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ORIGINAL RESEARCH

# The determinants of quality in procedural rural medical care

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## ABSTRACT

**Introduction:** A substantial proportion of health services for rural Australians is provided in rural health facilities by rurally based generalist health professionals. These services include procedural care within smaller rural hospitals, where teams of health professionals – medical practitioners, nurses and other support staff – work in teams to deliver a range of procedural services, both elective and urgent, that reduce the need for rural people to travel to major centres. Recent debate over the training of rural medical practitioners has focused on whether or not they need to provide procedural services, because current health service management policy appears to support the rationalisation and centralisation of service delivery in larger centres to contain costs and ensure high quality. Hence there is an assumption, without much evidence, that the quality of care in rural hospitals is lower than that provided in larger urban hospitals, although there is little agreement on just what aspects of care should be measured to indicate its quality. This article reports an exploration of multiple perspectives on what constitutes quality of care in rural procedural medical practice, as part of a broader study of the quality of care of a series of real clinical cases.

**Methods:** During the collection of a series of 91 individual patient cases involving anaesthetic, obstetric or surgical procedures conducted in small rural hospitals, interviews were conducted with several participants in each case: the rural doctors; rural nurses; the rural patients; and family members of those patients. In addition to issues pertaining to each case, interviews explored the perspectives of individuals in each group on the broader question of what constitutes quality of care in a general sense. Their comments were subjected to qualitative thematic analysis using Atlas.ti software (Muhr T, ATLAS.ti Scientific Software Development; Berlin, Germany). In order to consider how to measure rural health care, the thematic comments were then applied to a Donabedian structure/process/outcome model.

**Results:** The different groups produced different views on what might determine the quality of health care in rural hospitals. The health professionals tended to focus on technical aspects of care, although the doctors and nurses had some different emphases, while the patients and their families were more concerned with access, interpersonal communication, convenience and cost. These

 

themes appeared to be consistent with previous literature from general healthcare settings. A list of indicators is suggested for measuring the quality of rural health care.

**Conclusion:** This study has improved understanding of the differing views held by rural health professionals and rural patients in thinking about the quality of care provided in rural hospitals. Consideration of the quality of procedural rural medical care should include the needs and expectations of those living and working in a smaller, more familiar environment. This has implications for health planners, and suggests that there is a continuing need for rural health professionals to be trained to provide procedural medical services in rural hospitals, and for rural hospitals to be maintained at a standard necessary to support quality service provision.

**Keywords:** Australia, quality of care, rural hospitals.

# Introduction

Non-specialist medical practitioners provide most of the anaesthetic, obstetric and surgical services in Australian rural communities. Despite underlying assumptions that the quality of these services cannot match that of specialist care in larger hospitals, there is little evidence to support this assertion. This issue is important because substantial government funds are spent on recruiting, training and retaining a qualified rural medical workforce, and yet fewer rural doctors are providing these services and fewer rural hospitals have the facilities to support those rural doctors still providing the services[1,2].

A fundamental issue is the lack of agreement on what constitutes quality in rural procedural care. Quality of care is a complex, multi-perspective construct, where different stakeholders may hold differing views on what comprises quality and how it should be measured. Doctors performing procedures may tend to focus on technical quality and allow for an 'unavoidable' error rate. Patients are more likely to focus on access, availability, cost, interpersonal communication and functional outcome. Funders and regulators may focus on cost control. Increasingly, judgements about quality are seen as requiring consideration of a combination of factors, including the views of consumers and health professionals[3-5].

The Institute of Medicine (IOM) has produced arguably the most accepted and quoted definition of quality of health services, as follows[6].

> *Quality is the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current knowledge.* [p.6]

Equally important as the definition is the measurement of quality of care. In health services research, the structure/process/outcomes framework proposed by Donabedian remains popular[7], as do his seven defining aspects of good quality of care: efficacy; effectiveness; efficiency; optimality; acceptability; legitimacy; and equity of care[8].

The use of quality indicators (well-defined, measurable aspects associated with structures, processes or outcomes of care) have become a standard practice in highlighting areas of either potential problems or good quality in health care provision[9]. However, while such indictors have been developed, applied and refined in large hospitals, their development in primary care has been slower[10,11]. Even less is known about measuring quality in rural medical care, particularly rural medical procedural care, where relatively small numbers of procedures are performed by 'part-time' proceduralists and support staff.

