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Title: Service quality measurement: A study of appointments systems in GP practice surgeries in the UK

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Service quality measurement:

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Abstract

Purpose – A recurring problem in service quality literature is the question of measurement – i.e. knowing which aspects of quality and in what ways should be measured. This paper proposes an approach to service quality measurement with a focus on the quality of appointments systems in general practice surgeries.

Design/methodology/approach – This research uses a case study methodology integrating qualitative and quantitative methods, including interviews with organisational stakeholders as well as data regarding the temporal aspect of the systems of appointments.

Findings – This study offers insights into the subjective, processual and context-dependent nature of service quality, as reflected in the perceptions of the organisational stakeholders within a primary health care setting; as well as into the objective and quantifiable aspects of service quality, revealing its dynamic, processual nature.

Research limitations/implications – The study demonstrates the scope for measuring service quality based upon data collected from different stakeholder groups, and for linking internal measures with stakeholders' evaluations.

Practical implications – Using the approach presented here, service operators could have a tool for obtaining a more complex and richer picture of service quality, leading to a better understanding of the relationship between the service quality delivery and its evaluations by different stakeholders.

Originality - The contributions of the methodology for service quality measurement and the approach proposed here offers innovative insights on different levels of theoretical abstraction, constructively challenges the notions of both measurement and service quality, and whilst moving beyond managerialist and user-based approaches, is highly relevant to the practice of contemporary organisations.

Keywords – Service quality measurement, services, primary care sector, appointments systems

Classification – Case Study.

1. Introduction

Within the predominant understanding, which has developed along with the evolution of the service management research, services are seen as different from tangible products. As pointed out by Echeverri (2005), extant literature considers services, due to their processual and interactive nature, as difficult to investigate, measure and analyse. Critical of the various concepts, categories, models, theories, statistical data, and contentions offered by research in service management, Gummesson (1996) finds it as questionable whether they, indeed, capture reality.

With contemporary organisations placing a strong emphasis on the provision of high quality services, the importance of how to evaluate the levels of service quality delivered, and the direction in which they are changing, has also increased, as discussed in the context of the purpose of service quality measurement (Jensen and Markland, 1996; Parasuraman et al., 1994). Echeverri (2005) argues that whilst mainstream service research has not always addressed the different conceptual problems pertaining to the subject of services and services management, a number of points have been mentioned in relation to investigating evaluations of services, including the issues of when to collect data, i.e. before, during, or after the service encounter; what type of data to collect, i.e. which factors are relevant and which social mechanisms are

worth exploring; and how to collect empirical data, i.e. which methods can be seen as offering a credible representation of the investigated phenomenon.

In response to these issues, different methodologies for service quality measurement have been proposed, from the frequently applied user-based quantitative questionnaires (Chiu and Lin, 2004; Grönroos, 1983; Mukherjee and Nath, 2005; Parasuraman et al., 1985; Sureshchandar et al., 2001), to quantitative approaches including in the measurement data from parties other than the service users (Berry and Parasuraman, 1997; Erto and Vanacore, 2002), as well as those methodologies which involve collecting service quality evaluation data using qualitative methods for gathering information either exclusively from the users (Bennington and Cummane, 1998; Echeverri, 2005), or also from other parties involved in the service delivery (Edvardsson and Mattsson, 1993; Saunders and Williams, 2000; Yang, 2003). Nevertheless, the question of how service quality can and should be measured is still subject to an open discussion.

This paper contributes to the debate on service quality measurement by presenting a study of service quality delivered within a primary health care setting, with a focus on the quality of the systems of patients' appointments with health care professionals. Moreover, a number of theoretical issues pertaining to the nature of the service quality phenomenon and to the conceptualisation of measurement are considered. A discussion of some methodological problems is also presented, pointing to the necessity of including a wide range of organisational stakeholders, and of adopting a variety of data collection methods, in research aiming to evaluate the quality delivered by service organisations.

