

The challenge of measuring quality of care at health centre level in Africa: The example of Tsholotsho health district in Matabeleland North, Zimbabwe

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SUMMARY

This study is on the evaluation of quality of health care within first line health services in rural Zimbabwe. It took place between 2001 and 2002, and consisted of a cross-sectional survey designed to compare the quality of health care on offer at a newly created health centre with that provided by the district hospital's outpatient department. The hypothesis to be tested was that the health centre offered better quality of care. A comprehensive quality of care evaluation framework was designed. The concept of *patient enablement* was incorporated into the study's assessment of health care delivery outcomes. The results did not provide conclusive evidence that the care offered at the health centre was better than the care on offer at the hospital OPD. The reasons for these unexpected findings are discussed in depth. They are related to the limited understanding amongst local health workers of the organisational changes introduced by the District Health Executive (DHE), together with a (European) cultural bias in the quality of care model under test. An important lesson of this study is that the notion of *enablement*, notwithstanding the need to put into context the tools used to measure it, was considered by the DHE as relevant in the organisation and evaluation of health care. Copyright © 2006 John Wiley & Sons, Ltd.

KEY WORDS: quality of care; patient enablement; evaluation; first line health services; rural Zimbabwe

INTRODUCTION

This paper attempts to address the complex and multi-layered issue of quality of health care delivery. It provides a detailed account of a study into quality of care carried out in the rural Zimbabwean district of Tsholotsho over the period 2001–2002. This study examined various characteristics of the structure and organisation

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of the local health system and looked at the quality of care delivered in a health centre and within the outpatient department (OPD) of the local district hospital. This assessment necessarily implies a thorough description of the context in which the study took place. Great attention is therefore given in this paper to an account of the health care policies formulated and implemented by the units involved in this study, with particular note taken of the specific management setting in which the study was nested. Indeed, this study was, for the most part, embedded in the routine management processes of the local district health system. The local district management team—the District Health Executive (DHE)—was, at the same time, both a vital part of the research team and responsible for local decision-making.

At the core of the study is the evaluation of quality of care delivered in a ‘classic’ health centre: that is, a first line health facility staffed by a small team of health workers led by a nurse-practitioner responsible for curative, preventive and promotional care in a patient population of 8500. An analysis framework, constructed for the purpose of evaluating quality of care, was drawn up, based on the following elements;—first, the current body of knowledge about the analysis and evaluation of quality of care as developed in a number of seminal papers published in the international literature. A second component was the recording of opinions amongst local managers and health workers on the subject of quality of care: this process was essential if local ownership of the study and its methodological instruments was to be created. A third element in the design of this framework (albeit not always explicitly recognised) was the expatriate (European) researchers’ views on quality of care. The relative weight of this cultural bias only really became apparent in the analysis phase.

In the Results and Discussion sections of this paper, distinction is made between the relevance of the study findings for the organisation and management of the local health care systems,—in particular the validity of having a health centre as the population’s first point of contact with the health services, rather than a hospital OPD—and the wider relevance of the study on standards of quality of care. Concerning the latter, we believe that this study may be helpful in the development of a systematic and rigorous study into quality of care within developing countries. The analytical framework that was developed piecemeal by the Tsholotsho research team during the course of the study would definitely benefit from further fine-tuning but even now constitutes a useful contribution to future research on this topic.

CONTEXT

Zimbabwe’s changing health system

Following their country’s independence in 1980, Zimbabwean political leaders resolutely opted for Primary Health Care as their guiding strategy in the planning and organisation of the national health care service. The state invested heavily in the creation, expansion and staffing of government health services, especially in rural areas, which were previously underserved. Resources were redirected from central hospitals to districts facilities, where networks of health centres and hospitals were

developed (Segall, 1983). A more equitable allocation of resources was a key policy concern throughout this period (Ministry of Health, 1984). With the sympathetic support from many bilateral and non-governmental aid organisations, substantial efforts were made to generate and valorise more medical and paramedical cadres (national and expatriate) at all the levels of the health system, but particularly at its periphery. Similar efforts were also made in respect of other services such as primary education, water supply, sanitation and agricultural development. As a result, living conditions for many rural populations improved dramatically, as did the majority of health status indicators. On the whole, this period constitutes a remarkable achievement that few other African countries can claim.

In the 1990s, however, these achievements came under great pressure because of a worsening economic crisis aggravated by a rapid rise in the incidence of HIV/AIDS. The International Monetary Fund-led Economic Structural Adjustment Programme (ESAP) could not turn the tide despite substantial investments made to expand health facilities sited in rural areas (World Bank, 1998). The government of Zimbabwe experienced serious problems in ensuring adequate health service delivery during the period of structural adjustment (Bijlmakers, 2003). High inflation, leading to a progressive loss of purchasing power, was a cause of hardship amongst both rural farmers and city dwellers, whilst intensifying unrest amongst civil servants. This human resource crisis was, and still is, one of the most pronounced in the region. The Ministry of Health has been faced with a huge exodus of qualified staff to the private sector, to neighbouring countries and to the developed world. In 2006 the quality of the health services is under as great a threat as ever.

In the 1990s the Ministry of Health and Child Welfare (MOH&CW) embarked on a process of decentralisation. This process has been slow, much slower than, for example, in neighbouring Zambia, Ghana or Uganda (Bijlmakers, 2003). The plan was to shift responsibility for health care from the central to the district level, leading to an increasing role for the DHE in the management of the district health services. There was also a move towards a purchaser-provider split within local government structures, that is the Rural District Councils (RDC) were supposed to take over some of the planning responsibilities of the DHE (Ministry of Health and Child Welfare, 1999). Despite the slow progress of the entire decentralisation process, it gave some new impetus to the district health services whilst, at the same time, revealing an urgent need to strengthen local management competencies within both the DHE and the RDC.

Optimising decision making at district level: the District Health Services Management project in Tsholotsho

Tsholotsho District is a rural district of 163 000 people in Matabeleland North Province, located in the northwest of Zimbabwe. The Tsholotsho government district hospital, sited in the semi-urban Tsholotsho growth point¹ was upgraded in

¹The term 'growth point' refers to a small rural settlement in which the authorities purposely invest in order to attract people, small businesses, hotel infrastructure, etc. and to which the headquarters of public services are relocated.

1991–1992 under the Family Health Project (funded by the World Bank). It comprises 140 beds (male, female, paediatrics and a maternity ward) and offers medical, surgical and maternity services including caesarean section and basic orthopaedic and abdominal surgery. In the same district, there are two rural hospitals, 11 rural health centres and one urban health centre built recently within the Tsholotsho growth point itself. Generally, health centres are staffed by a small team of three to four people under the direction of a nurse. Health centres provide patients with a package of care, comprising routine curative care (including follow-up of chronic patients), ante- and postnatal care, obstetric care, family-planning services, under-five child health care (including immunisation), promotion of sound water and sanitation technologies and the implementation of various health education programmes. Some health centres are owned by local government (council clinics) and others by central government. Rural hospitals offer care comparable to that delivered by health centres, with the exception of inpatient facilities. The Tsholotsho district is recognised by the MOH&CW as sufficiently exemplary to act as a teaching district, both in respect of hospital and primary health care services.