 

A central issue remains: how should an assessment of quality of rural procedural medical care be approached? Models for quality indicators that do not rely on high obstetric caseloads are in development[12,13], although this is less well developed in surgery[14]. This article reports a study that, as part of a broader study of the quality of care in a series of real clinical cases[15], explored the understanding of what determines 'quality' from the perspectives of the participants in rural procedural health care: the patients, their families, the doctors and the supporting health professionals.

# Methods

The main study consisted of a multiple-perspective analysis of a series of real clinical cases collected prospectively over a six-month period in rural hospitals. Experienced rural procedural generalist medical practitioners were recruited from six Australian States and Territories through the Australian College of Rural and Remote Medicine (ACRRM), with the following inclusion criteria: had completed appropriate postgraduate procedural training; and currently practising in communities classified as rural/remote according to the Rural, Remote and Metropolitan Australia (RRMA) classification (RRMA 3-7). Each was asked to enrol five consecutive consenting patients undergoing a medical procedure, including both urgent and elective cases. Data were collected by questionnaire and telephone interview from the participating rural doctor, a rural nurse involved in the patient's care, the patient and a member of the patient's family, forming a detailed case study for each patient event. These case studies were reviewed by an urban specialist in the relevant procedural specialty (eg an obstetrician, surgeon or anaesthetist), a medical administrator (a quality and cost efficiency perspective) and a representative of a rural consumer group. The results of this part of the project are reported in detail elsewhere[15].

This article reports on the additional information sought from participating rural doctors, rural nurses, patients and family members. Each was asked similar questions (Appendix I) that explored views on what might contribute to quality care in rural health settings. Interviews were audiotaped and transcribed. All information was confidential and individual participants are not identified, even by location. Detailed concurrent coding was conducted during in-depth reading of interview transcripts by one of the researchers, followed by independent checking of a sample by another of the researchers. Atlas.ti software (Muhr T, ATLAS.ti Scientific Software Development; Berlin, Germany; 2004) was further used to identify central themes from the detailed coding. Ethics approval was granted by the James Cook University Human Research Ethics Committee.

# Results

***Participants and patient cases***

Participants included: 24 rural doctors; 91 patients; 36 family members; and 38 rural nurses. All but one of the doctors was male, their average age was 49 years (range 34-59 years), and had been in rural practice for a mean of 18 years (range 5-30 years).

The recruited patients were: mostly female (78%); had a mean age of 38 years; were in permanent relationships (60%); lived in households with three or more people (76%); described themselves as having a 'rural background' (77%); and had a median gross annual household income of AU$40 000. A family member was recruited into the study by only 36 patients: 75% of them were spouses or partners and 50% were male. Contact was made with 38 hospital employees, almost all registered nurses or midwives.

The lower recruitment of family members appeared to be due to one of two reasons: time constraints, such as where doctor and patient met just before a theatre list (eg anaesthetic assessments and more urgent cases); or due to unavailability of suitable family member. Fewer nurses participated because of recruitment difficulty in some hospitals.

 

***Perspectives on what constitutes quality***

Responses are presented according to participant category.

**Patients:** Among patients, interpersonal aspects were clearly dominant, with emphasis on the attitude and personality of, relationships with, trust in and communication with staff, particularly in answering patient's questions and providing accessible information. Words frequently used in association with interpersonal aspects include: understanding, caring, compassionate, kind, empathy, niceness, helpfulness, calm, honest, not indifferent, friendly, smiling, happy, humorous, respect, approachable and listening. Good interpersonal relationships with staff led to increased patient confidence and reassurance prior to procedures, and appeared to improve patients' perceptions of a greater level of competence if the doctor spent time explaining the procedure and related issues to the patient.

