The Quantification of Patient Satisfaction

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Abstract

It is increasingly recognised that patients and their carers should be given a voice in the assessment of the quality of the provision of services that are offered to them within the NHS. The most typical method of eliciting patient satisfaction is by a questionnaire, typically administered after in-patient treatment in a hospital (but not after other episodes of treatment).

However, there are severe doubts whether such traditional methods measure anything other than 'hotel services' and their construction reflects the interests of the producers rather than the consumers of healthcare. An alternative approach may be to utilise standard methodologies such as the well-known **SERVQUAL** methodology and this paper reports on a **SERVQUAL** analysis of samples of outpatients in Leicestershire,UK and a comparable sample in Finland.

The **SERVQUAL** mode of analysis still reflects concerns which are essentially producer-led. The quest is therefore to determine those issues of satisfaction which are patient-oriented and this points the researcher in the direction of qualitative research methods such as focus groups and unstructured interviewing/questionnaires. However, these themselves could benefit from levels of quantification such that they could be used as a managerial tool for the improvement of the quality of service. Suggestions are made for ways in which the quantification of patient satisfaction measures may be refined.

The Quantification of Patient Satisfaction

Introduction

Whilst the tradition of 'listening to the patients' is almost as long as the NHS itself, the prominence given to the patient satisfaction survey can be traced back to the Griffiths report [DHSS,1983] which encouraged the use of market research to obtain consumers' views. Purchasing authorities have been urged to pay heed more heed to locally expressed views of the quality of the service since the early 1990's [NHSME,1992]. It has also been recognised for about the same length of time that in judging the quality of hospital services, the judgements of patients alongside their clinicians is an intrinsic part of the quality measurement process [Batalden and Nelson, 1990].

Patient satisfaction surveys are often seen as the natural outcome of the increase in consumerism, particularly as stimulated by Griffiths. However several authors point out that patient satisfaction surveys are used to fulfil other multiple objectives including Quality Audit (QA) of the quality of medical and nursing care on the one hand and the derivation of an outcome measure for the evaluation of care and the organisation of services on the other [Scott and Smith, 1994; Avis, Bond and Arthur, 1995].

Dissatisfaction with the conduct of the patient satisfaction survey

There is some concern, expressed cogently by Carr-Hill [1992] after his review of some 300 patient satisfaction surveys that the majority of them are producer-led

> Once the fieldwork is over, there is considerable temptation to forget that what are confidently described as respondents' views are only their replies to questions devised by the researcher and not necessarily the patients' own views and priorities. Thus it is commonplace to observe that health service policy has been steered by providers' perceptions and definitions of good practice.
>
> [Carr-Hill, 1992, p. 245]

Carr-Hill is also concerned with the many methodological inadequacies which he details as a result of his survey. These range from problems with the framing of the questions, the avoidance of evaluation of clinical practice, the inadequate ways in which samples relate to the populations from which they are drawn and the cavalier treatment of non-response rates. To this, we may add the fact that many patient surveys appear to be exhibit a halo effect in which satisfaction rates seem to be uniformly high at over 80%, perhaps reflecting a reluctance to criticise nurses [Carr-Hill, 1992; Fitzpatrick, 1991a, 1991b; Evason and Whittington, 1991; Ellis and Whittington, 1994; College of Health, 1994]. There are indications, however, that much more attention is now being paid to questionnaires in terms of both their construct validity [Baker and Whitfield, 1992] and their reliability/validity [Bamford and Jacoby, 1992; Eccles, Jacoby and Bamford, 1992]. The timing and location of the survey may itself be a critical factor. In a study of particular relevance to a concern with outpatients [Carr-Hill, Humphreys and McIver, 1987], it is shown that there is a clear decay in satisfaction levels when patients are interviewed at home rather than in the outpatient clinic. But probably the greatest single source of dissatisfaction with the traditional survey is its superficiality. The most common method of data collection involves the use of pre-coded self-completion questionnaires [Batchelor, Owens, Read and Bloor, 1994; Scott and Smith, 1994]. But as Rigge (1995) has pointed out:

> Handing out tick-in-the-box patient satisfaction questionnaires and then sitting smugly back if the results indicate that most patients are satisfied with the service they have received (as many such quantitative methods do) is no substitute for genuine consultation
>
> [Rigge, 1995 p.26-27]

Measurement of Service Quality - the SERVQUAL methodology

Unlike the quality of goods, which can be measured objectively by such indicators as durability and number of defects, service quality is an abstract and elusive construct because of three features unique to services: intangibility, heterogeneity and inseparability of production and consumption.

