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Doctors' experiences of providing care in rural hospitals in Southern New Zealand – a qualitative study

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ABSTRACT

Objective: To explore rural hospital doctors' experiences of providing care in New Zealand rural hospitals.

Design: The study had a qualitative design, using qualitative content analysis.

Setting: The study was conducted in South Island, New Zealand, and included nine different rural hospitals.

Respondents: Semi-structured interviews were conducted with 16 rural hospital doctors.

Results: Three themes were identified: 'Applying a holistic perspective in the care', 'striving to maintain patient safety in sparsely populated areas', and 'cooperating in different teams around the patient'. Rural hospital care more than general hospital care was seen as promoting a holistic perspective on patients based on closeness to home and family and a generalist perspective of care and personal continuity. The presentation of acute life-threatening low-frequency conditions at rural hospitals were associated with feelings of concern due to limited access to ambulance transportation and lack of experience.

Overall, however, patient safety in rural hospitals was considered equal or better than in general hospitals. Doctors emphasized the central role of rural hospitals in the health care pathways of rural patients, and the advantages and disadvantages with small non-hierarchical multidisciplinary teams caring for patients. Collaboration with hospital specialists was generally perceived as good, although there was a sense that urban colleagues do not understand the additional medical and practical assessments needed in the rural compared to the urban context.

Conclusions:

This study provides an understanding of how rural hospital doctors value the holistic generalist perspective of rural hospital care, and of how they perceive the quality and safety of that care. The long distances to general hospital care for acute cases was considered concerning.

WORD COUNT: 267

Strengths and limitations of this study

• In this study, both interviewer and interviewees had professional knowledge of the topic studied, thereby taking advantage of the researcher as an instrument of the research.
• The diversity of sizes and services in the rural hospitals visited reflected different aspects of rural hospital care.
• Qualitative content analysis was considered suitable as it is a methodologically flexible approach enabling interactive changes to the interview schedule as new information is gathered. Furthermore, this approach enables findings relevant to a specific problem/issue to be documented
• Male and female doctors of varying clinical experience and ethnic origin participated; however, no Māori doctors were interviewed.

Introduction

In South Island, New Zealand (NZ), secondary and tertiary hospital care is provided to the population mainly by the general hospitals in Dunedin, Invercargill, and Christchurch. These hospitals also serve as supporting base hospitals for small rural hospitals (RHs) scattered in the sparsely populated surroundings. The NZ Doctors Workforce Survey 2015 (1) identified 26 RHs, 11 of which were situated in South Island. RHs have evolved in response to local needs and economic circumstances, explaining the variety in size, services and ownership models - a mix of public hospitals run by District Health Boards and Community Trusts (2,3). The medical and nursing care provided in RHs cover many vocational areas of clinical practice (1), as do rural community hospitals in other countries (4). The Otago Rural Hospitals Study found that RH patients were older than those admitted to larger hospitals (5). This is consistent with studies on similar models of rural hospital care in other countries (6–9). These studies indicate that some patient groups, mainly elderly patients with exacerbation of chronic diseases and infections, could be offered different levels of hospital care depending on the presence of a RH in their community. These patient groups take a considerable and growing part of hospital care provided in NZ and worldwide.

A recent NZ policy document emphasizes an estimated increase in hospital bed usage in the coming decades due to an ageing population, and states that the complexity of hospital cases will increase due to multimorbidity and frailty (10). Furthermore, new models of care are looking to provide more care in communities, closer to where people live, in addition, earlier discharges of patients from general hospitals to rural hospitals for step down care will add further pressure on rural healthcare systems (10,11).

One definition of RHs (and rural community hospitals in other countries) states that patients are admitted and cared for by generalist doctors (12). The Cairns Consensus Statement (13) defines Rural Generalist Medicine by the broad scope of medical care a rural doctor provides, including primary care, hospital in-patient care, emergency care, a population health approach relevant to the community and participation in multi-disciplinary teams locally and at a distance to provide services responsive to community needs (12). Traditionally RH medical care in NZ was provided by local rural general practitioners (GPs) and MOSSs (Medical Officer of Specialist Scale, a non-training position for not yet specialised doctors). Rural Hospital Medicine was recognized as a new scope of practice in 2008, and speciality-training programmes adapted for the needs of RH doctors were implemented (14,15)

RHs provide hospital care for patient groups elsewhere treated at general hospitals, and that are predicted to constitute an increasing proportion of future rural hospitalizations. Rural hospital medicine doctors will, therefore, be responsible for the care of an increasing number of patients . It is, therefore, important to explore how these doctors experience their own role and that of their RHs in the community in the context of the NZ health care system.

Aim

The aim of this study was to explore rural hospital doctors' experiences of providing care in rural hospitals in Southern NZ.

Methods

Study setting

The study took place in rural parts of Otago, Canterbury, and West Coast regions in the South Island of NZ.

Design and sampling

The study employed a qualitative exploratory design (16). A purposive sampling approach was used to invite rural hospital doctors to the study, aiming to include men and women with different level of experience and of differing ethnic origin, representing a variety of RHs in South Island. Participants were recruited using e-mail lists provided by Managing Directors of the South Island RHs.

Data collection

Semi-structured, face to face interviews were conducted by the PhD student MH at the doctors' work or in another undisturbed place of their choosing between October - November 2018, using an interview guide (see supplementary file 1) previously piloted in Swedish. The interview technique included open-ended and probing questions, with more specified questions used to orient the discussion towards areas of interest for the study. Interviews lasted on average one hour. All interviews were digitally recorded, and transcripts were shared with participants for accuracy checking. No participant reported any disagreements on their transcribed interview.

Data analysis

The interviews were transcribed verbatim and analysed according to qualitative content analysis using an inductive approach (17,18). Transcripts were read through several times to get a sense of the whole. The analysis sought to identify meaning units, which were

condensed and labelled with descriptive codes. Codes were compared to identify similarities and differences and then sorted into categories according to content. During the analysis process the codes and categories were discussed in the research group to seek consensus and sub-themes and themes formulated (see table 1) (19). Descriptions of sub-themes including representative quotes from the doctors are presented in the results section. Participant doctors were numbered 1-16.

We used the consolidated criteria for reporting qualitative research (COREQ) (20) to structure the report.

Table 1: Examples of meaning units, condensed meaning units, codes, categories, sub-themes, and theme.

Meaning unit	Condensed meaning unit	Code	Category	Sub-theme	Theme
"...delay in getting your lab results often affected your decision as to whether you're going to keep somebody here or send them to (base hospital)."	Long wait for lab results affect decision whether to keep or send a patient	Long wait for lab results affect decision for referral	Referral because of distance	Weighing distance issues, between to keep or to refer patients	Striving to maintain patient safety in sparsely populated areas.
"I've put chest drains in people before. I've intubated people before, but not often. Doing those sorts of procedures, I'll do it if my back is shoved against the wall, and I had to. It's gonna make me really uncomfortable."	I've put chest drains and endotracheal tubes in people, but not often, and only if I had to and it makes me uncomfortable	I do scary medical procedures, but not often, and only because I must.	Limited experience of or training in handling different conditions	Handling issues related to sparse population	

Patient and Public Involvement

No patients or the public were involved in the design of this study.

Results

Fifty rural hospital doctors were invited to participate in the study. Sixteen doctors agreed to participate and were all included in the study. They worked in 9 RHs, representing public and Community Trust ownership, spread over the South Island of NZ, located from 67 to 330 km to the nearest secondary/tertiary hospital (Dunedin, Christchurch, or Invercargill), and supporting populations from 663 – 33,000 inhabitants. RHs had 4 - 24 acute beds and variable numbers of long-term care beds. Participating doctors are characterised in Table 2. Doctors worked in a RH for a part of or all their work time.

Table 2 Participant characteristics (n=16)

Sex	
Male	13
Female	3
Age (years)	
30-39	4
40-49	2
50-59	8
60 +	2
Clinical experience (years)	
< 20	6
> 20	10
Postgraduate Qualifications	
General Practice only	4
Rural Hospital Medicine only	4
Dual qualified (General Practice and Rural Hospital Medicine)	6
Other medical speciality	1
No specialist postgraduate qualification	1
Ethnicity	
New Zealand European	6

European (British and Irish)	7
Other European	2
Asian	1

The analysis identified three themes which are summarised in Table 3 along with their associated subthemes and categories.

Table 3 Presentation of categories, sub-themes, and themes.

Category	Sub-theme	Theme
Practical aspects of closeness	Providing care close to home and family	Applying a holistic perspective to care
Emotional aspects of closeness		
Spiritual aspects of closeness		
Medical generalist perspective	Seeing the whole patient	
Holistic perspective		
Continuity of care		
Ambulance access	Weighing distance issues, between to keep or to refer patients	Striving to maintain patient safety in sparsely populated rural areas.
Referral because of distance		
Limited experience of or training in handling infrequent acute conditions	Handling issues related to sparse population	
Limited medical resources		
Limited medical staff		
Rural practice for medical students		
Perceived patient safety		
Simplified collaboration	Working in small teams in flat organizations	Cooperating in different teams around the patient
Impact on patients		
Nurses' role		
Interdependency and mutual recognition	Consulting hospital specialists	
Varying collaboration with different hospital clinics		

Applying a holistic perspective to care

The first theme, “Applying a holistic perspective to care” encapsulates two subthemes “Providing care close to home and family” and “Seeing the whole patient”.

Providing care close to home and family

Doctors discussed three aspects of providing hospital care close to home and family: the “practical”, the “emotional” and the “spiritual”. The importance of these aspects made it an ethical as much as a medical issue to keep a patient or refer them to the nearest base hospital.

Practical aspects included the ease for patients with the care close to home as well as for relatives to come and visit, compared to having to travel far to a base hospital. For relatives on a low-income, travel costs could be an issue.

“If your father gets admitted to Dunedin, what do you do? Do you take two weeks off work and stay close to your father, or do you drive up and down twice each day before and after work? (…) It is impractical for the family (…) But if it is here, they could just pop around for five minutes and have a chat and go home, go back to work. Much better for the patients who get to see their family members more.” (Doctor 13)

Doctors described RH rooms for palliative end of life care, with the possibility for family members to stay overnight, often with kitchenettes. Alternatively, these rooms could be used for children and their parents in RHs that accept paediatric in-patient care.

Emotional aspects were highlighted. RH were regarded as essential for the local population’s feelings of safety and wellbeing linked to the personal connection and homeliness of the

facilities. Doctors perceived feelings of pride over the service the hospital provides to the local population.

"And people also feel very proud of the hospital. Both the people that work here and the people who live here because they know that it is a hospital that understands them and understands the community they live in and provides the highest standard of care in a very effective and efficient manner." (Doctor 6)

Spiritual aspects of RHs close to home was particularly prominent when discussing end-of-life care for Māori patients (the indigenous people of NZ). Dying close to home was described as a very important spiritual aspect for Māori patients. None of the participating doctors were Māori, some of them admitted shortcomings in their understanding of Māori tikanga (Māori customary practices), and they recognized that there was room for improvement in the RH care of Māori patients.

Seeing the whole patient

Doctors described the importance of seeing the "whole patient", particularly for patients with multimorbidity or palliative needs. These aspects were brought out when discussing "Medical generalist perspective", "Holistic perspective" and "Continuity of care".