> *I think the things that made me happy was how calm everyone was throughout the whole thing, they were very reassuring and I think it is important if you feel reassured - that everything is going to be alright; that you are in competent hands…. And also having confidence in the staff technical/professional abilities I suppose. Yes, knowing that they are very competent.* [Patient]

> *Communication between your doctor and yourself, just knowing what is going to happen and them explaining it to you and feeling confident they can actually do it for you. That is probably the main thing.* [Patient]

**Family members:** Family members spoke of very similar issues, although they were more focused on the interpersonal communication of hospital staff, as evidenced by staff attentiveness and relationship skills with their relatives.

> *Well I think a little bit of care and attention to patients. I have come across some nurses where they are so busy with their routines (that) they forget that the patients are people with concerns and anxieties. . . and it just means so much to patients to have that one minute of their time for no other reason than to allay their fears.* [Family member]

> *. . . like the attention that they give you - and I think that she got plenty of that . . . she got attention and she was looked after*. [Family member]

> *You have got to have a lot of faith in your hospital and the people performing your procedures. I think it is their attitudes, they make you feel at home, they are there to look after you and you just relax right down and you don't feel uptight about what is going to happen to you*. [Family member]

> *The attitude and the manner of the doctor and the nurses, the ones that are really there because it is a vocation with them... It comes out in them the way they treat people and the fact that, they listen to what you say and they have compassion. They have an understanding what is wrong with you. It is the way they talk to you - they don't talk down to you, they talk to you as somebody on the same level as them. They understand how you feel. They do their level best to help you.* [Family member]

**Doctors:** Themes that emerged from rural doctor interviews were mostly related to workforce and technical aspects of care. The workforce issues centred on the current shortage and apparent poor recruitment of recent graduates into procedural rural medicine; this was seen as a major threat to the future of rural medicine. Many believed that the current situation was unsustainable, with too few proceduralists trying to shoulder too large a burden, thus threatening the quality of their services. Suggestions were made towards making rural procedural training more accessible, improving the appeal of rural health care, and increasing the local workforce so that teams of trained, experienced health professionals can provide 24 hour cover without fear of occupational burnout.

Several comments referred to the need for a high standard of technical competency. Maintenance of these skills through

 

regular participation in continuing medical education activities was also highlighted as being an important contributor to good quality procedural care. Maintaining skills was not seen as an option, but rather a responsibility that went with the role of being a rural doctor.

> *My philosophy in a small country town which drains a very big geographic area is that . . . you're going to be doing obstetrics whether you like it or not because people will not get away or they'll leave* [it] *'til the last minute to get away and you're going to be stuck with someone delivering on your doorstep. So I think that it's better that you maintain your skills….I can screen them really well and at the end of the day, women will deliver at the* [locality 1], *whether I like it or not or the health department likes it or not because of the distances people have to travel. And I'd rather have a skilled team here than having a team that doesn't know what they're doing. . . . I've basically stopped doing private obstetrics since the indemnity business so I basically only do public deliveries . . . and I'm indemnified by Queensland Health so that's certainly made it a lot easier for me.* [Doctor]

Beyond this, doctors felt that adequate resourcing, not only in terms of staff but also equipment, was necessary for the provision of good quality of care. There was also concern that poor quality could result from inadequate support from larger facilities for specialist advice and retrievals.

> *I think the layout and ... the standard of the equipment would be the major physical things and I would put them a fair way behind the actual staffing. I think the skills of the staff and the level of staffing are far more important but obviously you need a decent delivery bed and you need forceps that are sterile and fit together and all basic stuff but it needs to be there and it needs to be maintained and in reasonable quality.* [Doctor]

> *You can't do anything if you haven't got people to look after your patients at the end of the day… for instance in the ICU ward, if anything is going to be needing ventilating post-operatively we can't do it here. So the quality of your procedural work really depends on the hospital, the facilities and the level of staffing they are providing because nothing can* [be done] *without nursing staff. ... So your nursing staff will often determine the level of procedural care and the quality that you can get.* [Doctor]

> *. . . the other major problem I guess is getting, you know referring people out to tertiary facilities. The delay in getting them out and retrievals is always a problem. . . . So it annoys me when tertiary facilities that have all the high tech equipment and the high tech staff and that sort of thing, when you ring up with a high tech problem really don't want to know about you.* [Doctor]

**Hospital nurses:** Analysis of comments by the rural nurses produced similar themes to those of the rural doctors, in that there was a focus on technical or clinical aspects of the care, but there were three subtle differences. The first was that workforce problems received less comment, although were acknowledged as a potential threat to the future of rural hospitals. The second was an increased emphasis on hospital teams needing to work within their limitations and being willing to refer or call on retrieval services when necessary.