In an attempt to answer the need for capacity building within district health management teams, in 1991 Medicus Mundi Belgium (MMB), a Belgian non-governmental organisation launched the District Health Services Management (DHSM) project. The project ran from 1991 to 2002. One of the authors (BC) was overall responsible for the scientific coaching of the project in this 12-year period. Drawing largely on action research (Susman and Evered, 1978), the project advocates health systems research methodologies based on the systematic analysis and evaluation of the decision-making process (Grodos and Mercenier, 2000)—in this case, decision-making at the DHE level. The successive steps in the classical management sequence of problem identification, action planning, action implementation, and action evaluation were systematically addressed and documented. This scientific approach, whereby management decisions are considered as hypotheses to be tested, utilises a systems-based perspective to aid the identification of problems and to suggest possible solutions. This methodology refers back to existing models of district health services organisation in the formulation of hypotheses; plus it is fully embedded in action. Yet, a scientific management approach of this nature invariably requires fine-tuning. For this reason, the management team was supported by external scientific guidance provided by academic staff at the Institute of Tropical Medicine (ITM), Antwerp and at the Blair Research Institute (BRI) of Harare.

Over the years, a great number and variety of problems have been investigated by the Tsholotsho DHE using this methodology (District Health Services Management Project, 1999). Initially, the focus was on team building within the DHE. Later on, other issues were tackled including the management and control of specific health problems such as malaria, measles, plague, tuberculosis and mental disorders; the organisation of supervision visits by DHE staff to the rural health centres; the rationalisation of inpatient care; the introduction of an intensive care ward in the hospital; the design of a comprehensive district coverage plan (Criel *et al.*, 1996) and the analysis of costs and revenues at district level (Vander Plaetse *et al.*, 2005). Some of the changes resulted in, for example, the use of intravenous quinine in the

treatment of severe malaria at health centre level, changes which were eventually incorporated into national policies (Ministry of Health and Child Welfare, 2000). The DHSM project and the Tsholotsho DHE received explicit recognition from the provincial authorities in Matabeleland North Province. The provincial Medical Officer of Health stated that '...it is clear that the DHSM approach towards management has had a positive influence on the way the Tsholotsho DHE, as a team, runs the health programmes in the district. Problem analysis happens in a systematic way; decisions and action are taken, followed up and evaluated' (District Health Services Management Project, 1999, p. 7). Tsholotsho district won the national 'best district competition' in 1995.

Analysis of the overcrowding at the Tsholotsho district hospital outpatient department

One of the problems addressed by the project was that of overcrowding at the Tsholotsho district hospital's OPD where it was not uncommon to receive more than 100 patients per day. This followed the 1992 expansion of the hospital. The DHE took the opportunity to address the problem of overcrowding through a comprehensive set of interventions, both within and outside the hospital, consistent with their view that the hospital OPD was an integral element of the local district health system. On the basis of a research framework which differentiated between the role of the hospital and that of a health centre, within the district health system (Van Lerberghe and Lafort, 1990), three types of patient flows could be distinguished at the OPD level (see Figure 1). The first type (arrow 1 in Figure 1), consists of patients who were covered by a health centre for their (first line) health care, that have visited their health centre and were subsequently referred by the health centre's nurse to the hospital. The second type of flow (arrow 2 in Figure 1) relates to patients that may or may not have used their health centre, but who decided for themselves, for whatever reasons, to go directly to the hospital (i.e. self-referrals or 'by-passers'). The third type (arrow 3 in Figure 1) deals with patients arriving from 'uncovered' communities, that is communities which fall within the district boundaries but have no easily accessible health centre, and who, in reality have no option other than to directly go to the hospital. Whilst the first type of flow was seen as ideal, the second and third types of flow were considered problematic because they involved a percentage of patients who presented at the hospital OPD with problems that, in principle, could have been dealt with adequately at health centre level.

The DHE considers health centres to be better fit than a hospital OPD to address and manage problems that do not require much in the way of medical technology, but where the appropriateness and efficiency of diagnostic and therapeutic procedures benefit from a patient-centred approach, that is an approach where the proximity of health centre nurse-practitioners to their patients can be used to exploit the potential of personalised and longitudinal relationships (Mead and Bower, 2000; Dugas and Van Dormael, 2003; Potter and McKinlay, 2005). Importantly, care at health centre level is less expensive than first line health care delivered by the hospital OPD, as shown by the costing exercise conducted in Tsholotsho (Vander Plaetse *et al.*, 2005). Moreover, the 'flood' of first line patients presenting at the hospital OPD was seen as

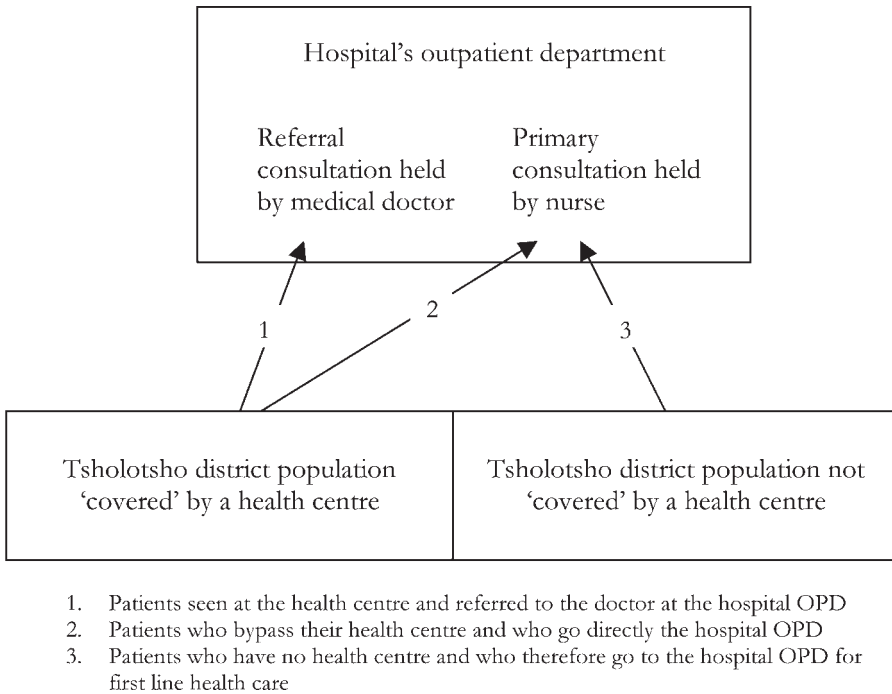


Figure 1. Flow of patients in the Tsholotsho district health care delivery system

contributing to the problem of second line patients receiving insufficient attention. A final element of this analysis was the fear that the hospital was descending into a 'competitive' relationship with the health centres for the delivery of primary health care. This could, in turn, lead to a vicious circle of increasing patient numbers attending the OPD direct, overwhelming resources and jeopardising the viability of health centres. Eventually, both the credibility of the health centre network and first line staff morale would decline to the point of no return (Van Lerberghe and Lafort, 1990).

Motivated by this analysis the DHE proposed to intervene at three levels: first, to smooth access to the hospital OPD for referred patients—that is *facilitate* flow 1 in Figure 1; second, make the by-passing of health centres and self-referral more difficult—that is *discourage* flow 2; and third, expand the district coverage of health centres and thus *prevent* flow 3. A series of decisions were taken. A medical doctor clinical consultation created specifically for referred patients was organised at the OPD, clearly distinct from the existing consultation process undertaken by a team of nurse practitioners. Patients referred by their rural health centre to the hospital OPD were, on arrival, immediately directed to the medical doctor's consulting rooms without having first to queue at the nurses' station—that is a system of positive discrimination.