2. Background to the study

Practical considerations

Rather than attempting to address the specific quality issues within the primary care sector in the United Kingdom, the main focus of this study was to propose a methodology for service quality measurement. However, the provision of some background information about the organisational setting within which this study was conducted is necessary in order to contextualise the empirical findings within the broader quality problems facing primary health care in the UK. Whilst the National Health Service (NHS) was first established in 1948, the interest in quality delivered only increased in the 1990s (Curry and Sinclair, 2002). Wisniewski and Wisniewski (2005) observe that until relatively recently, little of the health care provided by the NHS has been assessed in a systematic manner.

As far as the quality of primary care; which encompasses all specialties and problems, as well as the necessity to be direct, timely, and continuous (Starfield, 2003); is concerned, both its medical content and the availability of service to those in need are essential. In terms of the quality of the public access to the provider of primary health care, the situation has moved away from one in which single-handed, predominantly male general practitioners, working on their own, dealt with issues of patients' access to their service by modifying their availability, queuing, and managing patients' expectations (Schofield and Whillier, 2004). At present, the concept of access to general practice comprises "access to a team of individuals working together, each professional grouping often espousing their own values, training and aspirations, and encompassing managerial, financial and IT skills alongside clinical skills" (Jenner, 2004: 18). Whilst the issues of access are seen as crucial for the delivery of quality services by general practice surgeries, there is evidence of expressions of patients' frustrations in cases of inability to arrange an appointment on their preferred day (Airey et al., 1999), and increase in difficulties

with securing appointments with general practitioners of the patients' choice (Boreham et al., 2002). The making of appointments has been described as a complex social process (Gallagher et al., 2001), taking place according to rules not always clear to the patients (Offredy, 2002), and stipulated by and reflecting values of surgeries (Schofield and Whillier, 2004).

As far as measuring the quality of access is concerned, few studies have used direct measurement methods (Campbell, 2004). Elwyn et al. (2003) applied the measure of a five-day moving average of the number of days' wait until the next available appointment with any doctor, while the advocates of "advanced access" have suggested the use of the third available appointment as a measure of access to primary care (Oldham, 2001; Pickin et al., 2004). At the same time, since primary care access is treated as the major priority of the NHS, surgeries are encouraged to directly ask their patients about a variety of aspects relating to the services they deliver, including accessibility of care, as provided through the appointments systems in place. In this context, the development of a methodology for measuring service quality delivered through the use of systems of appointments, as carried out in this study, is of high relevance to those involved in the management and improvement of health care.

The measurement of service quality

Service quality measurement literature offers different models which have been developed in order to establish the determinants of the concept of service quality as well as the appropriate quality measurement techniques. However, the debate in relation to the choice of the right and credible measurement methodology is still ongoing. As Robinson (1999) contends, as far as the problem of service quality measurement is concerned, there is little agreement beyond the need for measurement.

A detailed review of extant service quality measurement frameworks is beyond the scope of the present paper. Nevertheless, for the purposes of this study it is important to point out that

whilst the majority of the methodologies belong to the user-based paradigm and employ the questionnaire as the method of data collection, some approaches have been proposed which draw upon information from parties other than exclusively the service users, and employ methods of data collection different than the questionnaire. The table below provides examples of existing service quality measurement frameworks, with an emphasis on which parties are included in the quality evaluation process, and what type of methods and data are obtained.

Take in Table I

As can be seen from the above table, there have been attempts to move away from the user-based, exclusively quantitative and objectivist methodologies for investigating service quality. Gradually, space is created for alternative approaches. The methodology proposed and applied in this study builds upon and extends this space.

3. Aim of the study

In the context of the earlier discussion, the main objective of the present study was to put forward an approach to service quality measurement based on the previously outlined conceptions of service quality and measurement. The intention behind the proposed methodology was to contribute to developing ways of investigating service quality in a more inclusive manner, and offering more complex and richer insights than those arrived at through the employment of traditional, user questionnaire-based frameworks. The approach put forward here was applied in the primary health care sector to investigate certain aspects of the quality delivered, with a focus on the quality of the systems of patients' appointments with health care professionals.