Medical generalist perspective

All RH doctors claimed to have a generalist perspective in the care of their in-patients, i.e., a medically wider role compared to that of base hospital specialists. It was stated to be difficult for a generalist to turn down patients and say that the patients' problems were not within the scope of their competence, leading to a preparedness to do unfamiliar tasks in a way other hospital specialist doctors would restrict themselves from doing, not being in their

area of expertise. This aspect of the RH generalist role was described by the doctors, as *"We specialize in everything that comes in through the door." (Doctor 6).*

RH doctors problematised that deeper specialisation leads to the loss of a broad perspective, claiming that hospital specialists more often need to consult with other specialists about things outside their scope of practice. RH doctors who had experienced working in urban hospitals expressed their frustration with this approach, which meant they had to deal only with the problem the patients come for and nothing else.

"…just deal with the problem and send them back out, even if sometimes their other problems were actually contributing to the presentation." (Doctor 10)

Holistic perspective

RH doctors professed to having a broader mindset, that supported a more holistic, person-centred approach.

"I think the biggest difference here and the thing we do best compared to the bigger hospitals, is that we treat people as individuals." (Doctor 9)

It was recognized that having a holistic perspective helped acknowledging the challenges patients faced due to the context in which they lived.

"… that's the advantage I have, and I like about working across primary care is you see the context in which people live and realize how hard it is for somebody who doesn't have a car … to even get to (Rural Hospital x) for an X-ray..." (Doctor 1)

Doctors considered that RHs offer some aspects of palliative care better than bigger hospitals. Such aspects were familiarity, continuity, and ability to avoid unnecessary procedures and treatments when patients would not gain from the intervention. This was

expressed as an ability to 'let people die with dignity'. One doctor described a patient who was terminally ill from heart failure. He experienced a small gastro-intestinal bleed and went through many invasive investigations in a larger hospital, even though this would not lead to either cure or symptom relief. Instead, it added to anxiety and confusion for the patient and family. Finally, this rural doctor found out about what was happening and managed to stop further (unethical) procedures. This holistic perspective was together with the practical aspects described above considered important and many doctors compared RH palliative care provision to that of a hospice.

"The good deaths, people who are ... they've just reached the end of their time. They may be well on in years, they may have been suffering their heart condition or their cancer or whatever, and their family are here. They come into hospital and their symptoms are well controlled, and everybody is happy and accepting. You know, it's ... if you can call any death a good death. We do have plenty of those." (Doctor 12)

Continuity of care

Another aspect of holism was relational continuity, typical for the GP – patient relationship. A minority of participating doctors were working as GPs in parallel to their work as RH doctors. These doctors witnessed the advantage of being familiar with the patients' circumstances when making medical decisions. It could also be reassuring for patients in difficult situations to know the doctor. One rural GP who had been working for decades serving the local population exhibited his compassion and empathy for those individuals with unfortunate fates that he had supported through the years.

"I could have up to four generations of a family in my care at one time. So after ... excuse me (sobbing)... After nearly 30 years, I get very close to them… …a kid I delivered who I then

picked up off the road, dead in a drunken car crash, 18 years later." (Doctor 12)

Doctors also described a continuity of care for patients associated with repeated hospital admissions at RHs, including familiarity with the health care professionals working on the ward. Continuity of the patient/doctor relationship throughout the hospital stay was expressed as important for the patients.

Striving to maintain patient safety

This second main theme, "Striving to maintain patient safety" summarizes subthemes "Weighing distance issues, to keep or to refer patients?" and "Handling issues related to a dispersed population".

Weighing distance issues, to keep or to refer patients

Doctors considered that rural people deserve the same health care access as urban people. They described how health care in RH areas struggle with patient safety issues related to long distances to base hospitals, and the need for safe transportation of severely ill patients requiring ambulance access. It was also discussed that even though many referred patients need transfer to a larger hospital because of their condition - i.e., that they cannot be safely treated in the RH - some patients are referred because of practical issues related to long distances.

Ambulance access

As an ambulance could be gone for hours when transporting a patient to the base hospital, doctors described concern about what to do if another sick patient needed ambulance transfer in the meantime[1]:

"But if I have got a sick patient who I need to transfer, that's where I'm worrying for where the ambulance is (…) And if it's out of town doing a transfer, you're always aware that it's out of town doing a transfer." (Doctor 15)

As there was limited access to the local ambulance, any patient that could go safely to base hospital by any other transportation (e.g., friend or family member's care) would not be sent by ambulance.

Referral because of distance

RH doctors reported local access to basic radiology and to laboratory facilities sufficient for most, although not all, acute situations. Some patients need acute laboratory testing or radiology examinations to guide further actions, that are not locally available. In such situations the decision had to be made as to whether the patient needed referral to the base hospital for these investigations.

Perceived patient safety

Many doctors argued that RHs are as good as or better regarding patient safety than larger hospitals, providing patients needing a higher level of hospital care are not retained.

[1] Rural ambulances are crewed by dedicated volunteers, consequently most rural areas just have one active ambulance at any one time.

Arguments for this are shorter decision paths in RHs and medical staff knowing the social context of the patients. Furthermore, in RHs patients are often seen by an experienced doctor sooner than in a big hospital.

"I've been here nearly 10 years and I can't think of a specific example of somebody who I've thought, "If that happened in central Auckland then they would be alive", so that must be quite rare, I think it's safe" (Doctor 9)

Handling issues related to sparsely populated rural areas

Among issues related to sparsely populated rural areas, "limited experience of or training in handling different conditions", "limited medical resources" and "limited medical staff" were discussed. Related to these were discussions regarding vacancies among medical staff and recruitment initiatives like "rural practice for medical students".

Limited experience of handling different conditions

Doctors described a sense of insecurity when severely ill patients arrive at the RH. Although trained in emergency medicine, they do not often meet these patients in the clinic.

"I've put chest drains in people before. I've intubated people before, but not often. Doing those sorts of procedures, I'll do it if my back is shoved against the wall, and I had to. It's gonna make me really uncomfortable. Yeah. Some of that stuff is scary." (Doctor 10)

It was discussed that, since midwives took responsibility over the obstetric care in the 1990s, rural GPs have lost their competences to deal with obstetric complications. Only one RH

doctor was a trained obstetrician. Consequently, in some regions expectant mothers can have a long way to go to give birth.

"... if a midwife is looking after that woman, identifies she's in need of an emergency caesarean she has to call an ambulance or a helicopter to get them to (a big hospital) for an urgent operation, therefore the delay will be a minimum of probably an hour and a half. Probably more likely two hours." (Doctor 5)

Some patient groups are not admitted to all RHs, such as psychogeriatric patients and children.

Limited medical resources

All RHs were reported to have access to plain x-ray, and many of the RH doctors do point-of-care ultrasound examinations. However, with few exceptions, RHs do not have a CT scanner. Therefore, for instance, patients with stroke symptoms would be referred to base hospital for diagnostics, which could take hours.

Available point-of-care lab tests were also reported to differ between RHs, and additional tests were wanted to improve patient safety.

Limited medical staff

The generalist rural health workforce across South Island was acknowledged as having high turnover rates of doctors. Some doctors reported a lack of nurses, physiotherapists, midwives, and dentists as well.

" Midwives, we had the one midwife who was ... you know, her only, 24 hours a day, 7 days a week, 365 days a year. She was our only midwife here for years and finally she just had enough and said, "I quit." (Doctor 12)

Different reasons for this were discussed. Living and working in the countryside does not suit everybody, *"GPs either hate it and they leave, or they love it, and they can't leave. "(Doctor 12).* It could be frightening, especially for unexperienced doctors. And *"if you work there as a doctor, what does your partner do?" (Doctor 14).*

Rural practice for medical students

One problem described was that urban-centric training programs do not prepare a good rural healthcare workforce. Doctors appreciated the Rural Medical Immersion Programme run by the University of Otago (Dunedin), where medical students do part of their clinical practice at RHs. Doctors stated that students get closer to the patient work and take more responsibility when doing their practice rurally compared to in a university hospital.

"It's very different if you're the first person to see the patient. And then you have to think about the patient and the diagnosis and that's a bit. It's not... You can't just go and open the notes and say, "ah yes the registrar say it was this" (Doctor 15)

Cooperating in different teams around the patient

The third theme, "Cooperating in different teams around the patient" summarizes subthemes "Working in small teams in flat organizations around the patient" and "Consulting hospital specialists".

Working in small teams in flat organizations around the patient

The RHs take a central position in the health care pathways of rural patients. Rural doctors report team-working when describing patient care together with doctors within the RH, with local GPs and with hospital specialists in base and tertiary hospitals. They are also part of multidisciplinary teams with nurses, physiotherapists, occupational therapists, social workers, and needs assessors within the RH and within the municipality. This does not differ from other hospitals, but rural doctors discussed how small team sizes promote *simplified collaboration* between team members. The *impact on patients* of varying numbers of staff involved in the hospital care was also discussed. Specifically, the RH *nurses' role* was highlighted as being central to the delivery of patient centred care and adaptive to various clinical situations.

Simplified collaboration

Doctors stated that the small size of RHs promotes non-hierarchical inter-professional teams, where personal acquaintances and deeper understanding of each other's roles simplify collaboration. In this sense, the small team size in RHs was expressed as an advantage compared to big hospitals.

"I think there's less hierarchy here than in the bigger hospitals. I think it's much more egalitarian." (Doctor 9)

Impact on patients

The limited number of medical staff in RHs was described as an advantage for the patient categories common in RHs, as they would not meet so many different medical staff.

"He's in his 80's. If he got a pneumonia and went to Wellington Hospital where he lives, he'd be seen by an emergency nurse, an emergency doctor, and then he'd probably be admitted to a ward and see a junior doctor on a ward. And then he might see a registrar on a ward, and he'd probably have a whole other set of nursing staff see him and do some sort of care plan. And then you'd have the specialists might see him for five minutes at some point. And he'd probably have some imaging at some point. (…) But that's already, probably 15 different people would have been involved in his care, whereas, if he came to (our RH) and got a pneumonia, well, my colleague xx, who's on call tonight, would see him and put him in the ward and organize his treatment and the nurses would, the nurses that are there would be the ones that care for him." (Doctor 7)

Conversely, small team size was also considered a weakness. Rural health professionals need broad clinical competencies, whereas urban areas have more specialized staff available. Access to limited staff numbers was mentioned as a vulnerability, for example if a staff member falls ill.

" We're always one nurse short of a catastrophe down here. If one nurse goes on leave and another nurse gets sick, then all of a sudden we haven't got enough RNs (registered nurses) to man the roster." (Doctor 12)

Nurses' role

Many doctors expressed their appreciation of the RH nurses, for their broad competence, their ability to adapt to different clinical situations, and their clinical judgements.

"Particularly the nursing care, I think that's probably the best thing about the ward (…) some of the nurses are really exceptional at adapting to a whole lot of roles" (Doctor 7)

Consulting hospital specialists

In different medical situations, rural doctors need to consult hospital specialists for advice on patient care. They emphasised *the interdependency* between rural doctors and hospital specialists, and the need for *mutual recognition* of each other's situation. They also reported *varying collaboration with different hospital clinics*.

Interdependency and mutual recognition

They reported mostly good cooperation with hospitals. This cooperation was improved by personal knowledge and mutual recognition of each other's circumstances.

"… I think we work alongside each other. I couldn't do my job without a cardiologist who I refer to, or a cardiac surgeon to refer to. They also couldn't do their jobs without me doing what I do and finding patients for them and treating them before and after..." (Doctor 10)

However, some doctors described limited understanding from urban hospital staff about the limited resources available in RHs and about contextual factors that influence the medical decisions that need to be taken in RHs. It was also discussed that some RHs were more trusted and listened to by hospital specialists than others.

Varying collaboration with different hospital clinics

It was recognized that some hospital clinics tend to collaborate better with RH doctors than others.