In terms of strengthening the peripheral network of rural health centres, supervision was intensified and geared-up to support health centre staff in their routine work. The use of clinical decision-making flow-charts was actively

encouraged. The district team designed new guidelines where there were no appropriate protocols included in the existing national list of guidelines prepared by the Ministry of Health and Child Welfare (2000). At hospital level, the doctors running the referral consultation started to prepare counter referral clinical notes on a systematic basis in order to provide nurse-practitioners with the necessary feed-back to enhance the quality of their patient follow-ups and future referrals. These notes were taken back to the health centre during supervision visits. At hospital level, those patients who chose to by-pass their health centre could no longer expect to benefit from fee exemptions—that is system of negative discrimination.

Finally, a comprehensive plan was drawn up in order to establish the optimum number, location and construction sequence of new first line health facilities in order to provide adequate coverage of the entire district; hence the descriptor 'coverage plan'. This plan was based on discussions with existing staff in health centres and on an analysis of the then pattern of first line, ambulatory health care facility usage. On that basis, pockets of 'unserved' communities could be identified (District Health Services Management Project, 1999, pp. 27–31). One of the most germane outcomes of that planning exercise was the discovery that the largest unserved population in the entire district comprised the 20 000 people living in and around Tsholotsho growth point. The principal conclusion of the coverage plan was the justification for the creation of two distinct new health centres in order that this large population might be adequately served. The decision was taken to start the first new health centre at the epicentre of the *growth point*. A second new health centre was to be constructed at a later stage.

Set up of a new health centre at the Tsholotsho growth point to improve quality of care

The DHE managed to find the necessary funding for the construction of the first health centre from the non-governmental organisation *Plan International*. The new facility opened its doors in May 1998. Alike all newly built health centres in the district, it fell under the authority of the RDC. On the basis of the data gathered in the coverage plan, the optimum population to be cared for by the new Tsholotsho health centre could be delineated. The new facility would be responsible for the primary health care of a community of about 8500 people living within a radius of 10 km of the *growth point*. The remaining 12 000 people, living within a range of 10–20 km from the *growth point*, would eventually be served by the second health centre. In the meantime these patients would continue to be treated by the hospital OPD as before. The population covered by the new health centre included people living in the *growth point* itself; the lesser part comprising mainly civil servants and local businessmen—and the larger part comprising people living in the surrounding villages. Leaflets explaining the planned changes in coverage were distributed to the respective communities via village health workers.

In terms of health care provision the semi-urban Tsholotsho health centre offered both curative and preventive treatments (antenatal care, care for under-fives and family-planning services). Deliveries and dental problems were referred to the nearby district hospital. Both the health centre and hospital OPD were open to the

public from 7:45 a.m. to 4 p.m. After 4 p.m. all outpatients were treated in one of the hospital wards. In 2002 (time of the present study), health centre patients paid a flat fee of 50 Z\$ (approximately \$US 0.1 at that time) for each curative intervention, whereas hospital patients paid a flat fee of 120 Z\$ (about \$US 0.2) for a curative consultation at the OPD.

In the weeks preceding the opening of the new health centre, staff visited every prospective family user at home, and, for every household, opened a family file which contained basic socio-economic, environmental and medical information (District Health Services Management Project, 1999, pp. 45–62; Decoster *et al.*, 1999). A copy of the family file is included in the Appendix.

The purpose of this extremely time-consuming exercise was to create a privileged relationship between the staff of the health centre and the community. It was expected that the health workers could later on build on this initial investment, using their knowledge of the community to provide the optimum health care service possible; specifically, the patient-centred nature of the health care delivery process and its ability to provide continuity of care were expected to benefit from this initial census exercise (Kasongo Project Team, 1982). The family files were to be updated during every consultation or other contact with a health care team member. The information in the files could then be used to enhance the care process. It was decided that these files would remain at the health centre, and would not be accessed by individual patients in order to ensure the confidentiality of the information they contained on other family members—a concern voiced by health centre staff.

A final measure taken by the DHE was to establish a 'ward health team' for the new facility. National policy prescribed that each health centre should have a local 'ward health team', that is a board of community representatives with an advisory and supportive role. In Zimbabwe, government owned primary health facilities are systematically referred to as *rural* health centres—as though there were no need for government primary health centres in *urban* areas. A possible interpretation of this (implicit) policy would be that the Ministry of health believes that there is no requirement for patients in urban/semi-urban communities to have a health centre since, where necessary, they can make use of the local district hospital OPD. Primary health care facilities owned by local authorities are generally referred to as clinics, most of them being located in rural areas. When located in urban areas, these facilities are called urban clinics or urban polyclinics depending on the size and functions.

Information gleaned from the OPD registers of the Tsholotsho health centre and the hospital OPD, respectively, was analysed for the period 1998–2001. In 2001, 3 years after it was opened, more than 80% of the population allocated to the health centre had begun to attend it for primary health care consultations (before they had always used the hospital OPD). Nevertheless approximately 20% of the patients from the health centre catchment area decided to by-pass the new facility and continued to attend the hospital OPD for primary health care treatments. On the other hand, 95% of the people living within the hospital catchment area (i.e. the remaining 12 000 people mentioned above) continued to attend the hospital OPD. The attendance rate for curative care at the health centre amounted to 0.94 new contacts per person per year, compared to 0.73 new curative contacts per person per year at the OPD for its

catchment population. The proportion of by-passers fluctuated over time: in the first few months it rose to about 30%, decreasing gradually over time to 12% in 1999–2000. In 2001, following the introduction of a patient fee at the health centre (which was about half the fee at the hospital OPD) the proportion of by-passers rose again to 21%.

This dramatic shift in usage patterns, from hospital OPD to health centre for the 8500 people living in the Tsholotsho centre's catchment area, coupled with the unexpectedly high utilisation rates, were beyond the DHE's expectations. The population's proximity to the health centre and the lower level of fees compared to the hospital OPD might, of course, help to explain this state of affairs. However, the impression gained by DHE members during the course of their supervision visits and other less formal contacts with community members, was that the quality of care offered at the Tsholotsho health centre provided the simplest explanation. The health centre was considered to be one of the most efficient in the district, based as it was on the use of innovative organisational tools like a population census prior to the opening of the facility and the use of family files in the clinical decision-making process.

In an attempt to assess as objectively as possible these different impressions and to validate their assumptions, the DHE decided to embark on a comparison of the quality of first line care delivered in the Tsholotsho health centre with that on offer in the hospital OPD (see Figure 2). This research was carried out with the support from the Institute of Tropical Medicine in Antwerp and the Department of Community Medicine from the University of Zimbabwe.

Methodology

The DHE, over a number of regular management meetings, arranged brainstorming sessions with the objective of formulating possible hypotheses to explain the differences in care between the two facilities. The need for a structured, analytical framework soon became obvious. In the absence of a universally acknowledged definition of health care quality, a suitable framework was developed based on two existing models; the first, Donabedian's (1988) distinction between structure, process and the outcome of care, and second an attempt to measure of quality care based on access and effectiveness (Campbell *et al.*, 2000). Within this latter parameter, a distinction was drawn between two related aspects of care (Donabedian, 1979): the clinical practice (or technical care) and the relationship between caregiver and patient. Although it can be difficult to disentangle these two facets of care, the distinction was useful to DHE members in identifying and classifying the factors that, it was postulated, might explain the potential difference in quality of care between the hospital OPD and the health centre (see Table 1). On the basis of the information gleaned from the breakdown of the different quality of care components presented in Table 1, the DHE was able to perfect the following research hypothesis: *the Tsholotsho health centre offers (better) quality of care (than the hospital OPD) because care is more accessible and is more personalised.*

The factors listed in Table 1 encompass all those features reported in the literature as determinants of a layman's perception of quality of care in Sub-Saharan Africa

