionnaires

WORKBOOK

Developed by the University of NSW as part of the NSW Primary Health Care Research Capacity Building Program. Revised 2005



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Introduction

This workbook is designed to be used in conjunction with the development of a specific questionnaire for a project or program.

The workbook is divided into separate sections, covering a number of topics which need to be addressed when designing a questionnaire, including the deciding the type of information to be collected, how the questions should be worded and ordered, and the overall layout.

Each section is divided into three parts. The first provides a summary of the main points for each topic and the second covers either more detail about some of these points, or some provides some examples or tips relevant to each topic. The third part is a key question which you need to answer with respect to your own questionnaire.

This workbook has been developed as part of the NSW Primary Health Care Research Capacity Building Program, which is funded by the Department of Health and Aged Care. The NSW Primary Health Care Research Capacity Building Program aims to develop the capacity for doing and using the results of research and evaluation in general practice and primary health care. One of the major strategies being used as part of the Program is to provide education about research and evaluation to staff of divisions of general practice, community health services and other primary health care practitioners.

Questionnaires

A questionnaire is a **standardised**, **structured instrument** which is **administered in a standard way** to a desired sample of a population of interest. Questionnaires are best used when:

- there are a large number of respondents in many locations;
- you want fairly straightforward information;
- you want standardised data from identical questions;
- you are more interested in what occurs rather than why or how.

Other methods of collecting data from individuals such as semi-structured interviews or focus groups may be more useful if you are interested gaining a more in depth understanding of particular issues, or where particularly sensitive information is sought. These may also be useful when developing questionnaires by identifying issues of concern.

Questionnaires can be administered either by **mail**, **telephone** or **face-to-face** interviews. Table 1 compares the characteristics of these three modes of data collection. All of these methods have strengths and weaknesses, and the method you choose to collect the data will depend on the resources available and the purpose of the survey.

	Mail	Telephone	Face to face
Cost	Cheapest method per respondent	Low to medium cost per respondent	Most expensive method per respondent
Coverage	Can reach a widely scattered sample	Can reach a widely scattered sample, but only those with telephones or listed numbers	Depends on personal contact
Response rate	Lowest, especially with groups of low socioeconomic status	Medium response rate	Highest response rate
Standardisation	Standardised	Standardisation depends on interviewer	Standardisation depends on interviewer
Privacy for asking sensitive questions	Good, least likely to cause embarrassment	Some "anonymity" for giving replies	May be difficult
Probing	Does not permit clarification, misunderstandings will go undetected	Allows for probing, reduced misunderstanding and missed answers	Allows for probing, reduced misunderstanding and missed answers
Literacy	Requires literacy	Not restricted by literacy, but language skills important	Not restricted by literacy, but language skills important
Observation	No observation possible	Listen to respondent	Listen to and watch respondent

Key questions:

Notes

What is the purpose of collecting this information?
What is the best way of collecting the information you want?

Types of information collected in a questionnaire

There are four main types of information collected through questionnaires. These are:

- knowledge what people know;
- opinions, attitudes, beliefs, values what people think;
- behaviour what people do;
- attributes what people are.

Usually questionnaires will collect more than one type of information. With any questionnaire you need to be clear about its **purpose**. Clarifying this will determine the type of information collect, as well as the questions you include. The information or data collected in your questionnaire will be linked to your program needs and the outcomes, activities and indicators included in your business plan.

In most health questionnaires questions about attributes are usually in the form of asking about basic factual **sociodemographic information** such as age and gender, which is used for descriptive purposes or as part of the analysis. Questions about how a respondent thinks about an issue (such as opinions, attitudes, beliefs and values) are more difficult to formulate because they attempt to tap into issues that are often complex and possibly sensitive. These types of questions can be developed based on feedback from other more qualitative processes such as focus groups.

It is important to remember that all questionnaires are based on **self-report**, so that in many cases the information that is collected is what the respondent **says** they do, or know, or believe, rather than actual behaviour or knowledge.