The **SERVQUAL** methodology is primarily developed to measure satisfaction with service industries. The method is well-known in Total Quality Management circles. The approach starts with the hypothesis that service quality is critically determined by the difference between consumers' expectations and perceptions of services. The method is predicated upon the gap to be discerned between clients' expectations of a service and their perceptions of a service as actually experienced.

Research by Parasuraman, Zeithaml and Berry (1988) has shown that regardless of the type of service, consumers use basically similar criteria in evaluating service quality. The criteria fall into ten key categories which are labelled 'service quality determinants' as follows:

1. *reliability*, which involves consistency of performance and dependability.
2. *responsiveness* concerns the willingness or readiness of employees to provide service. It involves timeliness of service.
3. *competence* means possession of the required skills and knowledge to perform the service.
4. *access* involves approachability and ease of contact.
5. *courtesy* involves politeness, respect, consideration and friendliness of contact personnel.
6. *communication* means keeping customers informed in language they can understand and listening to them.
7. *credibility* involves trustworthiness, believability and honesty. It involves having the customer's best interests at heart.
8. *security* is the freedom from danger, risk or doubt.

9. *understanding*/knowing the customer involves making the effort to understand the customer's needs.
10. *tangibles* include the physical evidence of the service like physical facilities and appearance of personnel.

Only two of the ten determinants, tangibles and credibility, can be known in advance of delivery, the other determinants often only being evidenced once a service transaction has taken place. While customers may possess some information based on their experience or on other customers' evaluations, they are likely to re-evaluate these determinants each time a service is given because of the heterogeneity of services. Two of the determinants, competence and security, consumers cannot evaluate even after service delivery and consumption.

The gap between expectations and perceptions may be analysed with respect to five dimensions. An examination of the content of the ten service quality items allows a construction of five dimensions in **SERVQUAL**, of which three are original list items (*tangibles*, *reliability*, *responsiveness*) and two are combined dimensions: (*assurance* including communication, credibility, security, competence and courtesy; *empathy* including understanding/ knowing customers and access). The final list of five dimensions and their concise definitions are as follows:

1) *Tangibles*: physical facilities, equipment and appearance of personnel
2) *Reliability*: ability to perform the promised service dependably and accurately
3) *Responsiveness*: willingness to help customers and provide prompt service
4) *Assurance*: knowledge and courtesy of employees and their ability to inspire trust and confidence
5 *Empathy*: caring, individualised attention the firm provides its customers

The last two dimensions contain items representing seven original dimensions (communication, credibility, security, competence, courtesy, understanding/knowing customers, and access) that did not remain distinct after the two stages of scale purification. Therefore, while **SERVQUAL** has only five distinct dimensions, they capture facets of all ten originally conceptualised dimensions.

In the questionnaires the dimensions are divided into a 22-item, 7-point scale. Dimensions may not be regarded as equally important. Each client may allocate points out of 100 to each of the five dimensions so that the instrument is sensitive to an individual's perceptions of the relative importance of each dimension.

SERVQUAL has a variety of potential applications. It can help a wide range of service and retailing organisations in assessing consumer expectations about and perceptions of service quality. It can also help in pinpointing areas requiring managerial attention and action to improve service quality.

Application of **SERVQUAL** can be used to make comparisons globally over time. Moreover, it is possible to ascertain those elements of services in which the gap between expectations and perceptions is widest. The application of this instrument and the results of measurement allows possibilities of more specific management action to redress perceived shortcomings. Although well-developed and extensively used in USA, studies are only just commencing utilising the methodology within the UK and Finland.