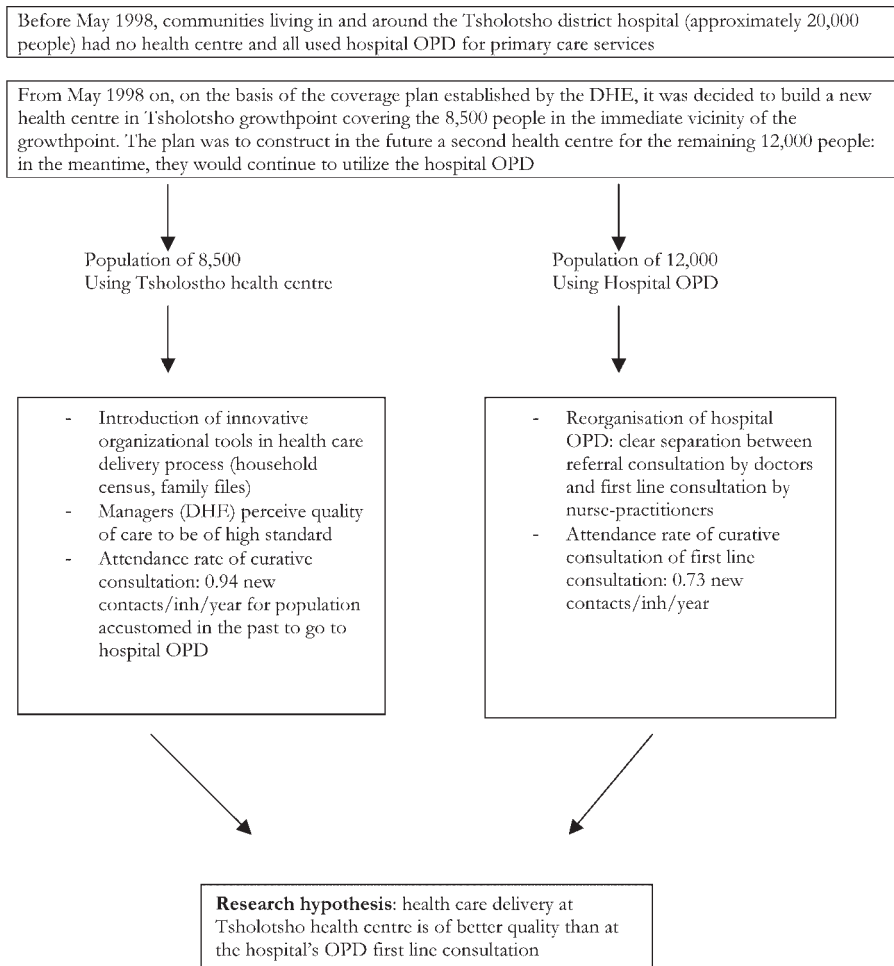


Figure 2. Comparison of quality of care in two distinct first line health services

(Haddad and Fournier, 1995; Haddad *et al.*, 1998, Criel and Waelkens, 2003). The DHE then made a selection of those factors from Table 1 which appeared both relevant and realistic to examine in the context of Tsholotsho. Two additional outcome measures—much more difficult to assess—were also selected: patient satisfaction and patient enablement. The legitimacy of patient satisfaction as an outcome measure of health care originates from a tendency in Western societies to make the consumer the central figure of accountability in public services (Williams, 1994). Patient satisfaction is related to outcomes such as higher compliance, but its relation with quality of care is complex (Williams, 1998). It actually measures the extent to which the clients' experience matches their expectation of how good (or bad) care *will* be (Donabedian, 1980). Different standards of quality of care will not, therefore, necessarily lead to different levels of satisfaction. The concept of patient enablement is much newer: it was actually developed within the framework of

Table 1. Potential factors explaining differences in quality of care between the hospital OPD and the health centre

	Access	Effectiveness	
		Medical practice	Relationship caregiver–patient
Structure	<ul style="list-style-type: none"> ● Staff availability ● Coercion from the staff to attend the ‘appropriate’ facility ● Level of fees ● Cost of transport ● Availability of diagnostic and therapeutic facilities ● 24 h availability or not ● Large scale of the hospital as a threshold for some patients ● Community involvement 	<ul style="list-style-type: none"> ● Qualification of staff ● Experience of staff ● Efficient design of the building (ensures privacy and efficient patient’s flow) 	<ul style="list-style-type: none"> ● Maturity of staff ● Staff turn-over
Process	<ul style="list-style-type: none"> ● Availability of drugs ● Waiting time ● Duration of consultation 	<ul style="list-style-type: none"> ● Good diagnostic and therapeutic practice ● No delay in referral of severe cases to the doctor ● Patient-centred care ● Integrated care ● Continuity of care 	<ul style="list-style-type: none"> ● How personalised is relationship caregiver–caretaker? ● Patient’s confidence in caregiver
Outcome/output	<ul style="list-style-type: none"> ● Attendance rate ● Patient satisfaction 	<ul style="list-style-type: none"> ● Patient satisfaction ● Enablement 	<ul style="list-style-type: none"> ● Patient satisfaction ● Enablement

European general practice (Howie *et al.*, 1997) and attempts to capture how well patients, after a consultation with a general practitioner, feel better enabled to cope with their health problem and to carry on with their lives. While patient satisfaction measures the patient’s perception of quality of care, enablement is assumed to correspond more to the specifics of general practice, where care is emphasised over cure and the medical professional’s role is that of facilitator (the methodological challenges of measuring these concepts in the context of Tsholotsho are developed at more length in a later section).

For each of the factors selected for further investigation an indicator was identified (see Table 2). Indicators quantifying staff qualifications, staff experience, staff maturity, staff turnover, waiting time and duration of consultation were relatively straightforward. As an indicator of staff availability at the health centre we calculated the ratio of the total 12-month workload over the number of staff available (nurses and nurse-aides) during this period. The total workload for each facility was calculated as follows: we asked the staff at both facilities to estimate the time

Table 2. Selected factors and indicators for measuring differences in quality of curative care between hospital OPD and health centre

Factor of quality of care	Quality of care indicator
1. Staff qualification	Ratio of SRN ^a versus SCN ^a
2. Experience of the staff	Average number of years since graduation as a nurse
3. Maturity of the staff	Average number of years
4. Staff turn over	Average duration of stay at the department
5. Staff availability	Ratio of workload during one year versus available staff
6. Waiting time	Time from arrival up till departure from the health facility (waiting time for clerking, screening and treatment)
7. Duration of consultation	Duration of consultation
8. Diagnostic and therapeutic practice	% correct diagnosis and treatment on basis of re-examination by the medical team
9. Patient satisfaction	Satisfaction score (based on Consultation Satisfaction Questionnaire)
10. Patient enablement	Enablement score (based on Patient Enablement Instrument)

^aSRN, State Registered Nurse; SCN, State Certified Nurse.

required for the different activities (immunisations, antenatal care, family planning), using the duration of one curative consultation as a unit of work. On the basis of the number of consultations, immunisations, etc. performed per year in each facility, we calculated the yearly workload in each facility. For the staff availability we took into account all nurses and nurse-aides, but for the hospital OPD we subtracted one staff unit for activities which were performed only by the staff of the hospital OPD (anaesthesia, support of the matron's office) and which was not reflected in the workload of health centre staff.

