

## ***The NSNS***

### ***Introduction***

Understanding consumers' views is essential if any service is to be developed or improved. The importance of understanding what patients think about health care was clearly expressed in the United Kingdom Government's White Paper 'Working for Patients', but there is still a gap between the objective of planning and delivering care 'in a way which aims to meet the expressed wishes of patients' and the reality of doing so (Secretaries of State for Health, 1989).

In nursing, developments such as the nursing process (Yura and Walsh, 1978) and primary nursing (Pearson, 1988) have as central tenets patient participation and choice in care, and the subsequent evaluation of the effectiveness or otherwise of care received. Patients' views of their care, summarised as satisfaction, are the most widely used measure of patient outcome. Patient satisfaction is also generally considered to be a legitimate measure of nursing quality: indeed, it has been described as the 'acid test' which any system of care delivery must pass in evaluating effectiveness (Richards and Lambert, 1987). Measuring patient satisfaction forms an integral part of nursing quality assurance initiatives (Moore and Thompson, 1986; Lees et al, 1987). However, our reviews of studies measuring patients' satisfaction with nursing (Bond and Thomas, 1992; Thomas et al, 1995; Thomas and Bond, 1996) reached the conclusion that there was no sensitive, valid and reliable measure of patient satisfaction with nursing developed from patients' perspectives.

As a consequence, in 1993 we began a study which aimed to develop psychometrically sound measures of patients' experiences of and satisfaction with nursing from a patient rather than a professional perspective. These measures are termed the Newcastle Satisfaction with Nursing Scales (NSNS). They are intended for use by managers in quality assurance initiatives and by ward nurses and researchers to evaluate nursing interventions. This manual describes the development, application and use of the NSNS. Potential uses are suggested in Figure 1.

**Figure 1: Potential Uses of NSNS**

- Comparing patients' experiences and satisfaction between wards, clinical directorates and hospitals
- Longitudinal comparisons, e.g. before and after a planned or unplanned intervention
- As an outcome measure in randomised trials and other effectiveness studies
- Setting ward or hospital standards  
e.g. a ward could aim for 85% of patients having a positive 'experience' on questionnaire items
- Auditing standards
- Measuring possible improvements in nursing care following, for example, the introduction of a 'named nurse' initiative.  
This could be done by comparing median experience and satisfaction scores, but also individual questionnaire items where a change is expected, e.g. Experience scale items 3, 6 and 17.

As with other scales measuring patient satisfaction, our scales provide relative, not absolute values. It is not possible, therefore, to attribute a universal or absolute interpretation to an observed score. The scales do, however, provide information about nursing quality from patients' perspectives. In addition to overall scores, specific items in the scales, for example questions regarding information, can be used to monitor particular aspects of nursing practice. Scale scores could also be monitored over time in order to build up population norms (cf. Black and Sanderson, 1993).

***Development of the NSNS***

Development of the scales is described elsewhere (Priest et al, 1995; Thomas et al, 1995; Thomas et al, 1996). Briefly, a structured self-completion questionnaire was developed by asking patients, through individual and focus group interviews, what they perceived was good or bad quality nursing. Major themes emerging related to the availability and attentiveness of nurses, the degree of individual treatment afforded to patients, the provision of reassurance and information and the openness or informality of nurses. Other themes were mentioned less frequently: these were nurses' professionalism and knowledgeability, ward organisation and the ward environment. Following analysis using the *NUDIST* software package (Richards et al, 1992), the Newcastle Satisfaction with Nursing Scales (NSNS) were developed from these concepts. The questionnaire went through two phases of refinement and item reduction (Priest et al, 1995) to produce the final version. Data on

validity and reliability are included in the publications on the development of the instrument ((Priest et al, 1995; Thomas et al, 1995; Thomas et al, 1996).

The scales are incorporated into a self-completion questionnaire which comprises three sections:

1. Experiences of nursing care scale

A series of 26 statements on aspects of nursing (outlined above) are presented and respondents are asked to indicate how true each is of their own experience, using a seven-point Likert scale (Figure 2). To avoid affirmation bias, a mixture of positively and negatively worded statements (15 and 11 items respectively) are included. Responses across all items are summed and transformed to yield an overall 'experience score', with a potential range of 0-100, where 100 represents the best possible experience.

2. Satisfaction with nursing care scale

Respondents rate their satisfaction with various aspects of nursing care, using a five-point Likert scale (Figure 3). This section comprises 19 items. Responses across all items are summed and transformed to yield an overall 'satisfaction score' of 0-100, where 100 denotes complete satisfaction with all aspects of nursing care.