Table 1

SERVQUAL RESULTS - Previous Studies

USA General Sample [1990]

Dimension	Weight	Perceptions	Expectations	Gap
Tangibles	0.11	5.54	5.16	+0.38
Reliability	0.32	5.16	6.44	-1.28
Responsiveness	0.22	5.20	6.36	-1.16
Assurance	0.19	5.50	6.50	-1.00
Empathy	0.16	5.16	6.28	-1.12
Weighted averages [n=1936]		**5.28**	**6.27**	**-0.99**

(*Source*: calculated from from Zeithaml, Parasuraman and Berry [1990])

Table 2

East Midlands, UK Outpatients [July 1995]

Dimension	Weight	Perceptions	Expectations	Gap
Tangibles	0.13	5.21	5.24	-0.03
Reliability	0.26	5.52	6.31	-0.79
Responsiveness	0.21	5.88	6.17	-0.29
Assurance	0.20	5.98	6.39	-0.41
Empathy	0.20	5.66	6.16	-0.50
Weighted averages [n= 72]		**5.67**	**6.15**	**-0.48**

Table 3

Vaasa,Finland Outpatients [Jan-Feb 1996]

Dimension	Weight	Perceptions	Expectations	Gap
Tangibles	0.18	5.64	6.03	-0.38
Reliability	0.21	5.51	6.04	-0.54
Responsiveness	0.20	5.73	6.12	-0.39
Assurance	0.22	5.83	6.23	-0.40
Empathy	0.19	5.74	6.08	-0.35
Weighted averages [n= 135]		**5.72**	**6.14**	**-0.41**

The utility of the SERVQUAL model

The **SERVQUAL** methodology goes some way towards meeting the objection, noted before, that the issues raised in any instrument inevitably reflect the interests of the producers rather than the ultimate consumers of services, including health. The framers of the **SERVQUAL** methodology [Parasuraman, Zeithaml and Berry, 1985;1988; Zeithaml, Parasuraman and Berry, 1990] took pains to ensure that the elements of the instrument they devised were derived from a series of focused interviews and were then subjected to detailed factor analysis to discern the elements of the **SERVQUAL** scale. The standardised nature of the questions means that the instrument is particularly useful in comparative studies, such as a comparisons between different industries, societies or time periods. The essential simplicity of the approach, combined with the fact that it specifically relativises the context of satisfaction by addressing the issue of prior expectations, may be an explanation for its extensive use as a quality metric for service type industries. However, two fundamental objections can be made which may severely limit the potential of this type of approach - one on the conceptual level and the other on the methodology actually deployed.

The first of these objections relates to the 'split' which is discerned between expectations on the one hand and service delivery on the other. The weight given to the measurement of expectations implies that consumers (or patients in this instance) approach their encounters with medical professionals with a set of clearly articulated expectations. However, it is useful to see patient interactions with clinicians not as a series of one-off transactions but as a series of episodes linked together into a *trajectory*. The concept of a disease trajectory is evident in standard medical practice but in social scientific terms the notion of trajectory approaches the transactions in a more dynamic way, such that expectations of the next encounter are likely to be a function of previous encounters. Typically, when patients present themselves to clinical staff with a problem that requires resolution, then they are entering into a series of transactions which may involve dozens of

different professionals extending over several years or, indeed, a life-time. One of the most typical trajectories might be as follows:

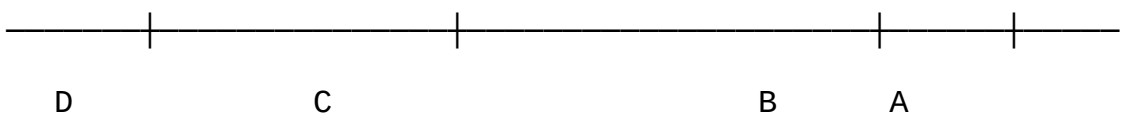
initial consultation - diagnostic tests - in-patient treatment - outpatient follow-up

and in such a trajectory (particularly in the case of in-patient treatment within hospitals) an individual, and the data relating to the individual, is processed by many personnel working in diverse occupational domains (manual occupations such as portering, clerical and administrative staff, medical, nursing and paramedical staff and so on). To attempt to capture the intricacies of such dynamics by the use of a single snapshot type instrument would appear to be over-ambitious. It has observed several times before that expectations might not be fully formed at the point of first contact with clinical staff and may be free-floating or even epi-phenomenal in that expectations start to arise out of the dynamics of the interactions with clinical staff [Locker and Dunt, 1978; Avis, Bond and Arthur, 1995; Linder-Pelz, 1982]. Measures of patient satisfaction are typically frozen in one point of time and do not (perhaps cannot) acknowledge the important of trajectories in the measurement of satisfaction.