In order to assess the appropriateness of the diagnosis and treatment plan, patients seen by the nurse were re-examined by a member of the local medical team (a doctor or clinical officer). Using local diagnostic guidelines (Ministry of Health and Child Welfare, 2000), a list of 'marker diseases' was compiled, that is a list of diseases with relatively clear-cut criteria for diagnosis and treatment, for example mild, moderate and severe acute respiratory infections (ARI), diarrhoea and sexually transmitted diseases (STD). Diagnoses made by nurses and medical teams were compared only for these marker diseases, and the results were classified as either 'correct' or 'not correct'. All treatments were analysed, irrespective of the disease type, and were labelled as 'correct' when the necessary treatment was given and no unnecessary procedures were carried out. Each contact might result in a series of separate diagnoses and treatments. Finally, the re-examiners checked whether any health problems considered as potentially dangerous were missed by the nurse.

The study was restricted to new patients attending for a curative care consultation, since a patient-doctor interaction of this type best fitted the proposed method for measuring diagnostic and therapeutic skills.

In order to investigate the eight principal factors determining quality of care, data were collected during consecutive weeks at both the health centre and the hospital

OPD during July 2002. From Monday to Friday, between the hours of 7:45 a.m. and 4 p.m., data on all patients, from within the catchment area of the hospital OPD and the health centre, who came seeking a curative consultation were included. Patients drawn from outside the catchment area of the health centre or the hospital OPD (almost 30% of the new curative contacts at the hospital OPD), patients attending for preventive care or family planning, patients who were reviewed or referred patients and emergencies were all excluded. The receptionist recorded sex and age of the patient or the guardian, if the patient was younger than 16 years, home address, and level of education and employment status of the head of the family. Waiting times and the duration of the consultation were measured at different points. Nurses kept a record of the diagnosis and treatment prescribed for each patient. Once patients had received their treatment, two nurses from outside the district with specific training in interviewing techniques interrogated the subjects. Following this interview the patients were re-examined by a member of the medical team (doctor or clinical officer) and the data were entered in Epi Info 6.04. For statistical analysis the Mann–Whitney test (for comparison of two means) was used, unless otherwise stated. Linear regression was carried out but this procedure did not provide any additional information.

The special case of patient satisfaction and patient enablement

Measuring patient satisfaction and enablement proved much more intricate and complex. Satisfaction and enablement scores were developed locally, though each was based on field research questionnaires developed for use in general practice in Europe. To provide a score of patient satisfaction, the research team adopted a previously validated research tool—the *Consultation Satisfaction Questionnaire* (CSQ). The CSQ is a widely used tool to measure patients' satisfaction which has been shown to deliver internal coherence, test–retest reliability and construct validity (Baker, 1990; Baker and Whitfield, 1992; Bland and Altman, 2002).

Enablement is an idea conceived by Howie *et al.* (1997) to permit quantification of this concept the authors developed a *Patient Enablement Instrument* (PEI). The fact that PEI has shown internal coherence with consultation length and correlation with 'knowing the doctor well' suggests that the construct is valid (Howie *et al.*, 1997, 1999). Howie *et al.* (1998) showed that PEI and the CSQ measure different but complementary models of patient–doctor interaction. In this paper the terms 'satisfaction score' and 'enablement score' refer to the local questionnaire developed by the Tsholotsho DHE whereas CSQ and PEI refer to the tools designed by Baker and Howie, respectively (see Box 1). Box 1 demonstrates how, item-by-item, the CSQ and the PEI were transformed into satisfaction and enablement scores. For example, statement 1 in the CSQ 'I am totally satisfied with my visit to the nurse' was amended into the satisfaction score 'Are you satisfied with your visit to the nurse?' The internal consistency of the scores was satisfactory (Cronbach's alpha for satisfaction score: 0.74; for enablement score 0.81). The correlation between the score for questions 1, 2, 5 and 6 taken altogether—the questions that most resemble the PEI—and the score for questions 3 and 4 together was good ($r=0.89$), confirming that they measure similar concepts.

Box 1. The Consultation Satisfaction Questionnaire and Patient Enablement Instrument Versus The Satisfaction and Enablement Scores

Consultation Satisfaction Questionnaire (CSQ)

(Answer on a five-point scale from 'I strongly agree' to 'I do not agree at all')

General satisfaction

1. I am totally satisfied with my visit to the nurse.
7. Some things about the consultation with the nurse could have been better.
17. I am not completely satisfied with my visit to the nurse.

Professional care

2. This nurse was very careful to check everything when examining me.
3. I will follow the nurse's advice because I think she is absolutely right.
6. The nurse told me everything about my treatment.
9. The nurse listened very carefully to what I had to say.
10. I thought this nurse took notice of me as a person.
12. I understand my illness much better after seeing this nurse.
13. This nurse was interested in me as a person, not just my illness?

Depth of relationship

4. I felt able to tell this nurse about very personal things.
8. There are some things the nurse does not know about me.
14. The nurse knows all about me.
15. I felt this nurse really knew what I was thinking.
18. I would find it difficult to tell this nurse about some private things.

Perceived time

5. The time I was able to spend with the nurse was a bit too short.
11. The time I was able to spend with this nurse was not long enough to deal with everything I wanted.
16. I wish it had been possible to spend a little longer time with this nurse.

Patient Enablement Instrument (PEI)

(Answer: much better/better/same or less/not applicable)

As a result of your visit to the nurse today do you feel you are:

1. able to cope with life?
2. able to understand your illness?
3. able to cope with your illness?
4. able to keep yourself healthy?
(Answer much more/more/same or less/not applicable)
5. confident about your health?
6. able to help yourself?

Satisfaction score

(Answer 'yes/yes/yes', 'yes', 'no', 'no/no/no' or 'I don't know')

General satisfaction

1. Are you satisfied with your visit to the nurse?

7. Are there things about the consultation with the nurse that could have been better?

17. Are you not satisfied with your visit to the nurse?

Professional care

2. Did the nurse check everything when examining you?

3. Will you follow the advice of the nurse?

6. Did the nurse tell you everything about your treatment?

9. Did the nurse listen to what you said?

10. Is this nurse taking notice of you as a person?

12. Do you understand your illness better after seeing this nurse?

13. Was this nurse interested in you as a person (or was he/she only interested in your illness)?

14. Does this nurse know all about your condition?

15. Do you feel like this nurse understood your problem?

Depth of relationship

4. Are you able to tell this nurse about very personal things?

8. Are there things the nurse does not know about you?

18. Would you be able to tell this nurse about some private things?

Perceived time

5. Was the time you spent with this nurse too short?

11. Did you have enough time with the nurse to deal with everything you wanted?

16. Would you have wanted to spend more time with this nurse?

Enablement score

(Answer 'yes/yes/yes', 'yes', 'no', 'no/no/no' or 'I don't know')

As a result of your visit to the nurse today:

1. Do you feel you are more able to cope with life?

2. Do you understand your illness better?

3. Do you know better what to do with your illness (how to take treatment, when to come back, what to do to prevent complications, ...)?

4. Do you know better what you have to do not to get the illness again?

5. Are you more confident about your health?

6. Are you more able to help yourself?

The use of patient satisfaction and patient enablement scores as potential outcome measures was proposed by the European researchers involved in the study. The Zimbabwean DHE team members, especially the nursing staff (District Nursing Officer and Community Sister), despite being unfamiliar with the term 'enablement', readily grasped the concept, immediately considered it to be relevant to the Zimbabwean situation and agreed to test it in the Tsholotsho context. They expressed concern, however, about the feasibility of measuring these concepts amongst less well-educated and less vocal populations drawn from a rural environment like Tsholotsho. Translation into the vernacular (isiNdebele) had already proved a formidable task. Based on lengthy discussions within the DHE, external advice and

back-translation by several staff members who were not directly involved in the study, a consensus gradually evolved. For example, qualifying descriptors such as 'a bit too short', 'a little longer', 'not completely', etc. had no direct equivalent in the vernacular and were simply translated, respectively, as 'enough', 'more time' and 'not' (compare 5, 16 and 17 of the CSQ and the satisfaction score).