4. Design and methodology

For the purpose of primary data collection, a case study approach was adopted (Punch, 2005; Yin, 1994), with two general practice surgeries; referred to here as surgery A and surgery B;

chosen as the fieldwork sites, excluding the pilot study organisation. The empirical research involved combining qualitative and quantitative methods of data collection and analysis (Bryman and Bell, 2003; Flick, 2002). The particular aspect of service quality delivered in each of the surgeries was the system of patients' appointments with health care professionals.

The sample of participants included in the qualitative part of the research consisted of parties involved in or affected by the systems of appointments in place, namely the practice managers, receptionists, nurses, doctors and patients. Using semi-structured individual interviews, data were collected from 13 participants from surgery A and 14 from surgery B. All interviews were recorded and subsequently transcribed (Silverman, 2005). The subjective voices of those involved in the service delivery were taken into account in an attempt to move away from exclusively objectivist approaches to service quality, and to reflect the subjective, processual, and context-dependent nature of the phenomenon of service quality and related issues. The emphasis was placed upon the differences and complexities inherent in the participants' understandings. Investigating service quality through interviews was also commensurate with a conception of the notion of measurement in subjectivist terms. For the purpose of analysis, the data obtained from the interviews were structured along the following eleven themes:

- The meaning of the service quality concept;
- Importance of the system of appointments for the delivery of service quality;
- Function of the system of appointments;
- Positive implications of the system of appointments;
- Problems experienced in relation to the system of appointments;
- Patients' needs with regard to the system of appointments;
- Patients' complaints related to the system of appointments;
- Potential improvements of the system of appointments;

- Changes in patients' expectations towards service quality;
- Changes in the approach to quality in primary care;
- Evolution of participants' roles in their organisations.

The analysis of the first theme explored the meaning of the concept of service quality, as viewed by the stakeholders in the two surgeries. Themes 2 to 8 addressed specific issues concerned with the quality of the systems of appointments in place. The last three themes aimed to capture the context of service quality delivery in a dynamic perspective, specifically in relation to the changes experienced by the participants over time. As far as quantitative data gathering is concerned, information related to the systems of appointments in the surgeries under study was obtained. Here, the focus was on the temporal aspect of the process of arranging and managing patient appointments with health care professionals, in order to capture the dynamic and processual nature of quality of the systems under investigation. Based on the quantitative data obtained for the period of one month, which included ca. 7000 appointments, process control charts were constructed for six temporal elements identified within the systems, and their corresponding measures:

Availability – the length of time between when the patient first contacted the surgery to request an appointment, and the specific date and time for which the appointment was scheduled. This measure was used in order to monitor the temporal aspect of the availability of appointments.

Advance – the length of time between when the patient arrived at the surgery and the time for which their appointment was scheduled;

Actual waiting time – the length of time between when the patient arrived at the surgery and the time the patient entered the consulting room;

Punctuality – the length of time between the scheduled appointment time and the time the patient entered the consulting room. Measures 2 to 4 aimed at capturing the temporal aspect of waiting for consultations on the premises of the surgeries;

Timeliness – the length of time between when the patient entered the consulting room and the time they left it. This measure was introduced in order to analyse the actual durations of appointments in the context of organisational objectives;

Total duration – the length of time between when the patient arrived for their appointment and the time they left the consulting room. Using this measure aimed at obtaining a general overview of the temporal aspect of the systems of appointments in the surgeries under study. Please see the figure below for a graphical representation of the measures identified.

Take in Figure 1

In choosing these particular measures of processes, the aim was to capture the dynamic character of the levels of service quality delivered by the general practice surgeries within which primary data were collected. The quality of the system of appointments was considered both by patients and other stakeholder groups interviewed as a crucial aspect of service quality delivered within the primary care setting. For the purpose of quantification of service quality, the researchers needed to rely on data obtained from the organisations, and the measures listed above were possible to construct given the type of information available within the surgeries. The measures proposed for the purpose of applying the control chart methodology addressed what Shewhart (1931) referred to as an 'objective' aspect of quality. While the types of durations identified in the processes analysed related to the patients' path through the system of appointments, stakeholders other than patients were also involved in the different stages of the systems under study. Thus, quantification of the levels of service quality through recording and charting durations of the stages in question encompassed not only those aspects of the system of

appointments, which affected the patients, but also included elements pertinent to the activities of other organisational stakeholders, such as managers, receptionists, and healthcare professionals.