The use and abuse of rating scales

A conventional 'orthodoxy' follows Stevens [1946] categorisation of scales into nominal,ordinal, interval and ratio. As Blalock [1979] explains:

> "It is important to recognise that an ordinal level of measurement does not supply any information about the **MAGNITUDE** of the differences between elements. We know only that A is greater than B but cannot say how much greater. Nor can we say that the difference between A and B is less than that between C and D. We therefore cannot add or subtract differences except in a very restricted sense. For example if we had the following relationships:



we can say that the distance

$$\overline{AD} = \overline{AB} + \overline{BC} + \overline{CD}$$

> but we cannot attempt to compare the distances AB and CD. In other words, when we translate order relations into mathematical operations, we cannot, in general, use the usual operations of addition, subtraction, multiplication and division. We can, however, use the operations 'greater than' and 'less than' if these prove useful.... (p.17).
>
> One of the dangers of 'cookbook statistics' is the tendency to oversimplify the criteria and problems involved in making basic decisions in data analysis. It is impossible to over-emphasise the important point that, in any using any statistical technique, one must be aware of the underlying assumptions that the procedure requires. In the context of the present discussion, one of the first questions that must always be asked concerns the level of measurement that can legitimately be assumed" (p.24)

An alternative view is held by many behavioural scientists and by some statisticians [e.g Anderson,1972]. As Lord [1972], in an entertaining article observes, the statistical test can hardly be cognizant of the empirical meaning of the numbers with which it deals..

> "Since the numbers don't remember where they came from, they always behave the same way, regardless"

On a more pragmatic level, Anderson argues, if the difference between parametric and ran-order tests was not great insofar as significance level and power are concerned, then only the versatility of parametric statistics meets the needs of everyday (psychological) research.

The argument, then, is often conducted between those who follow the 'conventionalist' position of Stevens [1946], Blalock [1979], Siegel and Castellan [1988] and the majority of textbook writers on the one hand and a more 'pragmatic' school on the other, who would maintain that the assumptions about scale type can probably be relaxed quite greatly without too much violence being done to the integrity of the data. In the case of psychological research, it could be that other sources of error (e.g. slightly different phrasing of questions) assumes much more significance as sources of error than arguments over scale type.

One of the most recent and informed papers in this debate is by Hand[1996] who draws distinctions between the *representational, operational* and *classical* measurement paradigms. *Representational* theory assigns numbers to objects to model their relationships. *Operational* theory, on the other hand, assigns numbers according to some consistent measurement systems and represents objects as congruent with the measurement system. Finally, *classical* theory involves the discovery of relationships between different quantities of a given attribute. There is, therefore, an assumption that there is a deeper reality which it is the aim of the analyst to discover - *classical* because traces of this approach can be found in the writings of Aristotle and of Euclid. The choice of test, therefore, is not so much a technical matter as a philosophical one - it depends on the nature of the model and the philosophy of science held by the investigator.

In the case of a rating scale attempting to measure satisfaction (pace **SERVQUAL**) then it is possible that we could adopt one of the following positions:

(a) the measures are essentially ordinal. Whatever point on the scale is adopted, then we can assume that we can make statements which assign a degree of ordering but we cannot get involved in the mathematical operations of subtraction of one measure from another. So statements such as **Satisfaction=Perceptions-Expectations** (the core of **SERVQUAL**) are illegitimate.

(b) already not strictly forming a series of continuous data, a scale such as 7-point **SERVQUAL** scale inviting agreement/disagreement with a series of propositions can, for practical purposes, be assumed to be relatively monotonic. In the absence of evidence to indicate a large degree of skewness in the data, then the conventional parametric tests can be deployed as it has been

shown that such tests can actually tolerate fairly large violations of the assumptions of normality of underlying distributions before they lose validity.

Alternative approaches might be to follow that offered by Kind *et. al.* [1993] in which probabilities in a questionnaire are derived from cumulative frequency distributions of the responses and then converted into the corresponding z-scores based on a normal distribution.

Some authors such as Lodge (1981) have deployed the concept of *magnitude scaling* in which an underlying scale is inferred from the magnitudes associated with a series of common adjectives (e.g. *Good, Very Good, Excellent*) which respondents have been asked to quantify.