3. Demographic information

The final section elicits information about the patient and details of the hospital stay.

## ***How to use the NSNS***

### ***Scope of the NSNS***

Although the NSNS is used to collect data from individual patients, it was developed for analysis **at ward level**, rather than at patient level. It can be used to compare groups of patients either at different time points (e.g. before and after a change in nursing practice) or groups of patients in different wards, hospitals or both. It should not be used to compare individual patients' scores. Furthermore, the NSNS was primarily designed to assess differences in overall scale scores (i.e. experience and satisfaction scores). It was not designed to detect statistically significant differences at the level of individual questions or items. Descriptive comparisons (e.g. between wards) at the

level of individual items are appropriate, but formal statistical tests should not be applied at this level.

### ***Obtaining permission to use the NSNS***

There is no fee for using the NSNS. However, permission to use the NSNS should be sought from the development team. To obtain permission, please e-mail Elaine McColl ([e.mccoll@ncl.ac.uk](mailto:e.mccoll@ncl.ac.uk)) with details of how you wish to use this instrument. The developers should also be acknowledged in any publications (including theses) of studies in which the NSNS was used. A form of words like 'We would like to thank the NSNS team at the University of Newcastle upon Tyne for their permission to use the NSNS questionnaire in this study' would be adequate.

### ***Adapting the NSNS for use in new settings and cultures***

The NSNS was originally developed for use in acute in-patient settings amongst English speakers in the United Kingdom. It has subsequently been adapted for use in other settings and countries, and translations to a number of European languages have been made. However, such cross-cultural adaptation is not to be undertaken lightly. Consultation with the development team prior to adaptation is advised. Please contact Elaine McColl ([e.mccoll@ncl.ac.uk](mailto:e.mccoll@ncl.ac.uk)) to discuss any adaptation you may be planning to make.

### ***Producing the questionnaires***

An electronic version of the NSNS (Microsoft Word format) may be downloaded from

<http://www.ncl.ac.uk/chsr/publications/nsnqst.doc>

After printing out a paper version, the questions on the example page need to be circled before it is reproduced to illustrate how to answer the questions. Two blank pages have been deliberately inserted. This is because we recommend that the questionnaire should be produced as a booklet; this format is more attractive to respondents and is easier for them to handle. We therefore recommend that the questionnaire should be copied on A3 paper, folded and stapled to make an A4 booklet. We suggest that white or pastel coloured paper should be used as deep and bright tints are harder on the eye.

It is very important that the questions in the NSNS are presented as we have developed and tested them. No changes should be made to question wording, order or layout. Some users may wish to include additional questions concerning issues of particular relevance to their own circumstances, for example, about discharge arrangements. To avoid confusing respondents, we recommend that a format similar to that of the existing questions should be used. However, it is important to emphasise that the experience and satisfaction scales have been tested and validated in their current form. They could be invalidated by the addition or deletion of other items. If users wish to add their own questions, we therefore recommend that these questions are added to Section 3.

### *Sample size*

We deemed that a difference of at least five points (on a scale of 0 to 100) between wards in average scores on the 'experiences of nursing' scale would indicate a difference in nursing care quality. Sample size calculations indicate that an achieved sample of 80 patients per ward is required in order to detect a difference of this magnitude with 80% power. Typical response rates are of the order of 80%. Hence, in order to achieve a sample of 80 patients, a minimum of 100 patients may need to be approached. If a lower response rate is expected, more patients will need to be approached. Anticipated rates of patient throughput will indicate the length of time required to achieve this sample size.

### *The sample*

To be eligible for recruitment, patients should:

- be aged 18 years or older
- be on the point of discharge or transfer from the ward
- have been in the ward two nights or more
- be able to read and understand English
- not be too confused or ill to complete the questionnaire.

In general surveys, no further selection criteria should be applied. In surveys with a specific aim, additional eligibility criteria might be required; for example, if a quality improvement initiative was aimed at patients in a particular age group, then the survey might be confined to patients in that age group. Any additional eligibility criteria should be clearly and explicitly defined before any patients are recruited. Once the eligibility criteria have been set, a complete series of eligible

patients should be approached; if users of the questionnaire or ward staff are selective about who to include in the study, there is a danger of biasing the findings.

### ***Ethical treatment of respondents***

The purpose of the survey and the time it takes to complete the questionnaire should be clearly stated to respondents in a *covering letter* (see the end of this document for an example). Patients should not be coerced to participate and should be given ample opportunity to make an informed and considered choice. However, in a survey using self-completion questionnaires, return of the questionnaire is generally accepted as indicating informed consent. There is usually no need to have a separate consent form.