The six measures used in applying the control chart methodology addressed the objective and quantifiable aspect of service quality. The types of the control charts reflected the categories of health care professionals employed in the surgeries. Specifically, appointments conducted by doctors, nurses, and physiotherapists were considered. Separate control charts were constructed for all GPs, two individual GPs, nursing appointments and physiotherapy appointments in each of the two surgeries.

Whilst the types of durations identified in the processes analysed related to the patients' path through the system of appointments, quantification of the levels of service quality through recording and charting durations of the different stages also encompassed elements relevant to the activities of other organisational stakeholders, such as the managers, receptionists, and health care professionals. In constructing the control charts, the original writings of the founder of statistical process control, W.A. Shewhart (1931, 1939), as well as contemporary works addressing the application of control charts in service settings (Antony 2000; Antony and Taner, 2003; McCarthy and Wasusri, 2002; Roes and Dorr, 1997; Sulek et al., 1995; Wood, 1994) were drawn upon.

5. Insights from interviews

The qualitative part of the research addressed the subjective aspect of the phenomenon of service quality, as delivered by the surgeries under study, with a focus on the systems of appointments. Voices of different categories of organisational stakeholders were taken under consideration in response to Kelemen's (2003) plea for developing more inclusive approaches to investigating service quality than those grounded in the user-based perspective (Buzzell and Gale, 1987; Grönroos, 1990; Zeithaml et al., 1990). Through interviews with the surgeries'

managers, doctors, nurses, receptionists, and patients, insights were gained into how the concept of service quality is constructed, negotiated, and enacted in those particular organisations.

With regard to the conceptualisation of service quality, the views on what constitutes service quality in the surgeries under study differed across the participants, reflecting the position of a given participant within the organisation. The interviews also revealed how the existing power relations underpin the accepted definitions of service quality, pointing to the roles of the health care authorities, doctors, and patients as the most powerful agents influencing the local meanings of service quality within the surgeries under study.

In terms of investigating the role of the system of appointments for the delivery of service quality, the participants reported that the system constitutes a very important aspect of the provision of service quality. Moreover, information from the interviews indicated that the systems of appointments are seen as enablers of the delivery of service quality as far as the health care professionals and the patients were concerned, but not necessarily as ensuring quality of work for the reception staff. In relation to the perceived ‘advantages’ and ‘disadvantages’ of the systems of appointments, understandings of the two notions varied across participant groups, and even amongst individuals belonging to the same category, for example the patients, there were differences in opinions about what is considered as the strengths and limitations of the systems. Similarly, the views on what would be an ‘improvement’ of the system of appointments were dependent upon the organisational context, including the existing power relations and values of individual stakeholders. Furthermore, in the interviews, the surgeries’ staff demonstrated a high degree of awareness in relation to the complexity of patients’ needs with regard to the system of appointments.

The questions addressing the dynamics of changes in patients’ expectations, the approach to quality in the primary care, and the evolution of the stakeholders’ roles in their organisations

offered insights into the context of service quality delivery within the investigated setting, and into the broader aspects and dynamics of issues related to service quality. Moreover, a picture of pressures faced by the surgeries' staff, and the way in which their perceptions of changes influence their interpretations of the present situation, emerged from the interviews.

6. Insights from quantitative data

Based on the quantitative measures calculated from the data regarding the six temporal elements identified within the systems of appointments, process control charts were constructed, representing the objective and quantifiable aspect of service quality. The interpretation of the plots for the different aspects of the systems of appointments followed the four decision rules for determining when a process is out of control, as applied by Sulek et al. (1995) in their application of the control chart methodology in retail services.