The quantitative analysis of open-ended responses

A more obvious way to measure the distribution of patient responses is to capture responses by the use of the most open-ended questions possible and then chart the distribution of the responses. The following example is drawn from a qualitative investigation of paediatric out-reach clinics, conducted by the author (n=64). The overall sample statistics are shown below.

Table 4

*"What would you say was a **good** clinic ? "*

	VALUE	N	CUM_N	PERCENT	CUMPCT	Barchart
Friendly staff	1	22	22	27.16	27.16	▇▇▇▇▇▇▇▇ 22
Good consultation	2	21	43	25.93	53.09	▇▇▇▇▇▇▇▇ 21
No long waiting time	3	17	60	20.99	74.07	▇▇▇▇▇▇▇ 17
Nothing in particular	4	11	71	13.58	87.65	▇▇▇▇▇ 11
Facilities for children	5	5	76	6.17	93.83	▇ 5
Access, Convenience	6	3	79	3.70	97.53	▇ 3
Better than ??hospital	7	2	81	2.47	100.00	2

What makes for a 'good' clinic session ?

The two factors mentioned that accounted for more than all other factors combined were the overall friendliness of the staff and the quality of the communication with the consultant. Parents were evidently anxious to get a diagnosis of the symptoms which had led them to the clinic in the first place. Representative comments are:

Dr. ___ makes the child feel relaxed and not agitated. The Dr. is always very friendly.

A 'good' clinic is when you are listened to and the doctor is interested in you. Then, you do not feel the clinic is a waste of time.

When the doctor tries to explain things to you and talks things through. This can help to alleviate my worries...

Some patients referred to the totality of the transactions that they held with clinic staff:

[A good clinic is..] *the helpfulness of the staff. Nothing is too much trouble for them. You cannot really fault them at all..*

After the friendliness of the staff and the communication with the consultant, the absence of a long waiting time was the third most mentioned factor:

[A good clinic is] *one that is easier for the children in the area.. it's easier than* [central hospital] *where you usually have to wait a long time*

NB 64 respondents mentioned 81 factors as some respondents mentioned more than one factor.

Here, standard content analysis is used to measure the different types of responses. These are then diagrammed using any statistical software package (in this case. **MICROSTATS**). The virtue of this approach is that patients are allowed to 'speak for themselves'. The analyst can show the

typicality of responses by using conventional statistical graphing measures whilst the choice of quotations can help to 'bring alive' the nature of the data collected.

Accountability in the 'new' NHS

There is now increasing evidence that a heavy reliance upon quantitative measures of quality such as activity rates and waiting times fail adequately to address some of the more fundamental questions such as patient expectations and perceptions. Even when performance indicators are couched in quantitative terms, they are rarely transmitted to front-line staff (Goddard, 1997). A recent survey of Health Authorities and Trusts [Wakeley, 1997] indicated a serious commitment to quality- indeed 49% of Health Authorities would accept a reduction in activity levels for a demonstrable improvement in quality. However it is possible to incorporate the views of the users into healthcare planning and provision, long advocated by patient advocates such as Rigge (1997) and demonstrated in initiatives such as consumer-led audit in Lothian (Stevenson, R. and Hegarty,M., 1994).

An instrument such as **SERVQUAL** could play its part in establishing the particular gaps between service provision and patients' experiences of such services. Its standardised nature and the fact that it has been utilised in a wide variety of studies across many different service sector industries could help to avoid the difficulties associated with the traditional patient satisfaction survey which has often been criticised in the past as being too 'producer-oriented'. At the same time, it is is important that the patients help to shape the *agenda* of the measurement of quality issues . This, in turn, implies that health service managers and clinicians need to develop skills in the collection, interpretation and analysis of qualitative data to supplement more quantitative measures which, it could be argued, have traditionally been accorded a greater weight than is strictly merited.

Conclusions

The traditional instruments for the analysis of patient satisfaction are still being deployed, despite the many criticisms that have been made of them. This paper indicates the possibilities and the problems associated with deploying a conventional and widely known method of gap analysis such as **SERVQUAL**. The paper concludes by indicating that it is quite possible to collect and to analyse data which is consumer rather than producer-led and to deploy some of the tools of quantitative analysis associated with more conventional approaches in this area. It is possible that more work needs to be undertaken which marries together a more ethnographic or patient-centred approaches in which patients 'speak for themselves' with a degree of quantitative analysis which indicates the typicality of the responses made.