"Things like oncology and paediatrics. We have really good, easy access to the specialists. And they are really personable, and you can ring them about anyone (…) Whereas, orthopaedics, oh my God, it's like a nightmare. You can never get the same person on the phone, and then you always have to talk to the junior staff, so you can't actually ask questions about people that might be quite sophisticated…" (Doctor 7)

Discussion

Principal findings

Three themes were identified: 'Applying a holistic perspective in the care', 'striving to maintain patient safety in sparsely populated areas', and 'cooperating in different teams around the patient'. Participating doctors considered RHs promoted a more holistic perspective on patients based on closeness to home and family; a generalist perspective of the care provided and greater relational continuity than hospitals in larger centres. Findings also demonstrate the different assessments RH doctors make, which urban doctors are not required to do. The central role of the RHs in the health care pathways of rural patients was discussed, as well as advantages and disadvantages with small non-hierarchical multidisciplinary teams for patients.

Comparison with existing literature

A holistic approach addresses patients' physical, emotional, social and spiritual needs, enables caregiver to deal with the patient's illnesses, and consequently improve their lives (21). The RH doctors appreciated providing a holistic perspective in the care they provided in contrast to the alleged narrow biomedical perspective of hospital specialists in larger

hospitals. Rural hospitals were considered a suitable setting for the care of multimorbid elderly patients (6-9). Moffat et al. concluded that management of multimorbidity requires a holistic approach by a generalist (22), in agreement with our findings.

"Close to home" is multifaceted as both "close" and "home" can have different definitions. In a geographical sense our findings are consistent with those from interview studies involving patients that describe having hospital care close to home as a great advantage (23). The emotional sense of "home" including homeliness and personal connections discussed in our study are also described in patient interviews (17,18). It was obvious that RH doctors in our study not only considered the patient's treatment as important but also the patients' 'lived experience' of their hospital stay as important, reflecting the social aspect of their holistic perspective.

"Home" means different for different individuals depending on their ethnicity and beliefs. Our study recognized that being near to their whānau (extended family) is particularly important at end of life for Māori patients, as also reported in the study from the North Island by Blattner et al (25). A systematic review (26) concluded that home is the preferred place of rural death, and that when symptom control cannot be catered for at home rural hospitals may act as substitute hospices. Compared to general hospitals, rural/community hospitals have been regarded as preferable places for end-of-life care (27).

Continuity of care is often discussed in relation to primary care, with an established positive relationship between interpersonal (relational) continuity in the GP-patient relationship and patient satisfaction (28). Our results show, that in the RH setting, relational continuity could include interpersonal relationships within the community and, for patients with repeated hospitalisations, familiarity with health professional on the ward, as reported elsewhere

(29). From the RH doctors' point of view, this continuity was helpful in medical decision-making. Particularly for RH doctors working as GPs in the community as well, strong overlapping personal and professional relationships with community members/patients can emerge over time (30), described as at times a burden for the small town doctor by McCarthy (31) and reported in our study as well.

Long distances to the nearest ED increase mortality risk for patients with specific emergency care–sensitive conditions: intracranial injury, acute myocardial infarction, other acute ischemic heart disease, fracture of the femur, and sepsis (32,33). In South Island long distances to EDs are the rule than the exception, due to the dispersed population. Many rural areas are serviced by only one ambulance crewed by volunteer St John staff, so when the ambulance is away transporting a patient, this could delay transportation of subsequent acute patients.

Some acute conditions present as "high-risk, low-frequency situations" to RH teams, and doctors may lack recent management experience of these, so such situations can be very stressful for the team and potentially dangerous for the patients as discussed by our participants and described elsewhere (34). To address this, rural-specific post-graduate training programs have been developed and implemented in NZ (4,27), including simulation-based training (36).

Patient safety is a wide subject to discuss. In this study, the expression was used without definition, and therefore discussed intuitively by the doctors. RH doctors stressed the importance of treating the right patients in RHs. This highlights the significance of the assessments made when deciding whether to keep a patient or to refer to a base hospital. This decision process has been studied elsewhere (37,38), and a common finding is that

these decisions are not governed solely by the patient's medical condition, but by contemplations of the doctor about RH capacity regarding available beds and diagnostic investigations, staff competences, transferring capacity etc. Our study confirms the heterogeneity of assessments RH doctors perform when making these decisions.

Most RH doctors asserted that the patient safety in their RH was high, even possibly higher than in a base hospital. Studies in NZ and internationally have not found any association between rural location and increased risk of hospital harm, but the risk was increased for patients in need of inter-hospital transfer (39,40), as would be expected with patients with emergency care-sensitive conditions.

RH doctors considered that their small sized, informal, and egalitarian teams enhanced holistic care, simplified collaboration, and reduced the impact on patients of fragmented care driven by a high volume of health care professionals. This finding is similar to a Swedish interview study on inter-disciplinary teamwork that identified a holistic care approach and proactive non-hierarchical interaction as important factors for quality geriatric care (41). Small working teams need not formalize reporting mechanisms if their relations enable open disclosure and resolution of errors. However, due to the overlapping of professional and personal roles, some small medical communities may need structured reporting mechanisms to ensure anonymity (42).

Strengths and limitations of the study

The interviewing researcher (MH) has specific knowledge in the field of rural medicine as a Swedish rural GP, but no previous relation to the RHs or the medical staff interviewed, which is considered a strength. Conversely, his pre-understanding could co-create the messages

from interviews with participants and play a role in the subsequent analysis. However, the latter was balanced by other experienced qualitative researchers in the process (FDN, TS, MB) looking at the text data through different analytical lenses. Another strength is the diversity of RHs visited, around the South Island. The interviewer's first language is Swedish, and interviews were performed in English. Therefore, linguistic nuances could be misinterpreted. However, repeated readings of the transcripts and interviewees' reports from reviewing their transcript did not reveal such misinterpretations. It would have been beneficial for the study if there had been Māori representation among interviewees, but in the RHs visited, no doctor identified as Māori, and Māori are underrepresented in the NZ medical workforce (43). We emphasize that some of our findings are not necessarily transferable to RHs in North Island, as there are considerable socio-demographic differences between the populations of North Island and South Island, notably in distribution of the Māori population in rural areas (44).

Implications for clinical practice and health policy

A recent NZ policy document emphasizes the estimated increase in hospital bed usage in the coming decades due to an ageing population, and states that the complexity of hospital cases will increase due to multimorbidity and frailty (10). Generalist led hospital care is considered especially suitable for multimorbid elderly patients that require a holistic approach by the caregiver (22). The 2006 Otago Rural Hospital study (6) suggested that "approximately 40% of admissions from urban populations to base hospitals could be handled at a generalist level..." - as is now provided in rural settings using the RH model. If some of those patients would benefit from generalist led hospital care rather than specialist

hospital care, this should influence future hospital workforce planning in urban, as well as in rural areas.

Conclusion

This study provides an understanding of how NZ South Island rural hospital doctors perceived the importance of the provision of a holistic generalist model of hospital care for patients and for their rural communities, as well as the significance of the rural hospital to rural communities. The importance of quality and safety in RH care was emphasized, but long distances to base hospitals were acknowledged as adding challenges which required a variety of medical and practical assessments that are not obvious or necessarily understood by urban doctors.

WORD COUNT: 5389

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Contributorship statement

MH designed the study and developed the interview guide in cooperation with MB, TS and FD-N. MH conducted the interviews. Initial data analysis was undertaken by MH, FD-N, TS, and MB. Subsequent data analysis was undertaken by MH and MB, with input from TS and FD-N. MH led the writing of the manuscript with inputs from MB, TS, and FD-N.

Competing interests.

The authors declare that they have no competing interests.

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Ethics Approval

Ethical approval was obtained from the University of Otago Human Ethics Committee (17/141). Written informed consent was obtained from all participants.

Data availability statement

Full de-identified interview transcripts will not be shared. Informed consent, in line with the approving ethics committee, only allows for the use of de-identified extracts within research reporting and writing, in order to maintain the privacy of participants based in a defined regional area and population, thus making their identification with full transcripts more likely.

References

1. The New Zealand Rural Hospital Doctors Workforce Survey 2015 - New Zealand Medical Journal [Internet]. [cited 25 maj 2017]. Available at: https://www.nzma.org.nz/journal/read-the-journal/all-issues/2010-2019/2016/vol-129-no-1434-6-may-2016/6877

2. Williamson M, Gormley A, Dovey S, Farry P. Rural hospitals in New Zealand: results from a survey. 2010;123(1315):10.

3. The Rural Hospital Workforce Survey Report 2020 – NZRHN [Internet]. [cited 22 december 2021]. Available at: https://nzrhn.co.nz/wp-content/uploads/2021/06/The-2020-Rural-Hospital-Workforce-Survey-Report.pdf

4. Winpenny EM, Corbett J, Miani C, King S, Pitchforth E, Ling T, m.fl. Community Hospitals in Selected High Income Countries: A Scoping Review of Approaches and Models. Int J Integr Care [Internet]. [cited 27 juni 2018];16(4). Available at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5354221/

5. Williamson M, Gormley A, Farry P. Otago rural hospitals study: what do utilisation rates tell us about the performance of New Zealand rural hospitals? N Z Med J. 23 juni 2006;119(1236):U2030.

6. Lappegard Ø, Hjortdahl P. Acute admissions to a community hospital: Experiences from Hallingdal sjukestugu. Scand J Public Health. 2012;40(4):309–15.

7. Aaraas I. The Finnmark general practitioner hospital study. Patient characteristics, patient flow and alternative care level. Scand J Prim Health Care. December 1995;13(4):250–6.

8. Charante EM van, Hartman E, Yzermans J, Voogt E, Klazinga N, Bindels P. The first general practitioner hospital in The Netherlands: towards a new form of integrated care? Scand J Prim Health Care. 01 mars 2004;22(1):38–43.

9. Hedman M, Boman K, Brännström M, Wennberg P. Clinical profile of rural community hospital inpatients in Sweden – a register study. Scand J Prim Health Care. 02 januari 2021;39(1):92–100.

10. Health and Disability System Review: Interim report. :312. Available at: https://systemreview.health.govt.nz/assets/HDSR-interim-report/5b33db77f5/H-and-D-full-interim-report-August-2019.pdf

11. Primary & Community Care strategy [Internet]. Southern Health. [cited 28 februari 2022]. Available at: https://www.southernhealth.nz/about-us/our-pathway-towards-better-health/primary-community-care/primary-community-care-strategy

12. Community hospitals--preparing for the future. A report from the Liaison Group of the Royal College of General Practitioners and Associations of General Practitioner Community Hospitals. Occas Pap R Coll Gen Pract. september 1990;(43):1–51.

13. Australian College of Rural and Remote Medicine. Cairns Consensus Statement on Rural Generalist Medicine: improved health for rural communities through accessible, high quality healthcare: Australian College of Rural and Remote Medicine; 2014.

14. Nixon G, Blattner K, Dawson J, Fearnley D, Gardiner S, Hoskin S, Kashyap B, Naicker K, Nieuwoudt B, Skinner A, et al. Rural hospital medicine in New Zealand: Vocational registration and the recognition of a new scope of practice. N Z Med J. 2007;120:1–5.

15. DRHM_Handbook_2022.pdf [Internet]. [cited 28 februari 2022]. Available at: https://www.rnzcgp.org.nz/GPdocs/New-website/become_a_GP/DRHM_Handbook_2022.pdf

16. Crabtree Benjamin F. Doing Qualitative Research. Vol. 1999. London: Sage Publications;

17. Graneheim UH, Lundman B. Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness. Nurse Educ Today. februari 2004;24(2):105–12.

18. Thomas DR. A General Inductive Approach for Analyzing Qualitative Evaluation Data. Am J Eval. 01 juni 2006;27(2):237–46.