The findings from the quantitative analysis of the service quality delivered through the systems of appointments complemented those obtained from the interviews. They provided a way of quantitative measuring of aspects of service quality which is not limited to offering a snapshot of the situation at a specific point in time, but which recognises the dynamic, processual nature of the phenomenon. Moreover, employing the control chart methodology enabled quantification, which does not only monitor changes occurring in the measured phenomenon over time, but also permits comparison of the levels of service quality delivered between different periods of time, organisations, or elements within a given organisation. One example of this can be given by examining availability of appointments in surgery A, as represented by the chart below.

Take in Chart 1

Whilst, during the investigated period, the average time between a patient's request for a routine appointment and the day and time for which an appointment was scheduled was 3.4 days, for

specific days this figure varied between one and eight days. This gave indication as to why some patients are frustrated by their inability to secure an appointment with a doctor within a short time from their request. The comparison of different appointments-related measures between the two surgeries provides another example. For instance, the average values of punctuality for routine morning appointments with all GPs in surgery A was during the investigated period 21 minutes, whereas the corresponding value for surgery B was 5 minutes. This offers quantitative support for the opinions expressed by participants in surgery A about the constant delays, patients' need to wait, and staff's stress about having to deal with patients' complaints related to the delays, as well as for the lack of similar remarks in interviews with participants from surgery B. Moreover, with regard to comparing levels of quality within one organisation, an illustration of the possibilities is provided by contrasting the values and variation within the actual waiting time in the case of two different doctors in surgery A, as represented by the two charts below.

Take in Charts 2 and 3

As can be seen from the above charts, compared to the control limits based on the calculation of values for all doctors in the surgery, the actual waiting time for appointments with doctor A1 was mostly well below the average values for the surgery, whereas in the case of doctor A2 the variations in the actual waiting time and the average value of this measure were considerably higher. The impact of this situation is illustrated in comments of the patients and staff in the surgery about the levels of delays being specific to an individual health care professional, and the need for patients to wait longer to see some health care professionals compared to others. Altogether, in this study, using control charts made it possible to compare measures of aspects of service quality between individual health care professionals, between a given professional and all health care professionals considered together, between categories of health care professionals, and between surgeries.

Furthermore, the comparison of the performance of a stable process over time against a pre-determined target revealed issues with the adequacy of the targets themselves. For example, in the case of measuring the levels of timeliness in surgeries A and B, for some doctors the standard 10 minute appointment slot for a routine consultation turned out to be inadequate, despite the lack of any special circumstances affecting the durations of patients' appointments with those doctors. Altogether, the quantitative analysis of data relating to the temporal aspect of the systems of appointments provided evidence of the levels of delivery and their changes over time.

7. Conclusions

Through engaging with one of the important debates within the service literature, i.e. the subject of service quality measurement, this research addressed an area of high significance for both researchers and service operators interested in measuring and improving the quality of services provided. The perspective on service quality taken here combined the concept of subjective perceptions of the parties involved in the service delivery process, with the notion of objective and quantifiable aspects of service quality. As a consequence of employing this particular view of service quality, the proposed methodology for service quality measurement aimed to address the subjective and objective aspects of the concept, and to arrive at more complex and richer insights than those which are usually generated through the application of user questionnaire-based measurement tools.

The conception of measurement underpinning this study drew upon the historical roots of this notion, in order to embrace both objectivist and non-objectivist conceptions of measurement, as well as both quantitative and qualitative methods of data collection and analysis in the proposed approach to investigating service quality.

The methodology for service quality measurement was applied in this study in a primary health care setting, with a focus on the quality of patients' appointments with health care professionals.

Its application resulted in accessing the complexities of service quality evaluations by taking into account both qualitative and quantitative information from a variety of parties involved in the service delivery, and in providing a dynamic picture of service quality rather than a static assessment at a point in time.

The findings of the qualitative part of the study addressed the concept of service quality as a socially constructed process, and the inclusion of parties other than the service users; in this case in the evaluation of the quality of the systems of appointments in the surgeries under study; constituted an important development in the field of service quality measurement. Moreover, the interview findings provided complex and profound insights into the explored issues, and as such can constitute a basis for specific organisational decisions and actions.