The questionnaire was pre-tested on different occasions. Having responded to the questionnaire, patients were asked to expand on why they answered as they did, in order to get a clearer idea of the validity of the content. Patients experienced some difficulties in responding to open ended statements and these were therefore reformulated as yes/no questions. Negations were removed wherever possible from the questionnaire. Some concepts, such as 'coping' appeared to be too abstract, and had to be transformed into more concrete notions (see, for example, items 3 and 4 of the PEI and the enablement score). Statements 14 and 15 in the CSQ did not make sense to the majority of patients and the researchers inferred that respondents probably linked them to some spiritual beliefs. They were completely re-formulated in order to quantify degrees of 'professional care' rather than 'depth of relationship'.

The questionnaire was pre-tested twice more and the opportunity was taken to make some further changes to the scoring system. A four-point scale was used for recording responses. Initially, patients were asked to choose between 'yes', 'no' and 'I don't know'. When they choose 'yes', they had to make a subsequent choice between 'yes/yes/yes' and 'yes'; *mutatis mutandi* for 'no'. Visual response cues were tried but proved unhelpful.

A short, loosely structured discussion about the patient's preconceptions of the consultation preceded the interview. This conversation had two functions: first, it helped to validate the answers given by the patient to the subsequent questionnaire; second, it made the patient feel more at ease.

Two field researchers conducted each interview. The first focused on the conversation with the patient, while the second interviewer wrote down the answers, checked for possible inconsistencies by comparing answers for broadly similar questions (e.g. questions 1 and 7 of the satisfaction score), and probed when she felt it necessary. The interviewers were both (female) nurses with specific training in interviewing techniques. The nurses were not working in the district and were thus unknown to the local community. Each interview took on average 15–20 min. Patients were offered something to eat in recognition of their agreeing to participate in the research.

The answers to the satisfaction score were ranked from 1 (strongly negative answer) to 4 (strongly positive answer), and subsequently summed to obtain a total score (maximum score: 72). The answer 'don't know' was scored zero. For the enablement score 'strongly yes' was scored 2, 'yes' 1 and all other answers 0. An enablement score was obtained by summing all six questions, yielding a maximum score of 12.

RESULTS

Of 91 patients eligible for the study distinguished at the OPD, and 106 distinguished at the health centre, full information was obtained on waiting time, duration of

consultation, satisfaction and enablement for 76 (83.5%) and 98 patients (92.5%), respectively. Twenty-three patients did not participate in either the interview or the re-examination—we propose to label them henceforth as ‘non-responders’. These 23 non-responders frequently coincided with by-passers, that is patients not using the health facility in accordance with the coverage plan (OR = 6.17, $p = 0.003$). At the hospital’s OPD, non-responders waited longer (134 min versus 95 min, $p = 0.05$) and were more often than not individuals employed in the local formal sector (OR = 5.56, $p = 0.007$).

Age, sex, level of education and the proportion of proxy-respondents (i.e. cases in which the accompanying parent instead of the child was interviewed) did not differ significantly between hospital OPD and health centre patients. Patients attending the health centre were more frequently in employment (OR = 3.02, $p = 0.0004$), a result not entirely unexpected for a population living in the catchment area of growth point. The case mix did not differ significantly between either the two facilities.

The overall results are summarised in Tables 3 and 4. The staffs at the health centre were older and more experienced than those at the hospital OPD (this is not surprising since experience is an important factor in staff selection), but they were less well qualified. Staff turnover is low compared to the hospital OPD, but still

Table 3. Quality of care indicators for hospital OPD and health centre: staff characteristics and availability, waiting time, duration of consultation and diagnostic and therapeutic skills

	Hospital OPD	Health centre	<i>p</i> -value
1. Qualifications of the nurses	6 SRN, 2 SCN ^a	1 SRN, 2 SCN ^a	N/A
2. Average age	34 years	54 years	0.03
3. Average number of years of experience	10 years	26 years	0.06
4. Average length of stay at the department/facility	14 months	39 months*	0.02
5. Staff availability	2906 units of work per staff member per year ^b	3537 units of work per staff member per year ^b	N/A
6. Waiting time: mean (SD)	99 min (49 min)	52 min (39 min)	<0.000001 (<i>t</i> -test)
7. Duration of consultation: median (first–third quartile)	10 min (8–18 min)	10 min (8–14 min)	0.68
8. Diagnostic and therapeutic practice			
Proportion correct diagnosis (%)	29/55 (53%)	41/69 (59%)	0.46
Proportion correct treatment (%)	52/93 (56%)	45/100 (45%)	0.13
Proportion potentially dangerous events (%)	3/93 (3%)	8/100 (8%)	0.15 (χ^2 test)

^aSRN, State Registered Nurse; SCN, State Certified Nurse. Both had a 3-year training but the SCN training is of a lower level and aimed specifically for the rural health centres.

^bOne curative contact corresponds to one unit of work.

*At the time of data collection (July 2002).

Table 4. Quality of care indicators for hospital OPD and health centre: satisfaction and enablement

	Hospital OPD		Clinic		<i>p</i> -value
	Score: median (first–third quartile)	<i>N</i>	Score: median (first–third quartile)	<i>N</i>	
9. Satisfaction score	54 (52–55.5)	76	54 (52–54)	98	0.10
General satisfaction	9 (9–9)	76	9 (9–9)	98	0.54
Professional care	27 (26–28)	76	27 (25–27)	98	0.03
Depth of relationship	9 (9–9)	76	9 (9–9)	98	0.54
Perceived time	9 (9–9)	76	9 (9–9)	98	0.68
Waiting less than 1 h	55 (53–58)	76	54 (52–54)	67	0.008
Waiting 1 h or more	54 (52–55)	57	54 (52–54)	31	0.66
10. Enablement	4.5 (2.5–6)	76	5 (2–6)	98	0.75
Waiting less than 1 h	5 (2–6)	19	4 (2–6)	67	0.41
Waiting 1 h or more	4 (3–6)	57	5 (4–6)	31	0.33

relatively high. The workload is an estimated 20% greater at the health centre. The waiting time was twice as long at the hospital OPD compared to the health centre, but curative consultations took an equal length of time in either facility. Diagnostic practice did not differ to any significant degree, though OPD staff tended to deliver better treatment. The proportion of potentially dangerous events in both the hospital OPD and the health centre was unexpectedly high.

The satisfaction score exhibited a more or less normal distribution (median: 54, mean: 53.2, first–third quartile: 52–55), but the enablement score was skewed to the left (median: 5, mean: 4.1, first–third quartile: 2–6). On basis of the observed variances we established that the study had a power of 80% to detect a difference of 1.5 points on satisfaction score and 0.9 points on enablement score at a 95% significance level.

The patient's satisfaction and enablement scores were comparable in both health care facilities (see Table 4), but professional care—a subcategory of the satisfaction score—scored better in the hospital OPD ($p = 0.03$). Among patients waiting less than an hour, those attending the hospital OPD were more satisfied ($p = 0.008$). When considering the subcategories of satisfaction in the group that had been waiting less than 1 h, the difference was only significant for professional care ($p = 0.002$).