19. Raskind IG, Shelton RC, Comeau DL, Cooper HLF, Griffith DM, Kegler MC. A review of qualitative data analysis practices in health education and health behavior research. Health Educ Behav Off Publ Soc Public Health Educ. februari 2019;46(1):32–9.

20. Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. Int J Qual Health Care. 01 december 2007;19(6):349–57.

21. Tjale AA, Bruce J. A concept analysis of holistic nursing care in paediatric nursing. Curationis. december 2007;30(4):45–52.

22. Moffat K, Mercer SW. Challenges of managing people with multimorbidity in today's healthcare systems. BMC Fam Pract. 14 oktober 2015;16(1):129.

23. Leonardsen A-CL, Busso LD, Grøndahl VA, Ghanima W, Barach P, Jelsness-Jørgensen L-P. A qualitative study of patient experiences of decentralized acute healthcare services. Scand J Prim Health Care. 02 juli 2016;34(3):317–24.

24. Green J, Forster A, Young J, Small N, Spink J. Older people's care experience in community and general hospitals: a comparative study. Nurs Older People. 24 juli 2008;20(6):33–9.

25. Blattner K, Stokes T, Rogers-Koroheke M, Nixon G, Dovey SM. Good care close to home: local health professional perspectives on how a rural hospital can contribute to the healthcare of its community. N Z Med J. 07 februari 2020;133(1509):39–46.

26. Rainsford S, MacLeod RD, Glasgow NJ. Place of death in rural palliative care: A systematic review. Palliat Med. 01 september 2016;30(8):745–63.

27. Payne S, Hawker S, Kerr C, Seamark D, Roberts H, Jarrett N, m.fl. Experiences of end-of-life care in community hospitals. Health Soc Care Community. 2007;15(5):494–501.

28. Saultz JW, Albedaiwi W. Interpersonal Continuity of Care and Patient Satisfaction: A Critical Review. Ann Fam Med. 09 januari 2004;2(5):445–51.

29. Haggerty JL, Reid RJ, Freeman GK, Starfield BH, Adair CE, McKendry R. Continuity of care: a multidisciplinary review. BMJ. 20 november 2003;327(7425):1219–21.

30. Glover JJ. Rural Health Care and an Ethics of Familiarity. Narrat Inq Bioeth. 2019;9(2):113–9.

31. McCarthy R. Grocery Store Hug. Narrat Inq Bioeth. 2019;9(2):89–90.

32. Nicholl J, West J, Goodacre S, Turner J. The relationship between distance to hospital and patient mortality in emergencies: an observational study. Emerg Med J EMJ. september 2007;24(9):665–8.

33. Jang WM, Lee J, Eun SJ, Yim J, Kim Y, Kwak MY. Travel time to emergency care not by geographic time, but by optimal time: A nationwide cross-sectional study for establishing optimal hospital access time to emergency medical care in South Korea. PLOS ONE. May 2021;16(5):e0251116.

34. Wik S. Expecting the Unexpected: Frontier Medicine from a Student Perspective. Narrat Inq Bioeth. 2019;9(2):96–7.

35. Blattner K, Stokes T, Nixon G. A scope of practice that works ”out here”: exploring the effects of a changing medical regulatory environment on a rural New Zealand health service [Internet]. Vol. 19. 2019 [cited 30 april 2021]. Available at: https://www.rrh.org.au/journal/article/5442/

36. The Matthew effect in New Zealand rural hospital trauma and emergency care: why rural simulation-based education matters [Internet]. [cited 29 april 2021]. Available at: https://www.nzma.org.nz/journal-articles/the-matthew-effect-in-new-zealand-rural-hospital-trauma-and-emergency-care-why-rural-simulation-based-education-matters

37. Lappegard Ø, Hjortdahl P. The choice of alternatives to acute hospitalization: a descriptive study from Hallingdal, Norway. 2013 [cited 22 december 2016]; Available at: https://www.duo.uio.no/handle/10852/47218

38. Lloyd T, Blattner K, Nixon G. Transfers from rural hospitals in New Zealand. N Z Med J. 21 januari 2011;124:82–8.

39. Atmore C, Dovey S, Gauld R, Gray AR, Stokes T. Do people living in rural and urban locations experience differences in harm when admitted to hospital? A cross-sectional New Zealand general practice records review study. BMJ Open. 01 maj 2021;11(5):e046207.

40. Vartak S, Ward MM, Vaughn TE. Patient Safety Outcomes in Small Urban and Small Rural Hospitals. J Rural Health. 2010;26(1):58–66.

41. Åberg AC, Ehrenberg A. Inpatient geriatric care in Sweden—Important factors from an inter-disciplinary team perspective. Arch Gerontol Geriatr. 01 september 2017;72:113–20.

42. Klingner J, Moscovice I, Tupper J, Coburn A, Wakefield M. Implementing Patient Safety Initiatives in Rural Hospitals. J Rural Health. 2009;25(4):352–7.

43. The New Zealand Medical Workforce in 2018. 2018;58.

44. EHINZ [Internet]. [cited 28 februari 2022]. Available at: https://www.ehinz.ac.nz/indicators/population-vulnerability/ethnic-profile/

INTERVIEW GUIDE

1. Informal introduction

- The researcher presents himself and informs about the research project

2. Formal introduction

a. The researcher presents the principles for the interview method.

- The participation is voluntary. It is possible to withdraw at any moment.
- A predefined interview guide is used as a basis for the discussion.
- The interview will be taped. Quotes from the interview can be used in an article, but quotes cannot be linked to individuals.
- The timeframe for interview is one hour.
- Consent is obtained from the participants.

b. The researcher presents the background and the objectives of the interview

i. Definition of the Rural Community Hospital Model.

ii. A short background of statistics and data on the respondents´ community hospital collected prior to the interview. Demographics, geography and distances. The researcher also informs about any important differences found between different community hospitals in South Island as well as differences between Swedish and NZ community hospitals.

iii. The interview will focus on the informants´ perception of their units´ role in the health care system. Of particular interest will be what they perceive to be challenges and success factors in their organisation for the optimal care of aged patients.

3. The tape recorder is put on

4. The interview begins

The researcher ensures that the following predefined main themes are discussed if they have not already been mentioned by the respondent:

About the respondent:

- Respondents' professional title, experiences in the past. Graduated in NZ or overseas? Different workplaces? Carrier path leading to current job.
- Family or other social bounds
- Positive and negative aspects of living in rural places compared to urban places.

About rural hospitals

- Respondents relation to rural hospital(s) – describe (since how long?,
- Role of the CH in health care system?
  - Patient groups suitable for CH care? – age groups, diagnoses…
  - Which patient groups should not be treated in CHs?
  - Same or different treatment?
  - Ethnic groups? (added in NZ)
- Advantages/disadvantages with CH model
  - Yet untapped uses of CHs
  - Patient safety in CHs?
- Different treatment cultures at CHs compared to GHs?
- What´s to be most proud of?

About working conditions

- Vacancies of doctors? Responsibilities,
- Possibilities for professional development?
- Suggestions for improvement

About medical decision making

- Differences when far from general hospital? Does distance matter? Why?
- Support from hospital specialists
- Important diagnoses

About health care system

- How do you see the future for health care in rural areas?
  - Challenges?
- How do you see the role of the rural hospital in the future?
  - Challenges?
  - GP led small hospitals in urban areas?

About collaboration with nursing homes

- Nursing home capacity and organization
- Location of the physicians' offices in relation to the nursing homes
- Organization of the work on the nursing home

-

Respondents' spontaneous reflexions

5. Summary

- The researcher summarizes and the respondent has the possibility to comment on this.
- Does the respondent/informant feel that he/she have opinions, perceptions or nuances that have not been elucidated?

6. Finishing

- The researcher gives contact info to the informant and asks for consent to contact the informant by phone or e-mail later if further questions arise that need to be clarified.
- The moderator informs about further work in the research project and the expected use of the material.

7. Short evaluation

COREQ (COnsolidated criteria for REporting Qualitative research) Checklist

A checklist of items that should be included in reports of qualitative research. You must report the page number in your manuscript where you consider each of the items listed in this checklist. If you have not included this information, either revise your manuscript accordingly before submitting or note N/A.

Topic	Item No.	Guide Questions/Description	Reported on Page No.
Domain 1: Research team and reflexivity			
Personal characteristics			
Interviewer/facilitator	1	Which author/s conducted the interview or focus group?	
Credentials	2	What were the researcher's credentials? E.g. PhD, MD	
Occupation	3	What was their occupation at the time of the study?	
Gender	4	Was the researcher male or female?	
Experience and training	5	What experience or training did the researcher have?	
Relationship with participants			
Relationship established	6	Was a relationship established prior to study commencement?	
Participant knowledge of the interviewer	7	What did the participants know about the researcher? e.g. personal goals, reasons for doing the research	
Interviewer characteristics	8	What characteristics were reported about the inter viewer/facilitator? e.g. Bias, assumptions, reasons and interests in the research topic	
Domain 2: Study design			
Theoretical framework			
Methodological orientation and Theory	9	What methodological orientation was stated to underpin the study? e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis	
Participant selection			
Sampling	10	How were participants selected? e.g. purposive, convenience, consecutive, snowball	
Method of approach	11	How were participants approached? e.g. face-to-face, telephone, mail, email	
Sample size	12	How many participants were in the study?	
Non-participation	13	How many people refused to participate or dropped out? Reasons?	
Setting			
Setting of data collection	14	Where was the data collected? e.g. home, clinic, workplace	
Presence of non-participants	15	Was anyone else present besides the participants and researchers?	
Description of sample	16	What are the important characteristics of the sample? e.g. demographic data, date	
Data collection			
Interview guide	17	Were questions, prompts, guides provided by the authors? Was it pilot tested?	
Repeat interviews	18	Were repeat inter views carried out? If yes, how many?	
Audio/visual recording	19	Did the research use audio or visual recording to collect the data?	
Field notes	20	Were field notes made during and/or after the inter view or focus group?	
Duration	21	What was the duration of the inter views or focus group?	
Data saturation	22	Was data saturation discussed?	
Transcripts returned	23	Were transcripts returned to participants for comment and/or	

Topic	Item No.	Guide Questions/Description	Reported on Page No.
		correction?	
Domain 3: analysis and findings			
Data analysis			
Number of data coders	24	How many data coders coded the data?	
Description of the coding tree	25	Did authors provide a description of the coding tree?	
Derivation of themes	26	Were themes identified in advance or derived from the data?	
Software	27	What software, if applicable, was used to manage the data?	
Participant checking	28	Did participants provide feedback on the findings?	
Reporting			
Quotations presented	29	Were participant quotations presented to illustrate the themes/findings? Was each quotation identified? e.g. participant number	
Data and findings consistent	30	Was there consistency between the data presented and the findings?	
Clarity of major themes	31	Were major themes clearly presented in the findings?	
Clarity of minor themes	32	Is there a description of diverse cases or discussion of minor themes?	

Developed from: Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *International Journal for Quality in Health Care*. 2007. Volume 19, Number 6: pp. 349 – 357

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BMJ Open

Doctors' experiences of providing care in rural hospitals in Southern New Zealand – a qualitative study

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Doctors' experiences of providing care in rural hospitals in Southern New Zealand – a qualitative study

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ABSTRACT

Objective: To explore rural hospital doctors' experiences of providing care in New Zealand rural hospitals.

Design: The study had a qualitative design, using qualitative content analysis.

Setting: The study was conducted in South Island, New Zealand, and included nine different rural hospitals.

Respondents: Semi-structured interviews were conducted with 16 rural hospital doctors.