The quantitative part of the proposed approach involved applying the control chart methodology to data regarding the temporal aspect of the systems of appointments in question. This objective, quantitative information, which provided a picture of the delivery process over time, complemented the interview findings and led to a better understanding of the views and evaluations given by the study participants.

Seen as composed from the two complementary parts, the proposed approach offers insights into service quality understood as a dynamic phenomenon, both in qualitative, subjective terms, as perceived by the involved parties, and in relation to the quantitatively and objectively measurable aspects of internal service quality, with an emphasis on variation and direction of change. As such, it provides an alternative to the static, user questionnaire-based measurement tools, which, as noted by Wisniewski and Wisniewski (2005), identify gaps in service quality but not their roots, and generate little knowledge about the investigated context, the dynamics of changes, the complexities and differences involved in individuals' perceptions of quality, and the link between them and the internal performance data. Its major limitation, however, is that

compared to the user questionnaire-based measurement, the empirical application of the proposed methodology requires considerable time commitment.

8. Managerial implications

Service operators wishing to measure and improve the quality of services can benefit from using the proposed methodology for service quality measurement by gaining an understanding of the context of the delivery, the complexities and differences inherent in evaluations given by the involved parties, and the perceived changes over time. This will be coupled with and will inform the interpretation of the outcomes of the application of control charts to monitor the quantitative and objective aspects of the service. The qualitative data obtained from the proposed approach to measurement can help service operators determine what actions need to be taken in order to improve the levels of service quality by enriching the managers' understanding of the different meanings, values, interests, power relations, contradictions and ever changing perceptions regarding service quality, stemming from different parts of the organisation. This knowledge, together with the results of the control charts application, can be very useful for the organisation in establishing:

- Whether individual processes contributing to the delivery of service quality are stable;
- Which processes are characterised by the lack of stability;
- In relation to which of the monitored processes problems may be occurring;
- Whether changes in the phenomenon can be observed and what is the direction of these changes;
- How changes in one element, or constitutive process, influence another element or process contributing to the delivery of service quality;

- How the organisation performs in relation to the different elements of the objective aspect of service quality compared to a competitor or partner organisation.

Altogether, at the level of an organisation, this methodology could contribute to creating a long-term, sustainable quality service environment which is well understood by those responsible for its effectiveness.

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Framework	Author(s)	Actors evaluating quality	Method(s) of data collection	Types of data obtained and analysed
SERVQUAL	Parasuraman, *et al.*, 1985	Users	Questionnaire	Quantitative
SERVPERF	Cronin and Taylor, 1992	Users	Questionnaire	Quantitative
Technical / Functional Quality	Grönroos, 1983	Users	Questionnaire	Quantitative
Experience-based method	Edwardsson and Mattsson, 1993	All parties involved in service encounter	Narratives	Qualitative
Measurement during delivery process	Danaher and Mattsson, 1994 Park, 1999	Users	Questionnaire	Quantitative
System-based approach	Johnson *et al.*, 1995	Users	Questionnaire	Quantitative
P-C-P model	Philip and Hazlett, 1997	Users	Questionnaire	Quantitative
SQIS	Berry and Parasuraman, 1997	Users Staff involved in delivery	Questionnaire	Primarily quantitative; also suggests to consider verbatim comments written on questionnaires
Customer value workshop	Bennington and Cummane, 1998	Users	Discussion Computer based rankings	Qualitative Quantitative
Service template process based framework	Saunders and Williams, 2000	All parties involved in service encounter	Discussion Templates for recording rankings	Qualitative Quantitative
Integrated conjoint experiments	Oppewal and Vriens, 2000	Users	Questionnaire	Quantitative
Five-dimensional framework	Sureshchandar *et al.*, 2001	Users	Questionnaire	Quantitative
Probabilistic approach	Erto and Vanacore, 2002	Quality experts	Evaluation sheets	Quantitative
Integrated model of service quality measurement	Yang, 2003	Users Staff involved in delivery	Interviews (key users) Panel discussion (staff) Questionnaire (users and staff)	Qualitative and quantitative; qualitative data seen as additional to quantitative; main analysis quantitative
SQ-NEED	Chiu and Lin, 2004	Users	Questionnaire	Quantitative
SERVQUAL, TOPSIS and Loss Function	Mukherjee and Nath, 2005	Users	Questionnaire	Quantitative
Video-based methodology	Echeverri, 2005	Users	Video recordings of behaviours and comments	Qualitative