The factors determining satisfaction and enablement are presented in Table 5. 'By-passers' appear to be significantly more satisfied ($p = 0.01$), and more enabled ($p = 0.03$). Again, the difference in satisfaction was only significant for the subcategory of professional care ($p = 0.003$). Of the nine by-passers, eight attended the hospital OPD of who three were civil servants, two had dental problems (treatment for which was not available at the health centre), two had attended the health centre without improvement and one required in-patient admission. With the exception of two patients, all lived within the growth point. By-passers' waiting times were less than those of other patients at the hospital OPD (70 min versus 102 min, $p = 0.08$), but sample sizes were too small to compare outcomes for

Table 5. Factors determining satisfaction and enablement

Variable	<i>n</i>	Satisfaction score		Enablement score	
		Score: median (first–third quartile)	<i>p</i> -value	Score: median (first–third quartile)	<i>p</i> -value
By-passers	9	55 (54–57)	0.01	6 (4–7)	0.03
Non-by-passers	165	54 (52–54)		4 (2–6)	
Nurse 1	46	24 (51–54)	0.04	4 (2–6)	0.42
			(Kruskal–Wallis test)		(Kruskal–Wallis test)
Nurse 2	20	53 (50–54)		5 (3–6)	
Nurse 3	16	53 (50–54.5)		4 (1–5.5)	
Nurse 4	24	54 (53–56.5)		5.5 (4–6)	
Nurse 5	14	54 (53–55)		4 (2–6)	
Nurse 6	18	53.5 (52–54)		5 (4–6)	
Below 45 years	34	54 (52–54)	0.43	5 (3–6)	0.04
45 years or more	140	53.5 (52–56)		4 (2–5)	

Note: Nurses with less than 10 contacts per day were excluded.

by-passers. Satisfaction scores were a function of the clinical and interpersonal skills of the nurse who carried out the consultation ($p = 0.04$), but not so the enablement scores ($p = 0.42$).

DISCUSSION

Three dimensions of quality of care were distinguished in the design of this study: access, clinical practice and the relationship between health worker and patient (see Table 1).

The health centre achieved higher scores in terms of accessibility, a finding that was not totally unexpected. This result arises from both structural advantages (such as proximity of the facility to its user base or the lower fee scales), but also to the way in which services at the health centre are organised: despite lower staffing levels, health centre personnel managed to spend as much time in consultation with patients as at the hospital OPD, but health centre patients had only to wait half as long. Perplexingly, having to wait less than an hour correlated with higher patient satisfaction at the hospital OPD, but not at the health centre. This might possibly be explained by different patients' expectations of the care provided at different facilities: lower waiting times could be something that matches patients' expectations at health centres—and so would not affect satisfaction scores. On the other hand, a short waiting time at the hospital OPD is something rather unusual and would therefore positively influence the satisfaction score.

The second dimension, clinical practice, quantified by patient re-examination, scores less well at the health centre by comparison with the OPD, although the differences were not statistically significant. This can be explained by a combination

of less well qualified staff and by less frequent exposure to serious illnesses. The high level of potentially dangerous events occurring in *both* facilities underlines the continuous need for staff training in basic diagnostic skills. The satisfaction scores indicate that the patients themselves value the quality of the professional care less at the health centre.

Thirdly, before the study began we anticipated that patients would form a more meaningful personal relationship with the nurse in the health centre, resulting in higher levels of satisfaction and enablement. This expectation was not confirmed and probably constitutes the most surprising finding of the study.

Before drawing together our conclusions on the wisdom of the decision to build a health centre at the Tsholotsho growth point, some limitations of the study itself need to be addressed. To begin with a response bias may have influenced the results. At the hospital OPD, two reasons for not participating in the survey could be identified: waiting too long and being employed—and thus having less time to wait for an interview. Non-responders with longer waiting times would conceivably be less easily satisfied, but this is not likely to have much impact on the final results of the study. However, the study itself could easily introduce bias into staff behaviour. Several patients commented they were treated faster or in a more friendly way than was normal. There is no indication that this affected the two facilities differentially. One of the basic assumptions made, when deciding on the construction of a health centre in the Tsholotsho growth point, was the assumption that health care provided at a facility situated close to the population centre would be more patient-centred. Patient satisfaction and enablement were originally seen as indirect measures of patient-centeredness, but this relationship has been questioned in later work by Mead *et al.* (2002). For this reason, the current study does not necessarily allow us to reach conclusions on the patient-centred character of the health care provided. The main limitation of this study, however, is that there is no information available on the quality of care at the hospital OPD *before* the health centre opened. ‘Dividing’ the patient population between the hospital OPD and the health centre is likely to have resulted in an improvement of the quality of care at the OPD if, for no other reason, than the dramatic reduction in workload. If the health centre yielded no significant added value, then an argument can be made that simply allocating more staff to the hospital OPD would have generated similar results. In view of these limitations we cannot reach any firm conclusions about the validity of the decision to open a health centre at the Tsholotsho growth point. Our study nevertheless points to some added value created by the decision to build the health centre, all be it a limited one. Our study demonstrates that staff in the health centre work more efficiently, resulting in shorter waiting times without jeopardising the length of the consultation and this despite lower staff availability.

It is important to point out that the original concept and design of health care delivery at the Tsholotsho health centre was never fully put into practice. The relatively limited opening hours (from 7:45 a.m. to 4 p.m.) and the referral of women in labour and patients with dental problems to the nearby hospital exposed the flaw in the claim of the centre to provide comprehensive health care. Staff turnover, though lower than at the hospital OPD, may have remained too high to establish productive personal relationships with patients and communities. None of the nurses specifically

selected for the new health centre and who were involved in the household census prior to the health centre's opening, were still in post at the time of this study. The potential of the family file database was never fully realised. They were seen simply as administrative files rather than as a dynamic tool which could be used to integrate the unique personal and social dimensions of family membership into the medical decision-making process. It must be acknowledged that no proper training on the purpose and use of family files had taken place. We may conjecture that the DHE assumed that the introduction of the tool itself would prompt a change in the professionals' behaviour—which it did not.

The problems encountered in the implementation of this 'ideal' health centre can also—at least partially—be explained by the fact that the RDC, which is tasked with running the health centre, never really sought to be involved in the (admittedly complex) decision-making process. It declined to contribute towards the creation, design and operation of the new health centre—despite repeated invitations by the DHE. It is, for example, doubtful whether the RDC ever grasped the basic rationale for introducing family files. These problems raise questions about whether the theoretical framework which underlay the creation of this new health centre was ever going to prove acceptable and applicable when implemented at grass roots level. Convincing technocrats in the DHE of the desirability of such a framework was necessary, but, in itself, not sufficient. The study *a posteriori* points to the need for additional measures which, it can be argued, should have accompanied the creation and operation of this new facility: for example, more efforts could have been made to ensure that health centre staff and the RDC managers were familiar with the rationale of the new centre, more attention should have been given to DHE capacity building in terms of supervision, staff training in the fields of patient-centeredness, active promotion of community involvement, etc.

We must also acknowledge that the general conceptual framework used in this study was influenced by the experience of general practice in Europe as understood by both the Belgian external researchers and the Belgian expatriate medical doctor acting as District Medical Officer in Tsholotsho. This is reflected in the emphasis given to the concept of family files and in the importance attached to the development of interpersonal skills for use by caregivers with patients. On the other hand, the importance of a personal relationship in the delivery of quality primary care is supported by the evidence, albeit largely anecdotal, which emerges from an analysis of data collected about the small population of by-passers. The patients from the catchment area of the health centre, who opted to use the hospital OPD, appeared to do so because of their social status or because of the type of health problem they experienced. The finding that three of the 'by-pass' respondents were civil servants—that is 'colleagues' of the hospital staff, that most of them lived in the growth point and that they were kept waiting less than other patients, tends to suggest that they were offered more personalised care. Interestingly, they were not only more satisfied, but also felt more enabled. This appears to validate the hypothesis that the closer the social proximity between health worker and patient, the greater the level of patient satisfaction and enablement. In the case of Tsholotsho, and contrary to our initial perception, hospital staffs were closer socially to the civil servants than were health centre staffs.