Results: Three themes were identified: 'Applying a holistic perspective in the care', 'striving to maintain patient safety in sparsely populated areas', and 'cooperating in different teams around the patient'. Rural hospital care more than general hospital care was seen as offering a holistic perspective on patient care based on closeness to their home and family, the generalist perspective of care and personal continuity. The presentation of acute life-threatening low-frequency conditions at rural hospitals were associated with feelings of concern due to limited access to ambulance transportation and lack of experience.

Overall, however, patient safety in rural hospitals was considered equal or better than in general hospitals. Doctors emphasized the central role of rural hospitals in the health care pathways of rural patients, and the advantages and disadvantages with small non-hierarchical multidisciplinary teams caring for patients. Collaboration with hospital specialists was generally perceived as good, although there was a sense that urban colleagues do not understand the additional medical and practical assessments needed in rural compared to the urban context.

Conclusions:

This study provides an understanding of how rural hospital doctors value the holistic generalist perspective of rural hospital care, and of how they perceive the quality and safety of that care. The long distances to general hospital care for acute cases was considered concerning.

WORD COUNT: 267

Strengths and limitations of this study

• In this study, both interviewer and interviewees had professional knowledge of the topic studied, thereby taking advantage of the researcher as an instrument of the research.
• The diversity of sizes and services in the rural hospitals visited reflected different aspects of rural hospital care.
• Qualitative content analysis was considered suitable as it is a methodologically flexible approach enabling interactive changes to the interview schedule as new information is gathered. Furthermore, this approach enables findings relevant to a specific problem/issue to be documented
• Male and female doctors with varying clinical experience and of different ethnic origin participated; however, no Māori doctors were interviewed.

Introduction

General practitioner (GP)-led community-based (rural) hospitals provide hospital care mainly in sparsely populated rural areas in many countries (1,2). The Cairns Consensus Statement (3) defines Rural Generalist Medicine by the broad scope of medical care a rural doctor provides. This includes primary care, hospital in-patient care, emergency care and a population health approach to provide services responsive to community needs both locally and at a distance.

In New Zealand hospitals are categorized by size (large, mid-sized and small) and by service provided: six levels along a continuum from level 1 (community services) to level 6 (supra-complex services)(4). There are 33 rural hospitals (RHs) in NZ (21 in North Island, 12 in South Island), they are all categorized as small and with service levels 1-3 based on medical coverage and resources (5). RHs have evolved in response to local needs and economic circumstances, resulting in a variety of sizes, services and ownership models - a mix of public hospitals run by District Health Boards and Community Trusts (6,7). The medical and nursing care provided in RHs cover many vocational areas of clinical practice (8), as do rural community hospitals in other countries (1).

Traditionally RH medical care in NZ has been provided by local rural general practitioners (GPs) and MOSSs (Medical Officer of Specialist Scale, a non-training position for not yet specialised doctors). RHs are defined as “a hospital staffed by suitably trained and experienced generalists (both medical officers and rural general practitioners), who take full clinical responsibility for a wide range of clinical presentations…” (6). Rural Hospital Medicine was recognized as a new scope of practice in 2008 and speciality-training programmes adapted for the needs of RH doctors were implemented (5,9). RH doctors would meet the

Cairns Consensus Statement's definition in their work at the RH, but approximately half of the workforce work fulltime at the RH and not as GPs (5).

The Otago Rural Hospitals Study found that RH patients were older than those admitted to larger hospitals (10). This is consistent with studies on similar models of rural hospital care in other countries (11–14). These studies indicate that some patient groups, mainly elderly patients with exacerbation of chronic diseases and infections, could be offered different levels of hospital care depending on the presence of a RH in their community.

A recent NZ policy document emphasizes an estimated increase in hospital bed usage in the coming decades due to an ageing population, and states that the complexity of hospital cases will increase due to multimorbidity and frailty (4). Furthermore, new models of care are looking to provide more care in communities, closer to where people live, with earlier discharges of patients from general hospitals to rural hospitals for step down care adding further pressure on rural healthcare systems (4,15).

RHs provide hospital care for patient groups elsewhere treated at general hospitals and that are predicted to constitute an increasing proportion of future rural hospitalizations. Rural hospital medicine doctors will, therefore, be responsible for the care of an increasing number of complex patients. Little is known about rural hospital doctors' experiences of providing care in NZ (16). It is, therefore, important to explore how these doctors view their role and that of their RHs in their community in the context of the wider NZ health care system.

Aim

The aim of this study was to explore rural hospital doctors' experiences of providing care in rural hospitals in Southern NZ.

Methods

Study setting

NZ's South Island has a population of 1.1 million(17) dispersed over a geographical area of 150,000 square kilometers (18). Secondary and tertiary hospital care is provided to the population mainly by the general hospitals in Nelson, Christchurch, Dunedin, and Invercargill. These hospitals also serve as supporting base hospitals for their associated RHs, of which 12 are located in South Island. The study took place in rural parts of Otago, Canterbury, and West Coast regions in the South Island of NZ.

Design and sampling

The study employed a qualitative exploratory design (19). A purposive sampling approach was used to invite rural hospital doctors to the study, aiming to include men and women with different level of experience and of differing ethnic origin, from a variety of RHs in South Island. It was initially estimated that the study needed 15 participants with above variation.

Participants were recruited using e-mail lists provided by the Managing Directors of the South Island RHs.

Data collection

Semi-structured, face to face interviews were conducted by the PhD student MH at the doctors' work or in another undisturbed place of their choosing between October - November 2018, using an interview guide (see supplemental file 1) previously used in a Swedish interview study and modified for use in English and to the NZ context by the NZ collaborators (FDN and TS). The interview technique included open-ended and probing questions, with more specified questions used to orient the discussion towards areas of interest for the study. Interviews lasted on average one hour. All interviews were digitally recorded and transcribed. Transcripts were shared with participants for accuracy checking.

Data analysis

The interviews were analysed according to qualitative content analysis using an inductive approach (20,21). Transcripts were read through several times to get a sense of the whole. The analysis sought to identify meaning units, which were condensed and labelled with descriptive codes. Codes were compared to identify similarities and differences and then sorted into categories according to content. During the analysis process the codes and categories were discussed in the research group to seek consensus and sub-themes and themes formulated (see table 1) (22). Descriptions of sub-themes including representative quotes from the doctors are presented in the results section. Participant doctors were numbered 1-16.

We used the consolidated criteria for reporting qualitative research (COREQ) (23) to structure reporting of study findings (see supplemental file 2).

Table 1: Examples of meaning units, condensed meaning units, codes, categories, sub-themes, and theme.

Meaning unit	Condensed meaning unit	Code	Category	Sub-theme	Theme
"...delay in getting your lab results often affected your decision as to whether you're going to keep somebody here or send them to (base hospital)."	Long wait for lab results affect decision whether to keep or send a patient	Long wait for lab results affect decision for referral	Referral because of distance	Weighing distance issues, between to keep or to refer patients	Striving to maintain patient safety in sparsely populated areas.
"I've put chest drains in people before. I've intubated people before, but not often. Doing those sorts of procedures, I'll do it if my back is shoved against the wall, and I had to. It's gonna make me really uncomfortable."	I've put chest drains and endotracheal tubes in people, but not often, and only if I had to and it makes me uncomfortable	I do scary medical procedures, but not often, and only because I must.	Limited experience of or training in handling different conditions	Handling issues related to sparse population	

Patient and Public Involvement

No patients or the public were involved in the design of this study.

Results

Fifty rural hospital doctors were invited to participate in the study. Sixteen doctors agreed and were all included in the study. They worked in 9 RHs in the West Coast, Canterbury, and Otago/Southland regions, representing public and Community Trust ownership models. They ranged from 67 to 330 km from the nearest secondary/tertiary hospital (Dunedin, Christchurch, or Invercargill), and supported populations from 663 – 33,000 inhabitants. They had 4 - 24 acute beds and variable numbers of long-term care beds, and all three levels of RH services were represented. The characteristics of participating doctors are presented in Table 2. Doctors worked in a RH for a part of or all their work time.

Table 2 Participant characteristics (n=16)

Sex	
Male	13
Female	3
Age (years)	
30-39	4
40-49	2
50-59	8
60 +	2
Clinical experience (years)	
< 20	6
> 20	10
Postgraduate Qualifications	
General Practice only	4
Rural Hospital Medicine only	4
Dual qualified (General Practice and Rural Hospital Medicine)	6
Other medical speciality	1
No specialist postgraduate qualification	1
Ethnicity	
New Zealand European	6
European (British and Irish)	7
Other European	2
Asian	1

The analysis identified three themes which are summarised in Table 3 along with their associated subthemes and categories.

Table 3 Presentation of categories, sub-themes, and themes.

Category	Sub-theme	Theme
Practical aspects of closeness	Providing care close to home and family	Applying a holistic perspective to care
Emotional aspects of closeness		
Spiritual aspects of closeness		
Medical generalist perspective	Seeing the whole patient	
Holistic perspective		
Continuity of care		
Ambulance access	Weighing distance issues, between to keep or to refer patients	Striving to maintain patient safety in sparsely populated rural areas.
Referral because of distance		
Limited experience of or training in handling infrequent acute conditions	Handling issues related to sparse population	
Limited medical resources		
Limited medical staff		
Rural practice for medical students		
Perceived patient safety		
Simplified collaboration	Working in small teams in organizations with flat structures	Cooperating in different teams around the patient
Impact on patients		
Nurses' role		
Interdependency and mutual recognition	Consulting hospital specialists	
Varying collaboration with different hospital clinics		

Applying a holistic perspective to care

The first theme, "Applying a holistic perspective to care" encapsulates two subthemes "Providing care close to home and family" and "Seeing the whole patient".

Providing care close to home and family

Doctors discussed three aspects of providing hospital care close to home and family: the "practical", the "emotional" and the "spiritual". The importance of these aspects made it an ethical as much as a medical issue to keep a patient or refer them to the nearest base hospital.

Practical aspects included the ease for patients with the care close to home as well as for relatives to come and visit, compared to having to travel to a base hospital. For relatives on a low-income, travel costs could be an issue.

"If your father gets admitted to Dunedin, what do you do? Do you take two weeks off work and stay close to your father, or do you drive up and down twice each day before and after work? (…) It is impractical for the family (…) But if it is here, they could just pop around for five minutes and have a chat and go home, go back to work. Much better for the patients who get to see their family members more." (Doctor 13)

Doctors described RH rooms for palliative end of life care, with the possibility for family members to stay overnight, often with kitchenettes. Alternatively, these rooms could be used for children and their parents in RHs that accept paediatric in-patient care.

Emotional aspects were considered essential for the local population's feelings of safety and wellbeing linked to the personal connection and homeliness of the facilities. Doctors perceived feelings of pride over the service the hospital provided to the local population.

"And people also feel very proud of the hospital. Both the people that work here and the people who live here because they know that it is a hospital that understands them and understands the community they live in and provides the highest standard of care in a very effective and efficient manner." (Doctor 6)

Spiritual aspects of RHs close to home was particularly prominent when discussing end-of-life care for Māori patients (the indigenous people of NZ). Dying close to home was described as a very important spiritual aspect for Māori patients. As none of the participants were Māori these conversations led participants to reflect on their shortcomings in relation to their understanding of Māori tikanga (Māori customary practices), and they recognized that there was room for improvement in the RH care of Māori patients.

Seeing the whole patient

Doctors described the importance of seeing the "whole patient", particularly for patients with multimorbidity or palliative needs. These aspects were brought out when discussing "Medical generalist perspective", "Holistic perspective" and "Continuity of care".