Both in the covering letter and in the initial invitation to participate in the survey, respondents should be guaranteed *confidentiality*. Confidentiality means that the people analysing the questionnaires will be able to identify respondents from their questionnaire survey number, but will not reveal their identity to anyone else. Completed questionnaires should be stored securely and, if there is written output from the project, careful attention should be paid to whether individual respondents could be identified from this.

### ***Distributing questionnaires***

Patients should be given the questionnaire on their day of discharge or transfer to another ward or hospital. If possible, questionnaires should be given to patients sufficiently in advance of the discharge time to allow for their completion prior to departure. They should be distributed by an independent person, rather than a member of ward staff.

Wherever possible, patients should complete the questionnaire unaided and in private. Friends, relatives and other patients should be discouraged politely from contributing. For patients unable to complete the questionnaire themselves (e.g. because of difficulties in reading or writing), the person distributing the questionnaires should assist by reading out questions and possible responses to patients and noting their answers on the questionnaire.

***Returning questionnaires***

Together with the questionnaire, we recommend that patients should be given a *reply paid envelope*; these can be printed relatively cheaply and the cost of postage is only incurred if the envelope is actually used. This enables patients who do not have time to complete the questionnaire before leaving the ward to complete it at home and return it by post. Otherwise, questionnaires can be returned to a clearly marked box on the ward.

Some users may wish to include additional questions about discharge. In these circumstances it would be more appropriate to invite respondents to complete the questionnaire at home and return it by post, using the reply paid envelope.

***Registering questionnaires***

A register should be created of all patients asked to participate in the survey. This should include the patient's name, age and gender, and whether they agree to participate. For patients who do not agree to participate, the reason(s) for refusal should be noted. Each patient agreeing to participate should be assigned a unique identifying number which should be written on the questionnaire and in the register.

The identification number should be written in the top right hand corner of the questionnaire as shown below:

<b>Ward code</b>	<b>Boxes 1 and 2</b>	1 <input type="text" value="0"/> <input type="text" value="1"/> ward
<b>Hospital code</b>	<b>Box 3</b>	3 <input type="text" value="2"/> hospital
<b>Patient code</b>	<b>Boxes 4 - 6</b>	4 <input type="text" value="0"/> <input type="text" value="0"/> <input type="text" value="8"/> patient
<b>Time of questionnaire administration</b>	<b>Box 7</b>	7 <input type="text" value="2"/> time

The ward code may be the actual ward number (e.g. 44).

Alternatively, a code number may be used (e.g. if three wards within one hospital are to be studied, they may be arbitrarily designated 01, 02 and 03, regardless of the actual ward number). In entering this data, if the number is less than 10, place a '0' in box 1, e.g. 01.

In surveys spanning more than one hospital, a unique code number should be arbitrarily assigned to each hospital. For a survey within a single hospital, the number 1 could be used. In a within-hospital survey, this variable could be used to distinguish between clinical directorates (e.g. the surgical directorate could be designated as 'hospital' 1 and the medical directorate as 'hospital' 2).

Patient code numbers should be assigned consecutively, starting at 001. If the patient code number is less than 100, place '0's in unused boxes, e.g. 008.

For a study at a single point in time, the code 1 can be used for the time period. For a before-and-after study, it would be natural to designate the first time period 1 and the second 2. Similarly, for surveys in successive time periods (e.g. every quarter), each period can be given a consecutive number.

The register should be used for logging returned questionnaires. It may be useful to record the date on which questionnaires are completed (from the last page of the questionnaire) and the route by which they are returned (i.e. through the box on the ward or by post).

At the beginning of the survey, a decision should be taken on how large a time gap between distribution and completion of the questionnaire is acceptable. The longer after discharge the questionnaire is completed, the greater the risk of recall bias. Accepting that some patients will complete their questionnaires at home and allowing for the vagaries of the postal system, an elapsed time of a fortnight at most would seem appropriate if only in-hospital experiences are sought. If views on discharge arrangements are also required, a longer time period for response may be appropriate. The important thing is to determine a limit at the outset of the survey and then to abide by that limit. Questionnaires for which the elapsed time between completion and distribution exceeds this agreed limit should be treated as non-respondents.

The register can also be used to determine the response rate (the proportion of those approached who return a completed questionnaire) and to compare the age and gender of respondents and non-respondents (who may be further divided into those who refuse and those who agree to participate

but subsequently do not return a questionnaire); these comparisons will enable a decision to be made on how fully the achieved sample represents the underlying 'population' of patients.