Finally, we would like to return to that which we believe represents the most significant contribution made by this study to public health in Zimbabwe: the introduction of the concepts of patient satisfaction and enablement in the Tsholotsho DHE. This study is, to our knowledge, the first documented attempt to introduce and evaluate a novel concept like patient enablement in sub-Saharan Africa. As this was not a validation study, no firm conclusions can be made about the validity of the tools used. The scores, which demonstrated satisfactory internal consistency, exhibited a lesser degree of spread than their European equivalents. The fact that people who experience shorter waiting times or by-pass the system are more satisfied, suggests some construct validity of the satisfaction score. The introduction of the questionnaire in the DHE provided face validity: that is the questionnaire addresses issues believed to be relevant to the concept it aims to measure. Last, but not least, the reliability of the questionnaire seems assured by the extensive development process, involving, as it did, translation and back-translation by several different individuals, over three different pre-tests.

However, within the context of management strengthening, which really has been the *raison d'être* of the District Health Services Management Project for more than 10 years, it is not so much the validity of the questionnaires, but rather the validity and the local understanding of the concepts of patient satisfaction and enablement, that are relevant. It is interesting, therefore, to see how the original CSQ and PEI have changed. While these changes were made in the first place as a response to patients' problems in understanding the questionnaire, they also reflect the way in which the DHE members appropriated the concepts of satisfaction and enablement. The theory behind the satisfaction score does not appear to differ much from that of the CSQ. Indeed, patient satisfaction as a concept had already gained some recognition in Zimbabwe as an important aspect of quality of care. This was reflected in, for example, the *Patient's Charter* of the Ministry of Health & Child Welfare. However, the changes to statements 14 and 15 direct attention within the questionnaire away from the relationship between caregiver and patient, and towards the medical practice. By contrast, the concept of enablement, changed considerably in the process of adaptation for use in the present study. More emphasis was put on patient's knowledge and less on patient's coping by comparison with the original PEI—the role of the practitioner being seen as transferring knowledge from an expert to a lay receptor, rather than as an enabling process from a facilitator to a lay actor in full control of his life. The enablement score sees treatment as the invariable result of the expert's advice, while the PEI score encompasses the notion of treatment evolving from negotiations between expert and customer. This distinction most likely reflects differences in perspective between the role of the health workers in Zimbabwe and those in Europe.

It thus appears that the concept of a first line health service in its fullest iteration, alongside the distinctive and complementary roles of hospitals and health centres was not fully appreciated by the health workers in Tsholotsho. It was taken for granted that the creation of a health centre equipped with all relevant tools would necessarily result in an health worker-patient interaction that would be patient centered; in which long-term relationships would be favoured, and where the patient's family and social context would be integrated into the management of his or her health problems. This assumption proved incorrect. Conversely, the assumption

that the hospital as an institution would be less suitable and less able than a health centre to offer quality first line health care was not validated.

CONCLUSION

The study results failed to provide conclusive evidence that the care offered at the new Tsholotsho health centre was any better than that provided at the existing hospital OPD situated about 1 km distant. While the health centre scored better on some parameters such as shorter waiting times and slower staff turnover, respondents rated the quality of clinical practice more highly at the hospital OPD. Moreover, patients expressed greater satisfaction with the care provided at the hospital OPD. These findings do not undermine the validity of rationalising the organisation and utilisation of the district hospital's OPD, nor do they challenge the case for a more comprehensive coverage plan at district level. The former contributes to the efficient operation of district health systems and the latter enhances the population's access to primary health care.

The study results, however, do illustrate the fact that the creation of new health facilities in an environment where physical access is not a significant issue, such as the case of the Tsholotsho clinic, sited in a semi-urban environment already served by an existing hospital OPD, does not automatically lead to better quality of health care. These findings can be explained in part by a lack of understanding amongst local health workers of some of the innovative organisational changes introduced by the DHE to the organisation of the new health centre (e.g. community census, use of family files, etc.), but probably also by the weight in the conceptualisation of quality of care in this study of the longstanding but highly specific European experience of general practice. Despite these reservations, we believe that this study will contribute to the relevance of future research in the field of quality of care in developing countries. Indeed, the analytical framework which was developed by the Tsholotsho research team represents a useful contribution to future evaluative research into quality of care. Another lesson which can be drawn from this study is that the notion of enablement, originally developed as part of research into general practice in the United Kingdom, is considered by the Zimbabwean DHE members as something relevant and appropriate to the process of health care delivery in a rural district setting such as Tsholotsho. There is, however, need to adapt the tools designed to measure enablement to the local culture.

This study finally highlights the managerial and methodological challenges faced by those operating and researching complex health systems. These difficulties arise when there is no simple linear relationship between intervention and effect because of multiple confounding factors, including feed back loops and the unpredictable side effects of concomitant interventions.

ACKNOWLEDGEMENTS

We are grateful to the Tsholotsho District Health Executive (DHE) for acting as the driving force behind the various processes described in this article, over a period of

more than 10 years. The DHE has enjoyed some external support but was nevertheless the principal agent in the design of the study and also for data collection. We also thank the Provincial Health Executive of Matabeleland North Province for the provision of qualified interviewers.

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APPENDIX: THE TSHOLOTSHO FAMILY FILE

Name of Health Center

Name/ surname of head of household

Address; village/ school / line

Religion

Name/ Surname	Sex	Date of birth	Situation in household	Status	Source of income	Immunisation status	Past medical history	Significant episode	Significant episode	Significant episode	Significant episode	Out of household
1	2	3	4	5	6	7	8	9	10	11	12	13
<p>Column 4 See family tree.</p> <p>Column 5 M-married, S-single, W-widow(er), D-divorced, Sep-separated, O-orphan.</p> <p>Column 7 BCG, Measles, DiPeTe 1-4, Polio 1-5, HBv 1-3, DT 1-2. Column 8-12 (1) Chronic incurable diseases (+ date of onset); HPT, CCF, Epilepsy, DM, Asthma, Mental Illness (depression, psychosis), HIV/AIDS, RHD, disability. (2) Chronic curable diseases (+ date of onset: + outcome: cured, unchanged, deceased, defaulting, unknown (TB, Leprosy, Malnutrition). (3) STI (other than HIV/AIDS) + date of onset and outcome. (4) Major operation (date and specification of operation). (5) Allergies (from medication and food, etc). (6) Pregnancy and outcome (P...G...A...), Tetanus-toxoid immunisation status. (7) Family-planning date of start and nature of method. (8) Hospital admissions, date, diagnosis and outcome.</p> <p>Column 13 Deceased, moved, started own household or unknown.</p>												

ENVIRONMENTAL HYGIENE

Inventory Year

Toilets

- None
- Pit latrine
- Blair latrine
- No latrine wash hand facility
- Latrine wash hand facility

Water supplies

- Unprotected well
- Borehole
- Protected well
- Piped tap water
- Harvested rain water

Kitchen

- Temporary structure
- Permanent structure
- Poorly ventilated
- Well ventilated

Pot rack (sink)

- None
- Temporary pot rack
- Permanent pot rack

Refuse pit

- None
- Temporary refuse pit
- Permanent refuse pit
- Refuse bin

Water bodies

- None
- Seasonal
- Perennial

Tick (✓) in appropriate box when updating the record.