Medical generalist perspective: All RH doctors claimed to have a generalist perspective in the care of their in-patients, i.e., a medically wider role compared to that of base hospital specialists. It was stated to be difficult for a generalist to turn down patients and say that the patients' problems were not within the scope of their competence, leading to a preparedness to do unfamiliar tasks in a way other hospital specialist doctors would restrict themselves from doing, not being in their area of expertise. This aspect of the RH generalist role was described by the doctors, as *"We specialize in everything that comes in through the door." (Doctor 6).*

RH doctors problematised that deeper specialisation leads to the loss of a broad perspective, claiming that hospital specialists more often need to consult with other specialists about things outside their scope of practice. RH doctors who had experienced working in urban hospitals expressed their frustration with this approach, which meant they had to deal only with the problem the patients come for and nothing else.

"…just deal with the problem and send them back out, even if sometimes their other problems were actually contributing to the presentation." (Doctor 10)

Holistic perspective: RH doctors professed to having a broader mindset, that supported a more holistic, person-centred approach.

"I think the biggest difference here and the thing we do best compared to the bigger hospitals, is that we treat people as individuals." (Doctor 9)

It was recognized that having a holistic perspective helped acknowledging the challenges patients faced due to the context in which they lived.

"… that's the advantage I have, and I like about working across primary care is you see the context in which people live and realize how hard it is for somebody who doesn't have a car … to even get to (Rural Hospital x) for an X-ray..." (Doctor 1)

Doctors considered that RHs offer some aspects of palliative care better than bigger hospitals. Such aspects were familiarity, continuity, and ability to avoid unnecessary procedures and treatments when patients would not gain from the intervention. This was expressed as an ability to 'let people die with dignity'. One doctor described a patient who was terminally ill from heart failure. He experienced a small gastro-intestinal bleed and went through many invasive investigations in a larger hospital, even though this would not lead to

either cure or symptom relief. Instead, it added to anxiety and confusion for the patient and family. Finally, this rural doctor found out about what was happening and managed to stop further (unethical) procedures. This holistic perspective was together with the practical aspects described above considered important and many doctors compared RH palliative care provision to that of a hospice.

"The good deaths, people who are ... they've just reached the end of their time. They may be well on in years, they may have been suffering their heart condition or their cancer or whatever, and their family are here. They come into hospital and their symptoms are well controlled, and everybody is happy and accepting. You know, it's ... if you can call any death a good death. We do have plenty of those." (Doctor 12)

Continuity of care: Another aspect of holism was relational continuity, typical for the GP – patient relationship. A minority of participating doctors were working as GPs in parallel to their work as RH doctors. These doctors witnessed the advantage of being familiar with the patients' circumstances when making medical decisions. It could also be reassuring for patients in difficult situations to know the doctor. One rural GP who had been working for decades serving the local population exhibited his compassion and empathy for those individuals with unfortunate fates that he had supported through the years.

"I could have up to four generations of a family in my care at one time. So after ... excuse me (sobbing)... After nearly 30 years, I get very close to them… …a kid I delivered who I then picked up off the road, dead in a drunken car crash, 18 years later." (Doctor 12)

Doctors also described a continuity of care for patients associated with repeated hospital admissions at RHs, including familiarity with the health care professionals working on the

ward. Continuity of the patient/doctor relationship throughout the hospital stay was expressed as important for the patients.

Striving to maintain patient safety

This second main theme, "Striving to maintain patient safety" summarizes subthemes "Weighing distance issues, to keep or to refer patients?" and "Handling issues related to a dispersed population".

Weighing distance issues, to keep or to refer patients

Doctors considered that rural people deserve the same health care access as urban people. They described how health care in RH areas struggle with patient safety issues related to long distances to base hospitals, and the need for safe transportation of severely ill patients requiring *ambulance access*. It was also discussed that even though many referred patients need transfer to a larger hospital because of their condition - i.e., that they cannot be safely treated in the RH - some patients are *referred because of practical issues related to long distances.*

Ambulance access: As an ambulance could be gone for hours when transporting a patient to the base hospital, doctors described concern about what to do if another sick patient needed ambulance transfer in the meantime[1]:

[1] Rural ambulances are crewed by dedicated volunteers, consequently most rural areas just have one active ambulance at any one time.

"But if I have got a sick patient who I need to transfer, that's where I'm worrying for where the ambulance is (…) And if it's out of town doing a transfer, you're always aware that it's out of town doing a transfer." (Doctor 15)

As there was limited access to the local ambulance, any patient that could go safely to base hospital by any other transportation (e.g., friend or family member's care) would not be sent by ambulance.

Referral because of distance: RH doctors reported that local access to basic radiology and laboratory facilities was sufficient for most, although not all, acute situations. Some patients needed acute laboratory testing or radiology examinations to guide further actions, that were not available in rural areas. In such situations the decision had to be made as to whether the patient needed referral to the base hospital for these investigations.

Handling issues related to sparsely populated rural areas

Among issues related to sparsely populated rural areas, *"limited experience of or training in handling different conditions", "limited medical resources"* and *"limited medical staff*" were discussed. Related to these were discussions regarding vacancies among medical staff and recruitment initiatives like "rural practice for medical students".

Limited experience of handling different conditions: Doctors described a sense of insecurity when severely ill patients arrive at the RH. Although trained in emergency medicine, they do not often meet these patients in the clinic.

"I've put chest drains in people before. I've intubated people before, but not often. Doing those sorts of procedures, I'll do it if my back is shoved against the wall, and I had to. It's gonna make me really uncomfortable. Yeah. Some of that stuff is scary." (Doctor 10)

It was discussed that, since midwives took responsibility over the obstetric care in NZ in the 1990s, rural GPs have lost their competences to deal with obstetric complications. Only one RH doctor interviewed was a trained obstetrician. Consequently, in some regions expectant mothers can have a long way to go to give birth.

"... if a midwife is looking after that woman, identifies she's in need of an emergency caesarean she has to call an ambulance or a helicopter to get them to (a big hospital) for an urgent operation, therefore the delay will be a minimum of probably an hour and a half. Probably more likely two hours." (Doctor 5)

Some patient groups are not admitted to all RHs, such as psychogeriatric patients and children.

Limited medical resources: All RHs were reported to have access to plain x-ray, and many of the RH doctors do point-of-care ultrasound examinations. However, with few exceptions, RHs do not have a CT scanner, consequently patients with stroke symptoms, for example, would be referred to a base hospital for diagnostics, which, including travel time, could take hours.

The availability of point-of-care lab tests were also reported to differ between RHs, and additional tests were wanted to improve patient safety.

Limited medical staff: The generalist rural health workforce across South Island was acknowledged as having high turnover rates of doctors. Some doctors reported a lack of nurses, physiotherapists, midwives, and dentists as well.

" Midwives, we had the one midwife who was ... you know, her only, 24 hours a day, 7 days a week, 365 days a year. She was our only midwife here for years and finally she just had enough and said, "I quit." (Doctor 12)

Different reasons for this were discussed: Living and working in the countryside does not suit everybody, *"GPs either hate it and they leave, or they love it, and they can't leave. "(Doctor 12).* Working in isolation far from hospitals could be frightening, especially for unexperienced doctors. And *"…if you work there as a doctor, what does your partner do?" (Doctor 14).*

Rural practice for medical students: One problem described was that urban-centric health professional training programs do not support a rural healthcare workforce. Doctors appreciated the Rural Medical Immersion Programme run by the University of Otago (Dunedin), where medical students do part of their clinical practice at RHs. Doctors stated that students get closer to the patient work and take more responsibility when doing their practice rurally compared to in a university hospital.

"It's very different if you're the first person to see the patient. And then you have to think about the patient and the diagnosis and that's a bit. It's not... You can't just go and open the notes and say, "ah yes the registrar said it was this" (Doctor 15)

Perceived patient safety: Many doctors argued that patient safety in RHs was as good as or better than patient safety in larger hospitals, providing patients needing a higher level of hospital care were not retained. Arguments for this were shorter decision paths in RHs and medical staff knowing the social context of the patients, which could favour discharge planning. Furthermore, in RHs patients are often seen by an experienced doctor sooner than in a big hospital.

"I've been here nearly 10 years and I can't think of a specific example of somebody who I've thought, "If that happened in central Auckland then they would be alive", so that must be quite rare, I think it's safe" (Doctor 9)

Cooperating in different teams around the patient

The third theme, "Cooperating in different teams around the patient" summarizes subthemes "Working in small teams in flat organizations around the patient" and "Consulting hospital specialists".

Working in small teams in flat organizations around the patient

The RHs take a central position in the health care pathways of rural patients. Rural doctors report team-working when describing patient care together with other doctors within the RH, with local GPs and with hospital specialists in base and tertiary hospitals. They are also part of multidisciplinary teams with nurses, physiotherapists, occupational therapists, social workers, and needs assessors within the RH and within their locality. This does not differ from other hospitals, but rural doctors discussed how small team sizes promote *simplified collaboration* between team members. The *impact on patients* of varying numbers of staff involved in the hospital care was also discussed. Specifically, the RH *nurses' role* was highlighted as being central to the delivery of patient centred care and adaptive to various clinical situations.

Simplified collaboration: Doctors stated that the small size of RHs promotes non-hierarchical multidisciplinary teams, where personal acquaintances and deeper understanding of each other's roles simplify collaboration. In this sense, the small team size in RHs was expressed as an advantage compared to big hospitals.

"I think there's less hierarchy here than in the bigger hospitals. I think it's much more egalitarian." (Doctor 9)

Impact on patients: The limited number of medical staff in RHs was described as an advantage for patients, as they would not meet so many different medical staff.

"He's in his 80's. If he got a pneumonia and went to Wellington Hospital where he lives, he'd be seen by an emergency nurse, an emergency doctor, and then he'd probably be admitted to a ward and see a junior doctor on a ward. And then he might see a registrar on a ward, and he'd probably have a whole other set of nursing staff see him and do some sort of care plan. And then you'd have the specialists might see him for five minutes at some point. And he'd probably have some imaging at some point. (…) But that's already, probably 15 different people would have been involved in his care, whereas, if he came to (our RH) and got a pneumonia, well, my colleague xx, who's on call tonight, would see him and put him in the ward and organize his treatment and the nurses would, the nurses that are there would be the ones that care for him." (Doctor 7)

Conversely, small team size was also considered a weakness and a vulnerability. Rural health professionals need broad clinical competencies, whereas urban hospitals have more specialized staff available and if a member of staff falls ill it does not have such an impact on patient care.

" We're always one nurse short of a catastrophe down here. If one nurse goes on leave and another nurse gets sick, then all of a sudden, we haven't got enough RNs (registered nurses) to man the roster." (Doctor 12)

Nurses' role: Many doctors expressed their appreciation of the RH nurses, for their broad competence, their ability to adapt to different clinical situations, and their clinical judgements.

"Particularly the nursing care, I think that's probably the best thing about the ward (…) some of the nurses are really exceptional at adapting to a whole lot of roles" (Doctor 7)

Consulting hospital specialists

In different medical situations, rural doctors need to consult hospital specialists for advice on patient care. They emphasised *the interdependency* between rural doctors and hospital specialists, and the need for *mutual recognition* of each other's situation. They also reported *varying levels of collaboration with different hospital clinics*.

Interdependency and mutual recognition: Overall cooperation with those working in urban hospitals was described as good. This cooperation was improved by personal knowledge and mutual recognition of each other's circumstances.

"… I think we work alongside each other. I couldn't do my job without a cardiologist who I refer to, or a cardiac surgeon to refer to. They also couldn't do their jobs without me doing what I do and finding patients for them and treating them before and after..." (Doctor 10)

However, some doctors described limited understanding from urban hospital staff about the restricted resources available in RHs and about contextual factors that influence the medical decisions taken in RHs. The perception that some RHs were more trusted and listened to by hospital specialists than others was discussed.