> *Good quality rural care depends on knowing our facility's limitations and working within those boundaries: ie (1) not delivering first babies at our rural hospital; (2) antenatal assessing an obstetric risk score; and (3) endeavouring to refer all high risk pregnancies to a major centre.* [Registered nurse/midwife]

> *To safely care for patients within the limits of the hospital's expertise. To know/accept when a client falls outside these parameters and transfer to the appropriate facilities.* [Registered nurse/midwife]

> *In small rural hospitals, teamwork is essential and that includes doctor/nurse respect and communication. Patient care is compromised if*

 

*doctors ignore RNs concerns and requests for review of patient.* [Registered nurse]

*The thought that the practitioners are able to deal with care and procedures that fall outside the expertise of the practitioner - taking on more than other staff are comfortable with or are staffed for.* [Registered nurse]

The third difference was an increased focus on the positive nature of the familiarity with patients, more personal care and continuity of care common in rural hospitals.

*After caring for this patient on a previous admission with an intra-uterine foetal death and subsequent incomplete abortion at 15 weeks gestation; it was special to me to share a happy occasion this time - the birth of her beautiful, healthy third baby boy. Each patient at our hospital is special to us and hopefully the care we endeavour to give reflects this.* [Registered nurse/midwife]

Rural hospitals were also regarded as being more efficient, flexible and friendly, with a more caring and accommodating approach, all positive contributors to good quality procedural care.

*The quality of care would be better (in a rural hospital): more personal - patients and their families are usually known, therefore treated like people, not like things in a process line. More flexible - can accommodate parents etc in different situations that arise, eg access to recovery, timing of operation . . . Small waiting time for elective surgery.* [Registered nurse]

Similar to rural doctors, rural nurses felt that they had little choice but to maintain a range of necessary skills.

*Some patients (particularly older people) refuse to be treated in the city. This puts pressure on the local health service and providers to do it. The rural GPs, nurses and health service need to be able to meet the needs of these patients without going beyond their skills and abilities*. [Registered nurse]

# Discussion

This study has identified several issues that rural doctors, nurses, patients and family members believe might contribute to the quality of procedural rural medical care, and has shown that these groups consider different issues and emphases in thinking about the quality of this care.

Patients and their families appear to make judgements based largely on the good relationships with caring, friendly and familiar local health professionals whom they perceived to be competent. This is similar to findings of health system research elsewhere, where the consumers of health care are mainly concerned about: the accessibility, availability, convenience and cost of care; the interpersonal communication; the perceived competence of the health professionals; and perceptions of a good outcome[15,16-18]. Ideally, healthcare systems should be designed to provide what users value[19].

On the other hand, the providers are more concerned with the technical issues: their prior and continuing training; professional support; and having the necessary technical and human resources. This is also similar to broader healthcare system research findings[3-5].

Two specifically rural elements emerge from this research. The first is a strong agreement from all groups that small rural hospitals provide the familiarity, flexibility, friendliness and accessibility valued by patients, precisely because they are in small communities where most residents know each other and the health professionals providing the services.

The second theme is concern over the sustainability of rural hospitals, an issue voiced strongly by patients interviewed in

 

the other part of this study[15]. The concern of the health professionals is based on the ability to maintain staffing levels, technical skills and technical equipment. Not enough new trained professionals seem to be available to ease the current workforce demands, let alone to replace those retiring or withdrawing from services. The comments by some nurses that appear to question team function merit further consideration. While many doctors and nurses commented on the excellent teamwork that resulted from the familiarity of a small, local team, a small number of comments appeared to relate to events when relatively inexperienced doctors were in place as locums. This strengthens concerns about the viability of small rural teams, where one resignation could have a deep impact on the quality of local service provision, resulting in a 'domino effect' that would reduce services and even force hospital closures. Patients and their families were very aware of this potential and were concerned that loss of local services would force them to use distant, less familiar and more expensive options.