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Appendix 1 : SERVQUAL Questionnaire

Based on your experiences as a patient in a hospital or clinic, please think about the kind of hospital or clinic that would deliver excellent quality of service. Think about the kind of hospital or clinic in which you would like to receive treatment. Please show the extent to which you think such a hospital or clinic would possess the feature described by each statement. If you feel a feature is *not at all essential* for excellent hospitals/clinics such as the one you have in mind, circle the number 1. If you feel a feature is *absolutely essential* for excellent hospitals/clinics, circle 7. If your feelings are less strong, circle one of the numbers in the middle. There are no right or wrong answers - all we are interested in is the number that truly reflects your feelings regarding hospitals/clinics that would deliver excellent quality of service.

		Strongly Disagree						Agree
1.	Excellent hospitals/clinics will have modern looking equipment.	1	2	3	4	5	6	7
2.	The physical facilities at excellent hospitals will be visually appealing	1	2	3	4	5	6	7
3.	Personnel at excellent hospitals/ clinics will be neat in appearance	1	2	3	4	5	6	7
4.	Materials associated with the service (such as pamphlets or statements) will be visually appealing in an excellent hospital/clinic	1	2	3	4	5	6	7
5.	When excellent hospitals/clinics promise to do something by a certain time they will do so.	1	2	3	4	5	6	7
6.	When a patient has a problem, excellent hospitals/clinics will show a sincere interest in solving it.	1	2	3	4	5	6	7
7.	Excellent hospitals/clinics will get things right the first time.	1	2	3	4	5	6	7
8.	Excellent hospitals/clinics will provide their services at the time they promise to do so.	1	2	3	4	5	6	7
9.	Excellent hospitals/clinics will insist on error-free records.	1	2	3	4	5	6	7

	Strongly Disagree						Agree
10. Personnel in excellent hospitals/ clinics will tell patients exactly when services will be performed.	1	2	3	4	5	6	7
11. Personnel in excellent hospitals/clinics will give prompt service to patients.	1	2	3	4	5	6	7
12. Personnel in excellent hospitals/clinics will always be willing to help patients.	1	2	3	4	5	6	7
13. Personnel in excellent hospitals/clinics will never be too busy to respond to patients' requests.	1	2	3	4	5	6	7
14. The behaviour of personnel in excellent hospitals/clinics will instil confidence in patients.	1	2	3	4	5	6	7
15. Patients of excellent hospitals/clinics will feel safe in their dealings with the hospital/clinic.	1	2	3	4	5	6	7
16. Personnel in excellent hospitals/clinics will be consistently courteous with patients.	1	2	3	4	5	6	7
17. Personnel in excellent hospitals/clinics will have the knowledge to answer patients' questions.	1	2	3	4	5	6	7
18. Excellent hospitals/clinics will give patients individual attention.	1	2	3	4	5	6	7
19. Excellent hospitals/clinics will have operating hours convenient to all their patients.	1	2	3	4	5	6	7
20. Excellent hospitals/clinics will have staff who give patients personal attention.	1	2	3	4	5	6	7
21. Excellent hospitals/clinics will have the patients' best interests at heart.	1	2	3	4	5	6	7
22. The personnel of excellent hospitals/clinics will understand the specific needs of their patients.	1	2	3	4	5	6	7

Listed below are five features pertaining to hospitals/clinics and the service they offer. We would like to know how important each of these features is to *you* when you evaluate the service offered by a hospital or clinic. Please allocate a total of 100 points among the five features *according to how important each feature is to you* - the more important a feature is to you, the more points you should allocate to it. Please ensure that the points you allocate to the five features add up to 100.