Varying collaboration with different hospital clinics: It was considered that some hospital clinics tended to collaborate better with RH doctors than others.

"Things like oncology and paediatrics. We have really good, easy access to the specialists. And they are really personable, and you can ring them about anyone (…) Whereas, orthopaedics, oh my God, it's like a nightmare. You can never get the same person on the phone, and then you always have to talk to the junior staff, so you can't actually ask questions about people that might be quite sophisticated…" (Doctor 7)

Discussion

Principal findings

Three themes were identified: 'Applying a holistic perspective in the care', 'striving to maintain patient safety in sparsely populated areas', and 'cooperating in different teams around the patient'. Participating doctors considered RHs provided a more holistic perspective on patient care based on closeness to home and family, a generalist care perspective and greater relational continuity than hospitals in larger centres. Findings also demonstrate the different assessments RH doctors make, which urban doctors are not required to do. The central role of the RHs in the health care pathways of rural patients was discussed, as well as advantages and disadvantages with small non-hierarchical multidisciplinary teams for patients.

Comparison with existing literature

The RH doctors appreciated providing holistic care in contrast to the alleged narrow biomedical perspective of hospital specialists in larger hospitals. Rural hospitals were considered a suitable setting for the care of multimorbid elderly patients (6-9). Moffat et al.

concluded that management of multimorbidity requires a holistic approach by a generalist (24), in agreement with our findings.

"Close to home" is multifaceted as both "close" and "home" can have different definitions. In a geographical sense our findings are consistent with those from interview studies involving patients that describe having hospital care close to home as a great advantage (25). The emotional sense of "home" including homeliness and personal connections discussed in our study are also described in patient interviews (17,18,26). It was obvious that RH doctors in our study not only considered the patient's treatment as important but also the patients' 'lived experience' of their hospital stay as important, reflecting the social aspect of their holistic perspective.

"Home" means different things for different individuals depending on their ethnicity and beliefs. Our study recognized that being near to their whānau (extended family) is particularly important at end of life for Māori patients, as also reported in the study from the North Island by Blattner et al (16). A systematic review (27) concluded that home is the preferred place of rural death, and that when symptom control cannot be catered for at home rural hospitals may act as substitute hospices. Compared to general hospitals, rural/community hospitals have been regarded as preferable places for end-of-life care (28).

Continuity of care is often discussed in relation to primary care, with an established positive relationship between interpersonal (relational) continuity in the GP-patient relationship and patient satisfaction (29). Our results show, that in the RH setting, relational continuity could include interpersonal relationships within the community and, for patients with repeated hospitalisations, familiarity with health professional on the ward, as reported elsewhere (30). From the RH doctors' point of view, this continuity was helpful in medical decision-

making, particularly for RH doctors working as GPs in the community as well. Strong overlapping personal and professional relationships with community members/patients can emerge over time (31), described at times as a burden for the small town doctor by McCarthy (32) and reported in our study as well.

Long distances to the nearest ED increases mortality risk for patients with specific emergency care–sensitive conditions: intracranial injury, acute myocardial infarction, other acute ischemic heart disease, fracture of the femur, and sepsis (33,34). In South Island long distances to EDs are the rule rather than the exception, due to the dispersed population. Many rural areas are serviced by only one ambulance crewed by volunteer St John staff, so when the ambulance is away transporting a patient, this could delay transportation of subsequent acute patients.

Some acute conditions present as “high-risk, low-frequency situations” to RH teams, and doctors may lack recent management experience of these, so such situations can be very stressful for the team and potentially dangerous for the patients as discussed by our participants and described elsewhere(35). To address this, rural-specific post-graduate training programs have been developed and implemented in NZ (4,27,36), including simulation-based training (37).

Patient safety is a wide subject to discuss. In this study, the expression was used without definition, and therefore discussed intuitively by the doctors. RH doctors stressed the importance of treating the right patients in RHs. This highlights the significance of the assessments made when deciding whether to keep a patient or to refer to a base hospital. This decision process has been studied elsewhere (38,39), and a common finding is that these decisions are not governed solely by the patient’s medical condition, but by

contemplations of the doctor about RH capacity regarding available beds and diagnostic investigations, staff competences, transferring capacity etc. Our study confirms the heterogeneity of assessments RH doctors perform when making these decisions.

Most RH doctors asserted that the patient safety in their RH was high, even possibly higher than in a base hospital. Studies in NZ and internationally have not found any association between rural location and increased risk of hospital harm, but patients in need of inter-hospital transfers were at increased risk (40,41), as would be expected with patients with emergency care-sensitive conditions.

RH doctors considered that their small sized, informal, and egalitarian teams enhanced holistic care, simplified collaboration, and reduced the impact on patients of fragmented care driven by a high volume of health care professionals. This finding is similar to a Swedish interview study on inter-disciplinary teamwork that identified a holistic care approach and proactive non-hierarchical interaction as important factors for quality geriatric care (42). Small working teams do not need formalize reporting mechanisms if they have relationships that enable open disclosure and resolution of errors (43). However, due to the overlapping of professional and personal roles, some small medical communities may need structured reporting mechanisms to ensure anonymity (43).

Strengths and limitations of the study

The interviewing researcher (MH) had specific knowledge in rural medicine as a Swedish rural GP, but no previous relation to the RHs or the medical staff interviewed, which is considered a strength. Conversely, his pre-understanding could co-create the messages from interviews with participants and play a role in the subsequent analysis. However, the latter

was balanced by other experienced qualitative researchers in the process (FDN, TS, MB) looking at the text data through different analytical lenses. Another strength is the diversity of RHs visited. The interviewer's first language is Swedish, and interviews were performed in English. Therefore, linguistic nuances could be misinterpreted. However, repeated readings of the transcripts and interviewees' reports from reviewing their transcript did not reveal such misinterpretations. Many of the doctors had long clinical experience from working in NZ and overseas, that would add to richness in information. When discussing gender related aspects on their work in RHs the female doctors did not report anything of value to the study. We aspired to have Māori representation among interviewees, but in the RHs visited, no doctor identified as Māori, and it is acknowledged that Māori are underrepresented in the NZ medical workforce (44). In the last two interviews no new information of importance was added, indicating that saturation was met. The chosen perspective in this study is that of RH doctors. Perspectives of other members of RH teams, patients and relatives are important and require exploration in subsequent studies.

We emphasize that some of our findings are not necessarily transferable to RHs in North Island, as there are considerable socio-demographic differences between the populations of North Island and South Island, notably in distribution of the Māori population in rural areas (45).

Implications for clinical practice and health policy

A recent NZ policy document emphasizes the estimated increase in hospital bed usage in the coming decades due to an ageing population, and emphasises that the complexity of hospital cases will increase due to multimorbidity and frailty (4). Hospitals need to work "more closely with community, social and primary care services in locally integrated systems

to ensure that people are only cared for in hospital when appropriate" (4). Generalist led hospital care is considered especially suitable for multimorbid elderly patients that require a holistic approach by the caregiver (24). The 2006 Otago Rural Hospital study (6) suggested that "approximately 40% of admissions from urban populations to base hospitals could be handled at a generalist level" - as is now provided in rural settings using the RH model. Given the need for more hospital beds in future (4) the RH model of care could be suitable for piloting in semi-rural and urban NZ.

Conclusion

This study provides an understanding of how NZ South Island rural hospital doctors perceived the importance of the provision of a holistic generalist model of hospital care for patients and for their rural communities, as well as the significance of the rural hospital to rural communities.

WORD COUNT: 5594

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Contributorship statement

MH designed the study and developed the interview guide in cooperation with MB, TS and FD-N. MH conducted the interviews. Initial data analysis was undertaken by MH, FD-N, TS, and MB. Subsequent data analysis was undertaken by MH and MB, with input from TS and FD-N. MH led the writing of the manuscript with inputs from MB, TS, and FD-N.

Competing interests.

The authors declare that they have no competing interests.

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Ethics Approval

Ethical approval was obtained from the University of Otago Human Ethics Committee (17/141). Written informed consent was obtained from all participants.

Data availability statement

Full de-identified interview transcripts will not be shared. Informed consent, in line with the approving ethics committee, only allows for the use of de-identified extracts within research reporting and writing, in order to maintain the privacy of participants based in a defined regional area and population, thus making their identification with full transcripts more likely.

References

1. Winpenny EM, Corbett J, Miani C, King S, Pitchforth E, Ling T, m.fl. Community Hospitals in Selected High Income Countries: A Scoping Review of Approaches and Models. Int J Integr Care [Internet]. [citerad 27 juni 2018];16(4). Tillgänglig vid: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5354221/

2. Pitchforth E, Nolte E, Corbett J, Miani C, Winpenny E, van Teijlingen E, m.fl. Community hospitals and their services in the NHS: identifying transferable learning from international developments – scoping review, systematic review, country reports and case studies [Internet]. Southampton (UK): NIHR Journals Library; 2017 [citerad 29 juni 2018]. (Health Services and Delivery Research). Tillgänglig vid: http://www.ncbi.nlm.nih.gov/books/NBK436702/

3. Australian College of Rural and Remote Medicine. Cairns Consensus Statement on Rural Generalist Medicine: improved health for rural communities through accessible, high quality healthcare: Australian College of Rural and Remote Medicine; 2014.

4. Health and Disability System Review: Interim report. :312.

5. DRHM_Handbook_2022.pdf [Internet]. [citerad 28 februari 2022]. Tillgänglig vid: https://www.rnzcgp.org.nz/GPdocs/New-website/become_a_GP/DRHM_Handbook_2022.pdf

6. Williamson M, Gormley A, Dovey S, Farry P. Rural hospitals in New Zealand: results from a survey. 2010;123(1315):10.

7. Lawrenson R, Doube B, Blackmore T. The Rural Hospital Workforce Survey Report 2020. :32.

8. Lawrenson R, Reid J, Nixon G, Laurenson A. The New Zealand Rural Hospital Doctors Workforce Survey 2015. 2016;129(1434):8.

9. Nixon G, Blattner K, Dawson J, Fearnley D, Gardiner S, Hoskin S, Kashyap B, Naicker K, Nieuwoudt B, Skinner A, et al. Rural hospital medicine in New Zealand: Vocational registration and the recognition of a new scope of practice. N Z Med J. 2007;120:1–5.

10. Williamson M, Gormley A, Farry P. Otago rural hospitals study: what do utilisation rates tell us about the performance of New Zealand rural hospitals? N Z Med J. 23 juni 2006;119(1236):U2030.

11. Lappegard Ø, Hjortdahl P. Acute admissions to a community hospital: Experiences from Hallingdal sjukestugu. Scand J Public Health. 2012;40(4):309–15.

12. Aaraas I. The Finnmark general practitioner hospital study. Patient characteristics, patient flow and alternative care level. Scand J Prim Health Care. december 1995;13(4):250–6.

13. Charante EM van, Hartman E, Yzermans J, Voogt E, Klazinga N, Bindels P. The first general practitioner hospital in The Netherlands: towards a new form of integrated care? Scand J Prim Health Care. 01 mars 2004;22(1):38–43.

14. Hedman M, Boman K, Brännström M, Wennberg P. Clinical profile of rural community hospital inpatients in Sweden – a register study. Scand J Prim Health Care. 02 januari 2021;39(1):92–100.

15. Primary & Community Care strategy [Internet]. Southern Health. [citerad 28 februari 2022]. Tillgänglig vid: https://www.southernhealth.nz/about-us/our-pathway-towards-better-health/primary-community-care/primary-community-care-strategy

16. Blattner K, Stokes T, Rogers-Koroheke M, Nixon G, Dovey SM. Good care close to home: local health professional perspectives on how a rural hospital can contribute to the healthcare of its community. N Z Med J. 07 februari 2020;133(1509):39–46.