Table I: Affinities and differences between approaches to service quality measurement

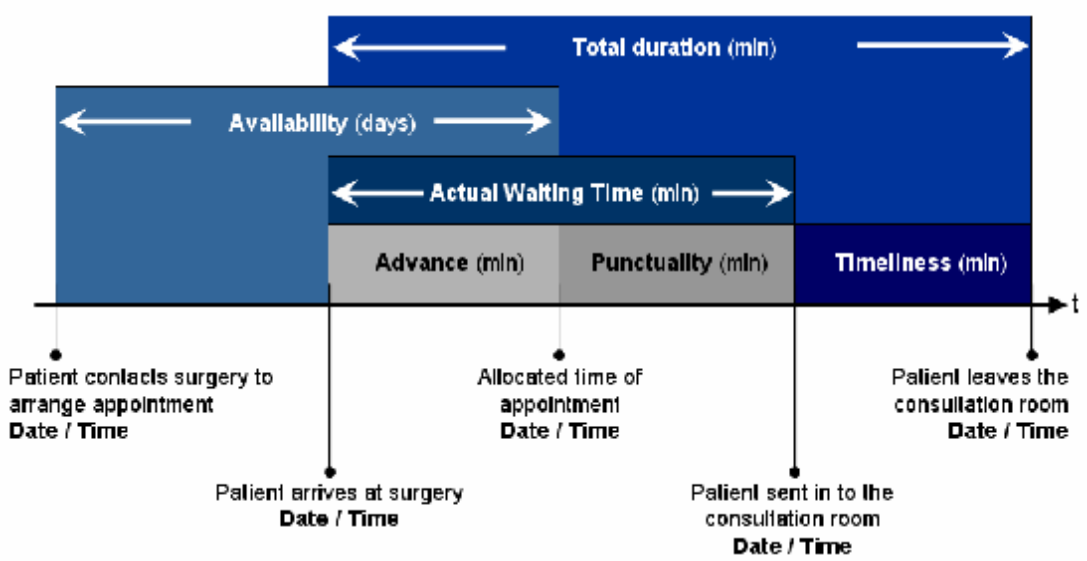

Figure 1: Measures of the temporal aspect of the system of appointments

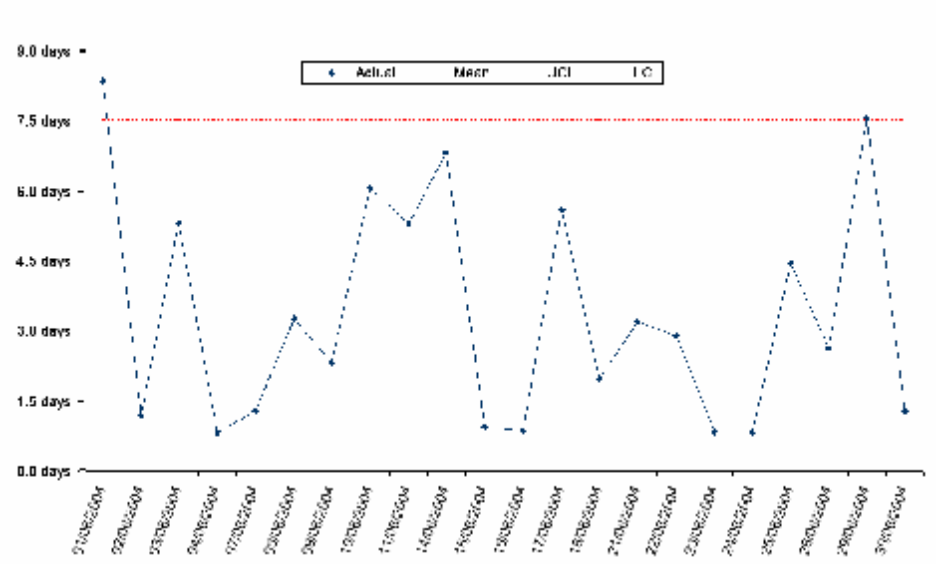