1.	**The appearance of the hospital/clinic's physical facilities, equipment, personnel and communication materials.**	**_____**	**points**
2.	**The hospitals/clinic's ability to perform the promised service dependably and accurately.**	**_____**	**points**
3.	**The hospital/clinic's willingness to help patients and provide a prompt service.**	**_____**	**points**
4.	**The knowledge and courtesy of the hospital/clinic personnel and their ability to convey trust and confidence.**	**_____**	**points**
5.	**The caring, individualised attention the hospital/clinic provides its patients.**	**_____**	**points**
	TOTAL points allocated	**100**	**points**

Which one feature of the above five is most important to you ? **_____**
(Please enter the feature's number)

Which feature is second most important to you ? **_____**

Which feature is least important to you ? **_____**

The following set of statements relate to your feelings about the hospital/clinic you have attended. For each statement, please show the extent to which you believe the hospital/clinic has the feature described by the statement. Once again, circling a 1. means that you strongly disagree that the hospital/clinic you have attended has this feature and circling a 7. means that you strongly agree. You may circle any of the numbers in the middle that show how strong your feelings are. There are no right or wrong answers - all we are interested in is a number that best shows your perceptions about the hospital/clinic which has treated you.

		Strongly Disagree						Strongly Agree
1.	The hospital/clinic has modern-looking equipment.	1	2	3	4	5	6	7
2.	The physical facilities in the hospital/clinic are visually appealing.	1	2	3	4	5	6	7
3.	Personnel in the hospital/clinic are neat in appearance.	1	2	3	4	5	6	7
4.	Materials associated with the service (such as pamphlets or statements) are visually appealing.	1	2	3	4	5	6	7
5.	When the hospital/clinic promises to do something by a certain time it does so.	1	2	3	4	5	6	7
6.	When you have a problem, the hospitals/clinic shows a sincere interest in solving it.	1	2	3	4	5	6	7
7.	The hospital/clinic gets things right the first time.	1	2	3	4	5	6	7
8.	The hospital/clinic provides its services at the time it promises to do so.	1	2	3	4	5	6	7
9.	The hospital/clinic insists on error-free records.	1	2	3	4	5	6	7

	Strongly Disagree						Strongly Agree
10. The personnel in the hospital/clinic tell you exactly when services will be performed.	1	2	3	4	5	6	7
11. Personnel in the hospital/clinic give you prompt service.	1	2	3	4	5	6	7
12. Personnel in the hospital/clinic are always willing to help you.	1	2	3	4	5	6	7
13. Personnel in the hospital/clinic are never be too busy to respond to your requests.	1	2	3	4	5	6	7
14. The behaviour of personnel in the hospital/ clinic instils confidence in you	1	2	3	4	5	6	7
15. You feel safe in your dealings with the hospital/clinic.	1	2	3	4	5	6	7
16. Personnel in the hospital/clinic are consistently courteous with you.	1	2	3	4	5	6	7
17. Personnel in the hospital/clinic have the knowledge to answer your questions.	1	2	3	4	5	6	7
18. The hospital/clinic gives you individual attention.	1	2	3	4	5	6	7
19. The hospital/clinic has operating hours convenient to all its patients.	1	2	3	4	5	6	7
20. The hospital/clinic has personnel who give you personal attention.	1	2	3	4	5	6	7
21. The hospital/clinic has your best interests at heart.	1	2	3	4	5	6	7
22. The personnel of the hospital/clinic understand your specific needs	1	2	3	4	5	6	7

Thank you for the time you have spent in completing this questionnaire. The results will help us to provide you with the best possible service in the future.

Appendix 2 : SERVQUAL procedures

Dimensions

Statements	**1-4**	Tangibles
Statements	**5-9**	Reliability
Statements	**10-13**	Responsiveness
Statements	**14-17**	Assurance
Statements	**18-22**	Empathy

Procedures

1. Compute the 'gap' for each statement pair for each consumer.

SERVQUAL score = Perceptions Score - Expectations Score

2. Compute the dimensions scores for each respondent by averaging the gap score over the relevant number of statements (either **4** or **5** statements)

3. Derive **SERVQUAL** respondent's scores in the following way:

Unweighted scores Sum dimensions and divide by 5

Weighted scores	Tangibles *****	(Tangibles Weight/100)	**+**
	Reliability *****	(Reliability Weight/100)	**+**
	Responsiveness *****	(Responsiveness Weight/100)	**+**
	Assurance *****	(Assurance Weight/100)	**+**
	Empathy *****	(Empathy Weight/100)	

4. Derive total **SERVQUAL** scores by totalling the scores and dividing by **N** of respondents