Notes	
Notes	Examples of different types of information collected in a questionnaire
	Knowledge What is the recommended interval between eye checks for patients with uncomplicated diabetes? □ 6 months □ 1 year □ 2 years
	Opinions, attitudes, beliefs, values What do you think are the major issues affecting community health in NSW at the moment?
	Behaviour Have you initiated the development of a care plan for any of your patients? ☐ Yes ☐ No
	Attributes When did you graduate from university?

Key question:

What type of information do you want to collect with this questionnaire?

Types of questions used in a questionnaire

Broadly there are two types of questions used in surveys:

- open-ended questions no answer choices, respondents are able to answer in their own words;
- closed-ended questions answers structured so they only fit into previously established categories.

Questions can also be **partially closed**, where respondents can choose from fixed categories and add their own response if desired. The advantages and disadvantages of different types of questions are shown in Table 2.

Choice of type of question will depend on the subject matter. For example, clinical and epidemiological studies may require quick coding methods and minimal detail, therefore closed-ended questions may be more suitable. Social assessments or needs assessments may require a greater appreciation of individual differences or underlying issues and open-ended questions may be needed. Open-ended questions are often useful at the beginning of studies to develop response categories for closed-ended questions.

Table 2: Ad	Table 2: Advantages and disadvantages of different question types					
	Advantages	Disadvantages				
Open questions	 useful for exploratory research to generate range, meanings, new ideas very flexible – can achieve depth, gives respondents freedom validity can be high use to formulate questions useful to solicit suggestions and clarify positions useful when the expected number of respondents is low 	 requires some skill in asking the questions, and in interpreting the results answers often lack uniformity – requires some skills to categorise, count and compute more time consuming to fill in and time consuming to analyse, particularly with a large number of respondents can be unsuited to mail surveys illegible handwriting 				
Closed questions	 useful for statistical analysis – easy to count and compute easy to interpret (if questions are clear) neat quick reliability can be high useful is a large number of respondents expected 	 may not have catered for all possible answers questions may not be relevant, or important requires pre-testing and prior open-ended research to ensure choices offered are the relevant ones 				
Partially closed	useful if options overlooked	"other" category often yields little				

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Key question:

Notes

What type of questions could be used in this survey to get the information you want?

Examples of different types of questions	
 1. A statement What do you think about the quality of the discharge summaries from the local hospital? 2. A list Please list the issues you are feel are the most important for your organisation to address in the next 12 months: 	 7. Rank order Please number the following health problems in the community in order of importance. 1= most important, 2= second most important, 5=least important. alcohol and drug dependence youth suicide motor vehicle accidents pollution depression and mental illness
3. A yes/no answer	8. Likert Scale (respondents asked to rate the extent to which they agree or disagree with a statement) Complementary therapies are a valid management option if used appropriately
Have you ever conducted a literature search as part of the development of a project? Yes No	Strongly Agree Neutral Disagree Strongly agree disagree
 4. Agree/disagree with a statement Do you agree or disagree with the following statement? Community health is in danger of being absorbed by hospital acute care services. □ Agree □ Disagree 	9. Rate items How significant would you rate the following factors in determining whether a GP joins a corporate practice? Not Very significant significant increased income 1 2 3 4 5 6 7 decreased workload 1 2 3 4 5 6 7 decreased paperwork 1 2 3 4 5 6 7 less autonomy 1 2 3 4 5 6 7 pressure to refer 1 2 3 4 5 6 7
 5. Multiple choice, with one possible answer What is the most common reason for attendance at a general practice? diabetes asthma hypertension 6. Multiple choice, allowing multiple responses Which of the following symptoms have you experienced in the last month?	10. Guttman scale (respondents select from a cumulative scale – ie. if they choose c, it should follow that they have achieved a+b) What is the highest level of education you have completed? ☐ School certificate ☐ Higher school certificate ☐ Undergraduate degree ☐ Postgraduate degree
 headache dizziness fever vomiting inability to sleep skin rashes shortness of breath 	11. Graphical scale Please indicate the extent to which you agree with the following statement: Patients should be allowed to determine the pattern of their day in hospital
	Strongly agree Strongly disagree

Question wording

Questions need to be **simple**, **clear** and **precise**. Poorly worded questions can lead to ambiguity and misunderstandings, and you cannot then be sure that respondent has interpreted the question in the same way as it was meant. It is important to get the working of questions right, otherwise the whole survey process can be wasted.