17. 2018 Census [Internet]. Tillgänglig vid: https://www.stats.govt.nz/2018-census/

18. Taonga NZM for C and HTM. Geography and geology [Internet]. Ministry for Culture and Heritage Te Manatu Taonga; [citerad 19 juni 2022]. Tillgänglig vid: https://teara.govt.nz/en/natural-environment/page-1

19. Crabtree Benjamin F. Doing Qualitative Research. Vol. 1999. London: Sage Publications;

20. Graneheim UH, Lundman B. Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness. Nurse Educ Today. februari 2004;24(2):105–12.

21. Thomas DR. A General Inductive Approach for Analyzing Qualitative Evaluation Data. Am J Eval. 01 juni 2006;27(2):237–46.

22. Raskind IG, Shelton RC, Comeau DL, Cooper HLF, Griffith DM, Kegler MC. A review of qualitative data analysis practices in health education and health behavior research. Health Educ Behav Off Publ Soc Public Health Educ. februari 2019;46(1):32–9.

23. Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. Int J Qual Health Care. 01 december 2007;19(6):349–57.

24. Moffat K, Mercer SW. Challenges of managing people with multimorbidity in today's healthcare systems. BMC Fam Pract. 14 oktober 2015;16(1):129.

25. Leonardsen ACL, Busso LD, Grøndahl VA, Ghanima W, Barach P, Jelsness-Jørgensen LP. A qualitative study of patient experiences of decentralized acute healthcare services. Scand J Prim Health Care. 02 juli 2016;34(3):317–24.

26. Green J, Forster A, Young J, Small N, Spink J. Older people's care experience in community and general hospitals: a comparative study. Nurs Older People. 24 juli 2008;20(6):33–9.

27. Rainsford S, MacLeod RD, Glasgow NJ. Place of death in rural palliative care: A systematic review. Palliat Med. 01 september 2016;30(8):745–63.

28. Payne S, Hawker S, Kerr C, Seamark D, Roberts H, Jarrett N, m.fl. Experiences of end-of-life care in community hospitals. Health Soc Care Community. 2007;15(5):494–501.

29. Saultz JW, Albedaiwi W. Interpersonal Continuity of Care and Patient Satisfaction: A Critical Review. Ann Fam Med. 09 januari 2004;2(5):445–51.

30. Haggerty JL, Reid RJ, Freeman GK, Starfield BH, Adair CE, McKendry R. Continuity of care: a multidisciplinary review. BMJ. 20 november 2003;327(7425):1219–21.

31. Glover JJ. Rural Health Care and an Ethics of Familiarity. Narrat Inq Bioeth. 2019;9(2):113–9.

32. McCarthy R. Grocery Store Hug. Narrat Inq Bioeth. 2019;9(2):89–90.

33. Nicholl J, West J, Goodacre S, Turner J. The relationship between distance to hospital and patient mortality in emergencies: an observational study. Emerg Med J EMJ. september 2007;24(9):665–8.

34. Jang WM, Lee J, Eun SJ, Yim J, Kim Y, Kwak MY. Travel time to emergency care not by geographic time, but by optimal time: A nationwide cross-sectional study for establishing optimal hospital access time to emergency medical care in South Korea. PLOS ONE. maj 2021;16(5):e0251116.

35. Wik S. Expecting the Unexpected: Frontier Medicine from a Student Perspective. Narrat Inq Bioeth. 2019;9(2):96–7.

36. Blattner K, Stokes T, Nixon G. A scope of practice that works ”out here”: exploring the effects of a changing medical regulatory environment on a rural New Zealand health service [Internet]. Vol. 19. 2019 [citerad 30 april 2021]. Tillgänglig vid: https://www.rrh.org.au/journal/article/5442/

37. The Matthew effect in New Zealand rural hospital trauma and emergency care: why rural simulation-based education matters [Internet]. [citerad 29 april 2021]. Tillgänglig vid: https://www.nzma.org.nz/journal-articles/the-matthew-effect-in-new-zealand-rural-hospital-trauma-and-emergency-care-why-rural-simulation-based-education-matters

38. Lappegard Ø, Hjortdahl P. The choice of alternatives to acute hospitalization: a descriptive study from Hallingdal, Norway. 2013 [citerad 22 december 2016]; Tillgänglig vid: https://www.duo.uio.no/handle/10852/47218

39. Lloyd T, Blattner K, Nixon G. Transfers from rural hospitals in New Zealand. N Z Med J. 21 januari 2011;124:82–8.

40. Atmore C, Dovey S, Gauld R, Gray AR, Stokes T. Do people living in rural and urban locations experience differences in harm when admitted to hospital? A cross-sectional New Zealand general practice records review study. BMJ Open. 01 maj 2021;11(5):e046207.

41. Vartak S, Ward MM, Vaughn TE. Patient Safety Outcomes in Small Urban and Small Rural Hospitals. J Rural Health. 2010;26(1):58–66.

42. Åberg AC, Ehrenberg A. Inpatient geriatric care in Sweden—Important factors from an inter-disciplinary team perspective. Arch Gerontol Geriatr. 01 september 2017;72:113–20.

43. Klingner J, Moscovice I, Tupper J, Coburn A, Wakefield M. Implementing Patient Safety Initiatives in Rural Hospitals. J Rural Health. 2009;25(4):352–7.

44. The New Zealand Medical Workforce in 2018. 2018;58.

45. EHINZ [Internet]. [citerad 28 februari 2022]. Tillgänglig vid: https://www.ehinz.ac.nz/indicators/population-vulnerability/ethnic-profile/

INTERVIEW GUIDE

1. Informal introduction

- The researcher presents himself and informs about the research project

2. Formal introduction

a. The researcher presents the principles for the interview method.

- The participation is voluntary. It is possible to withdraw at any moment.
- A predefined interview guide is used as a basis for the discussion.
- The interview will be taped. Quotes from the interview can be used in an article, but quotes cannot be linked to individuals.
- The timeframe for interview is one hour.
- Consent is obtained from the participants.

b. The researcher presents the background and the objectives of the interview

i. Definition of the Rural Community Hospital Model.

ii. A short background of statistics and data on the respondents´ community hospital collected prior to the interview. Demographics, geography and distances. The researcher also informs about any important differences found between different community hospitals in South Island as well as differences between Swedish and NZ community hospitals.

iii. The interview will focus on the informants´ perception of their units´ role in the health care system. Of particular interest will be what they perceive to be challenges and success factors in their organisation for the optimal care of aged patients.

3. The tape recorder is put on

4. The interview begins

The researcher ensures that the following predefined main themes are discussed if they have not already been mentioned by the respondent:

About the respondent:

- Respondents' professional title, experiences in the past. Graduated in NZ or overseas? Different workplaces? Carrier path leading to current job.
- Family or other social bounds
- Positive and negative aspects of living in rural places compared to urban places.

About rural hospitals

- Respondents relation to rural hospital(s) – describe (since how long?,
- Role of the CH in health care system?
  - Patient groups suitable for CH care? – age groups, diagnoses…
  - Which patient groups should not be treated in CHs?
  - Same or different treatment?
  - Ethnic groups? (added in NZ)
- Advantages/disadvantages with CH model
  - Yet untapped uses of CHs
  - Patient safety in CHs?
- Different treatment cultures at CHs compared to GHs?
- What´s to be most proud of?

About working conditions

- Vacancies of doctors? Responsibilities,
- Possibilities for professional development?
- Suggestions for improvement

About medical decision making

- Differences when far from general hospital? Does distance matter? Why?
- Support from hospital specialists
- Important diagnoses

About health care system

- How do you see the future for health care in rural areas?
  - Challenges?
- How do you see the role of the rural hospital in the future?
  - Challenges?
  - GP led small hospitals in urban areas?

About collaboration with nursing homes

- Nursing home capacity and organization
- Location of the physicians' offices in relation to the nursing homes
- Organization of the work on the nursing home

-

Respondents' spontaneous reflexions

5. Summary

- The researcher summarizes and the respondent has the possibility to comment on this.
- Does the respondent/informant feel that he/she have opinions, perceptions or nuances that have not been elucidated?

6. Finishing

- The researcher gives contact info to the informant and asks for consent to contact the informant by phone or e-mail later if further questions arise that need to be clarified.
- The moderator informs about further work in the research project and the expected use of the material.

7. Short evaluation

COREQ (COnsolidated criteria for REporting Qualitative research) Checklist

A checklist of items that should be included in reports of qualitative research. You must report the page number in your manuscript where you consider each of the items listed in this checklist. If you have not included this information, either revise your manuscript accordingly before submitting or note N/A.

Topic	Item No.	Guide Questions/Description	Reported on Page No.
Domain 1: Research team and reflexivity			
Personal characteristics			
Interviewer/facilitator	1	Which author/s conducted the interview or focus group?	
Credentials	2	What were the researcher's credentials? E.g. PhD, MD	
Occupation	3	What was their occupation at the time of the study?	
Gender	4	Was the researcher male or female?	
Experience and training	5	What experience or training did the researcher have?	
Relationship with participants			
Relationship established	6	Was a relationship established prior to study commencement?	
Participant knowledge of the interviewer	7	What did the participants know about the researcher? e.g. personal goals, reasons for doing the research	
Interviewer characteristics	8	What characteristics were reported about the inter viewer/facilitator? e.g. Bias, assumptions, reasons and interests in the research topic	
Domain 2: Study design			
Theoretical framework			
Methodological orientation and Theory	9	What methodological orientation was stated to underpin the study? e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis	
Participant selection			
Sampling	10	How were participants selected? e.g. purposive, convenience, consecutive, snowball	
Method of approach	11	How were participants approached? e.g. face-to-face, telephone, mail, email	
Sample size	12	How many participants were in the study?	
Non-participation	13	How many people refused to participate or dropped out? Reasons?	
Setting			
Setting of data collection	14	Where was the data collected? e.g. home, clinic, workplace	
Presence of non-participants	15	Was anyone else present besides the participants and researchers?	
Description of sample	16	What are the important characteristics of the sample? e.g. demographic data, date	
Data collection			
Interview guide	17	Were questions, prompts, guides provided by the authors? Was it pilot tested?	
Repeat interviews	18	Were repeat inter views carried out? If yes, how many?	
Audio/visual recording	19	Did the research use audio or visual recording to collect the data?	
Field notes	20	Were field notes made during and/or after the inter view or focus group?	
Duration	21	What was the duration of the inter views or focus group?	
Data saturation	22	Was data saturation discussed?	
Transcripts returned	23	Were transcripts returned to participants for comment and/or	

Topic	Item No.	Guide Questions/Description	Reported on Page No.
		correction?	
Domain 3: analysis and findings			
Data analysis			
Number of data coders	24	How many data coders coded the data?	
Description of the coding tree	25	Did authors provide a description of the coding tree?	
Derivation of themes	26	Were themes identified in advance or derived from the data?	
Software	27	What software, if applicable, was used to manage the data?	
Participant checking	28	Did participants provide feedback on the findings?	
Reporting			
Quotations presented	29	Were participant quotations presented to illustrate the themes/findings? Was each quotation identified? e.g. participant number	
Data and findings consistent	30	Was there consistency between the data presented and the findings?	
Clarity of major themes	31	Were major themes clearly presented in the findings?	
Clarity of minor themes	32	Is there a description of diverse cases or discussion of minor themes?	

Developed from: Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *International Journal for Quality in Health Care*. 2007. Volume 19, Number 6: pp. 349 – 357

Once you have completed this checklist, please save a copy and upload it as part of your submission. DO NOT include this checklist as part of the main manuscript document. It must be uploaded as a separate file.