The importance of understanding these different and specifically rural perspectives on quality of care is that it has been shown that, where health planners develop health services that address these issues, considerable improvements in patient compliance and satisfaction, and practitioner recruitment and retention, have been demonstrated[20].

***Measuring the quality of rural procedural medical care***

The determinants of quality identified in this research were then considered by the authors in the light of the Donabedian structure-process-outcome model, which might be used as a framework for considering how to measure the quality of care in rural hospitals. This model suggests that health care can be measured by structural components (eg facilities, equipment, human resources), process of care (eg activity) outcomes (eg complication rates, cost-effectiveness). Possible measures of rural healthcare quality according to this framework, as summarised (Table 1), may be more appropriate than predominantly quantitative approaches used in quality measures within larger healthcare systems. For example, structural determinants should reflect the context of the broader location, plus community needs and expectations. These are more likely to accurately reflect quality than basic quantitative measures defined for urban settings. In terms of process, the kinds of determinants listed here are regularly raised by rural community members and practitioners alike as key factors in healthcare seeking and decision-making in rural areas. Finally, outcome measures need to reflect the local burden of disease and community attitudes and behaviours to ill-health.

**Table 1: Determinants of quality of rural health care**

| Determinants | Determinant detail |
|---|---|
| **Structural** | Presence of appropriate, trained staff (eg doctors, nurses and others); affordable professional indemnity; the necessary equipment (eg anaesthetic machines) that is maintained, the rooms (eg operating theatres and birth suites); consumables (eg drugs). |
| **Process** | Availability; equity of access; convenience; cost (to patients); the interpersonal communication; cultural appropriateness; how the procedures are performed by the healthcare team; how technical competence is maintained. |
| **Outcome** | Patient satisfaction; the cost (to the system); technical outcomes such as functionality and complication rates. |

 

***Limitations***

In any relatively small survey there is the potential for recruitment bias. The doctors who agreed to participate may have been more experienced, more confident or more outspoken, or may have nominated more supportive patients, despite a recruitment protocol designed to reduce this possibility. All participants may have felt a need to defend what they regard as a valuable service. Also, the study involved relatively simple procedures, and did not explore possible weightings that rural patients might give to the different aspects of quality, such as how and where they might trade off concerns about technical quality in more complex procedures versus familiarity, convenience and cost. Hence, the relevance of these findings to other rural procedural settings (specialist-led care in district hospitals) may be limited. Further research is needed to broaden the information base and explore these issues in greater depth.

# Conclusion

This study has contributed to an improved understanding of the views of rural doctors, rural nurses and their patients on what determines the quality of rural procedural health care, and of the differences between the views of those groups. While many of the issues identified are probably generic to all health care settings, the broadly supported view is that the more familiar and flexible environment of the local rural hospital is important to understanding quality within rural health care. Healthcare planners should consult with rural communities and local healthcare providers in designing their healthcare systems, with the aim of improving patient satisfaction and practitioner recruitment and retention. There appears to be a continuing need to provide procedural services within Australian rural hospitals and, therefore, to provide and maintain both the necessary facilities and teams of appropriately skilled generalist health professional workforce.

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**Appendix I**

**Example questions from participant interviews**

**Doctor Interview**

What do you think contributes to good quality procedural care?

What do you think contributes to poor quality procedural care?

Any other comments?

**Nurse interview**

What do you think contributes to good quality procedural care?

What do you think contributes to poor quality procedural care?

**Patient interview (conducted after procedure)**

I am now wondering if you could tell me what *you personally* think contributes to *good* quality procedural care (for example the medical care that you received for your appendicectomy/delivery, or other similar procedures performed by doctors in your town such as tonsillectomies). These may be things that we have talked about or some that we haven't touched on at all.

Conversely, what do you think contributes to *poor* quality procedural care?

**Family member interview**

I am now wondering if you could tell me what you personally think contributes to good quality procedural care (for example the medical care that you received for your appendicectomy/delivery, or other similar procedures performed by doctors in your town such as tonsillectomies). These may be things that we have talked about or some that we haven't touched on at all.

Conversely, what do you think contributes to poor quality procedural care?

Do you have any other comments or thoughts that you would like to add to what we have already talked about?

 