Where possible you should use **standardised** or previously used questions. These are valuable because they have often been validated, and can also be used for comparative purposes. In many cases specific evidence-based measures will exist which can be used in your questionnaire, which increase the validity and potential uses of the data collected.

Table 3 shows examples of common problems with the wording of questions.

Notes	Other tips about wording questions
	 Avoid asking the same question twice in a different fashion. Be sure to include sufficient options in the answer (or provide "other" option). Use as little technical jargon as possible. Include only those questions that are absolutely necessary. Use short sentences which convey a single item of information rather than long sentences. Don't use and/or. Don't ask beyond the competence of the people being surveyed. Avoid vague words, eg. fairly, about, few. Use short words rather than longer and more complex ones, eg. "clear" instead of "intelligible", "main" instead of "principal".

Key question:

Are the questions in this survey worded appropriately?

Table 3: Examples of cor	nmon problems with question wording		
Avoid the use of leading	Leading: Do you prefer being examined by a doctor of your own sex?		
questions where the	Better: Would you rather be examined by a male or female doctor, or doesn't it		
question suggests an	matter which?		
answer or prompts the			
respondent to give a			
particular type of answer			
Avoid vague questions	Vague: Taken altogether, how happy are you with your stay in hospital?		
	Better: Taking all things together, how would you describe the care you		
	received in hospital?		
Avoid biased questions	Biased: Do you think that pornography is vile and disgusting?		
	Unbiased: What do you think about pornography?		
Avoid questions some	Objectionable: How many times per week do you drink alcohol?		
respondents might find	Unobjectionable: Which of the following best describes how may alcoholic		
objectionable or sensitive	beverages you drink per week? none / 1-2 / 3-5 / > 5		
Don't make unwarranted	Presumptive: Do you use electronic decision support software?		
presumptions in the	Better: Do you have a computer on your desk?		
questions	Does it have electronic decision support software?		
	Do you use it during the consultation?		
Avoid hypothetical	Hypothetical: Would you use a breast screening mobile unit if one was set up		
questions	locally?		
1	Better: Do you get your breasts screened regularly?		
	Do you travel outside the local area to get them screened?		
	Would you prefer to stay in the local area to get your breasts screened?		
Do not include two	Double question: Have you had a neck ache or back ache since your last		
concepts in the one	visit? Yes / No		
question	Better: Since your last visit have you had: neck ache / back ache / both		
Ask positive rather than	Negative: Doctors should not be required to see patients outside surgery		
negative questions	hours: Agree / disagree		
	Positive: Doctors should be required to see patients outside surgery hours:		
	Agree / disagree		
Make sure the wording is	Ambiguous: Would you consider that it is very often, frequently, seldom or		
completely unambiguous	hardly ever that you visited an out-patient clinic?		
	Better: How often do you visit an outpatient clinic: very often, frequently,		
	seldom, hardly every		
For questions requiring	Time frame too broad: Do you eat vegetables regularly?		
recall have as narrow a	Better: Did you eat any vegetables yesterday?		
reference range as			
possible			
Don't make questions too	Too complex: On a scale of 1 to 10, please rate for each of the 12 categories		
complex	listed below, your level of knowledge, confidence and experience.		
	Better: Please complete the table below about your level of knowledge,		
	confidence and experience in area of the following areas.		
	g areas		

Notes

Ordering questions

The sequence of the questions should be **logical** to the respondents, and **flow smoothly** from one question to the next. Questions tend to flow from:

- general to specific;
- impersonal to personal;
- easy to difficult.

The sequence of questions should not lead the respondent towards "inevitable" answered, where the answers to later questions are effectively predicated on the answers to earlier ones. **Sensitive questions** should not be placed at the beginning of the questionnaire. They should be placed in a section where they are meaningful in relation to the surrounding questions. This can act as buffer to help the respondent feel more comfortable with the sensitive questions. **Filtering** can be used to ensure that the respondents answer only those parts of the questionnaire that are relevant. Filter questions direct respondents to skip questions which do not apply to them.