Chart 1: Surgery A, Availability, Morning, General Surgery, All GPs

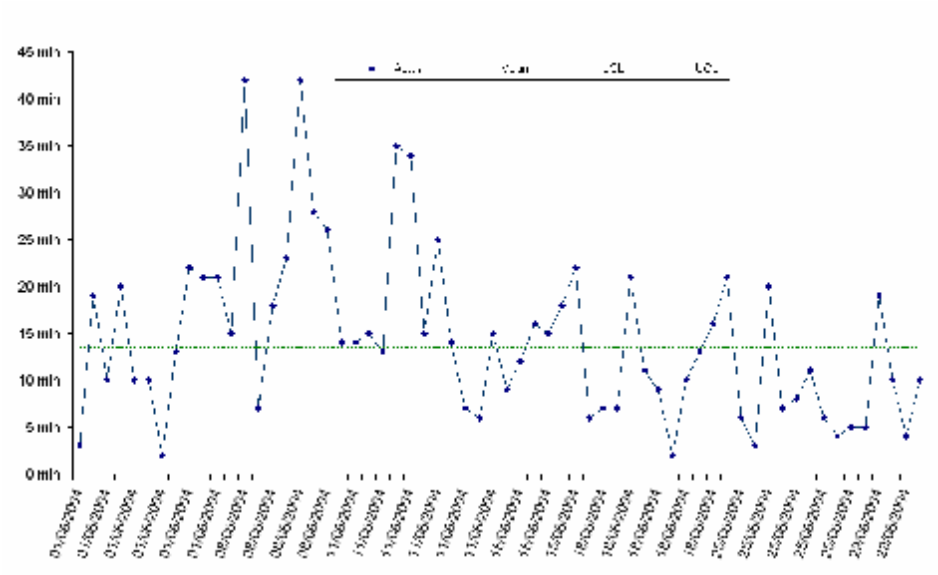

Chart 2: Surgery A, Actual Waiting Time, Morning, General Surgery, GP A1

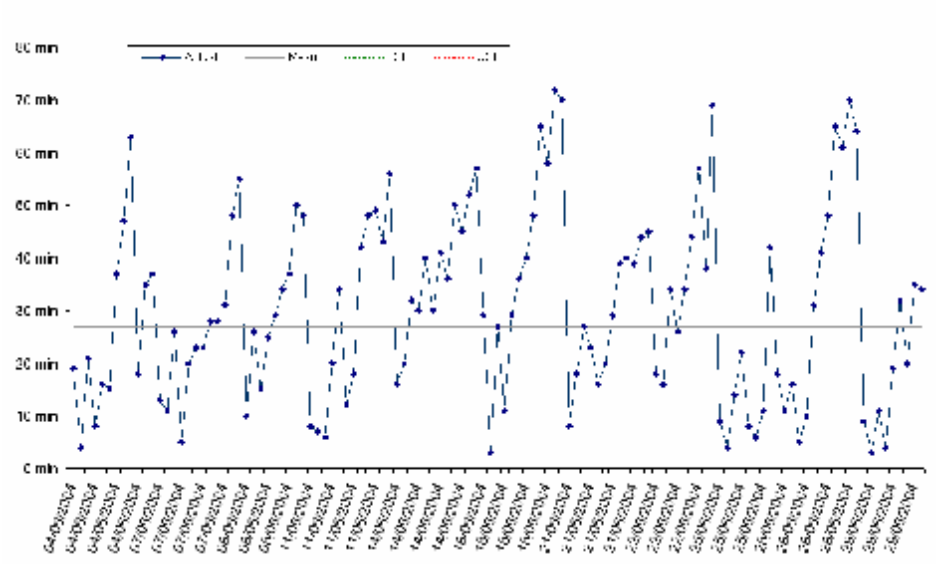

Chart 3: Surgery A, Actual Waiting Time, Morning, General Surgery, GP A2