### ***Checking returned questionnaires***

When questionnaires are returned, they should be checked for clarity and completeness before the data are entered on computer. Questionnaires returned completely blank should be logged in the register as non-respondents.

In sections 1 and 2 of the questionnaire, respondents will occasionally be found to have circled two responses for the same question. If it is clear which is their preferred response (for example, if one response is scored out), highlight the correct response as the data to be entered on the computer. If it is unclear which of the two responses is correct, make a note beside that question that the response should be treated as 'missing data', and hence entered as a blank on the computer and treated as an invalid response. In section 3, respondents will occasionally reply in words where a numerical response is required (for example, in the question on age). In such circumstances, score out the words and write in the numerical equivalent to facilitate data entry.

### ***Analysing qualitative comments***

Questions 8 and 9 in Section 3 invite patients to write their own comments about their nursing care or any other issue. Depending on how much time is available, there are two approaches to using this data:

#### ***A general approach***

If there is not much time available, these responses can simply be read through rather than subjected to systematic analysis. It is hoped they will provide a general feel of the opinions of the patients and pick up any dissatisfaction which closed questions have failed to detect. You may want to keep a 'log' of the most pithy and pertinent comments.

#### ***A systematic approach***

As you read through the comments you will notice certain themes emerging. Organise the comments by grouping them together by theme. For example, broad themes might include comments relating to the provision of information and those relating to the attentiveness of nurses; each might be further subdivided into positive, neutral and negative comments. The patient's

identification number should be written beside each comment in case, for example, several negative comments come from one ward or hospital.

### ***Entering data on computer***

Data from the questionnaires needs to be entered into a fixed format data file with a single record per case. They may then be analysed using a statistical package (e.g. SPSS) or spreadsheet (e.g. Excel). The correct columns into which data are to be entered are shown below:-

<b>Variable</b>	<b>Columns</b>
Ward	1-2
Hospital	3
Patient	4-6
Time period	7
Section 1, question 1	8
Section 1, question 2 ...	9
Section 1, question 26	33
Section 2, question 1	34
Section 2, question 2 ...	35
Section 2, question 19	52
Section 3, question 1	53
Section 3, question 2	54-55
Section 3, question 3, part one	56
Section 3, question 3, part two	57-58
Section 3, question 4	59-60
Section 3, question 5	61
Section 3, question 6	62
Section 3, question 7	63

***Computing the experience score***

The experience of nursing score is derived from the responses to Questions 1-26 in Section 1 of the questionnaire. For each respondent, the score is computed as follows:-

1. Recode questions 1-26 as follows:-

Questions	Original value	Recoded value
1, 5, 6, 9, 10, 11, 12, 16, 17, 18, 21, 23, 25, 26	1	0
	2	1
	3	2
	4	3
	5	4
	6	5
	7	6
2, 3, 4, 7, 8, 13, 14, 15, 19, 20, 22, 24	1	6
	2	5
	3	4
	4	3
	5	2
	6	1
	7	0

2. Sum the recoded responses across all valid responses (a valid response is one where the respondent has circled only one of the numbers 1 to 7; an invalid response is where the respondent has circled two or more numbers or has not circled any).
3. Divide the sum obtained at step 2 by the total number of valid responses.

4. Divide the result obtained at step 3 by six and then multiply by 100.

***Computing the satisfaction score***

The satisfaction with nursing score is derived from the responses to Questions 1-19 in Section 2 of the questionnaire. For each respondent, the score is computed as follows:-

1. Recode all responses as follows (1 = 0, 2 = 1, 3 = 2, 4 = 3, 5 = 4).
2. Sum the recoded responses across all valid responses (a valid response is one where the respondent has circled only one of the numbers 1 to 5; an invalid response is where the respondent has circled two or more numbers or has not circled any).
3. Divide the sum obtained at step 2 by the total number of valid responses.
4. Divide the result obtained at step 3 by four and then multiply by 100.

*Sample covering letter*

Dear Patient

**YOUR VIEWS OF NURSING CARE**

We are always keen to develop better ways of finding out what patients think of their care in hospital. We have designed a questionnaire to do this and would be very grateful if you would take some time to complete it. We are asking all patients leaving this ward after a stay of two nights or more to help us with this work. Completing the questionnaire will take approximately a quarter of an hour of your time.

Your answers will be treated confidentially, so please do not write your name anywhere on the questionnaire.

We would be very grateful if you could help us by completing the questionnaire before you leave the ward and putting it in the post-box at the Nurses' Station. We hope you will find it interesting and easy to complete.

Thank you very much for your help.

Yours sincerely

## References

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