The quality of the data collected will be maximised if the wording and order of the questions are designed to motivate respondents and facilitate recall. This includes avoiding questions which are difficult to answer, time-consuming, embarrassing or personally threatening.

Examples and tips about ordering questions

Filter questions

Unfiltered question: If you use a medical software program, which one do you use? Filtered questions:

Do you use a medical software program? No – jump to next question Yes – which one do you use?

Different topics

- Questions relating to a specific topic should be grouped together.
- Complete questions on one topic before another topic.
- Use a transitional question of passage when moving to a new topic.

Placement of background questions

- No fixed rules about whether questions about sociodemographic variables should be at the end or the beginning.
- If the questions about education, income or age are likely to be sensitive, but the issues being explored in the questionnaire are not, them they should be placed at the end.
- If the questionnaire is about more sensitive issues, they should be placed at the beginning.

Notes			

Key question:

Are the questions ordered appropriately to lead the respondent through the questionnaire?

Questionnaire layout

The layout of the questionnaire is just as important as questionnaire wording, and again must be **clear** and **simple**.

Notes	Tips about questionnaire layout
	The overall visual impact is particularly important for arousing the interest of the respondent with self-administered questionnaires.
	The questionnaire should be professionally designed – or of sufficient quality to look like it has been.
	 Enough space for writing should be provided with open-ended questions.
	There should be enough blank space so the questionnaire does not look cluttered.
	The typeface should be large enough to read without eyestrain. Different sizes and styles such as bold or italic can be used for contrast, but overuse of font styles should be avoided.
	There should be an introductory page or section giving the title of the study or program, name of the organisation, general purpose of the survey and instructions on the general method of responding to the questions.
	 Instructions should be clearly stated and consistent, eg. use of ticks for closed-ended questions throughout.
	 Each question should be numbered to avoid questions being omitted and to facilitate filtering.
	Sub-parts of questions should be indented below the main question.
	 Questions and answers should never be split across pages.
	 Always include a "Thank you" at the end of the questionnaire.

Key question:

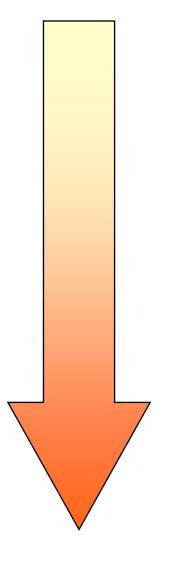
Does the layout of the questionnaire need to be reviewed?

Summary: Conducting surveys in practice

A possible general process for designing a questionnaire is listed below. It includes the topics covered in this workbook, as well as some other steps not included here:

- 1. Decide what information you need: depends of aims and objectives of your program or study;
- 2. Select items for inclusion: check that each item can be related directly to your program or study;
- **3. Design the individual questions:** considering issues such as the type of question, and how the survey will be administered;
- 4. Compose wording: questions should be clear and precise;
- **5. Design layout and presentation:** making sure the layout encourages the respondent to complete the questionnaire:
- 6. Think about coding: code questions in advance if possible;
- 7. Prepare a first draft and pretest: circulate to a small number of people in the first instance;
- **8. Pilot and evaluate:** pilot with a small sample of your target population;
- 9. Perform the survey.

Designing questionnaires is only a small part of conducting a survey. There are many other issues that also need to be addressed before you can be sure that the data and information you have collected is useful. The steps required in conducting a questionnaire are illustrated below.



Define purpose of the survey: why is it being done and how will the results be used?

Determine what population will be surveyed

Decide on a sampling strategy, including the required sample size and the sampling frame, and how to deal with non-response

Decide on data collection methods: mail, interview, telephone, other?

Design the questionnaire

Pilot and modify questionnaire in response to feedback

Examine and consider the response rate and potential bias

Process data prior to analysis: coding, data entry, cleaning

Analyse data, including summarising data and conducting appropriate statistical tests

Interpret the results of the analysis, taking into account potential confounders and sources of error

Present and use the results

Notes		