HEALTH NEEDS ASSESSMENT AND NURSE-LED HEALTH CARE SERVICES OF A SMALL ISLAND COMMUNITY: METHODOLOGY AND RESULTS OF A PILOT STUDY OF THE HEALTH STATUS OF RESIDENTS OF STEWART ISLAND, NEW ZEALAND

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ABSTRACT

Context*:* Provision of health care needs to small remote communities is a challenge requiring careful consideration. Stewart Island is a small island located at the far south of New Zealand. First-line primary health care services are provided by two rural nurse specialists supported on the mainland by a general practitioner and regional hospital 72 kms away. Geographical and professional isolation factors and maintaining personal privacy were key aspects in the design of the study.
Purpose*:* To undertake a health needs assessment of a small isolated community considering both resident and health professional perspectives.
Methods*:* A mixed methodology was employed to undertake the health needs assessment: self-administered resident survey and semi-structured interviews with four health professional stakeholders (two on the island and two on the mainland).
Findings*:* The survey attracted 106 returns (approx. 30% of adult residents). Stewart Islanders reported similar rates of established chronic conditions compared to New Zealanders as a whole, indicating the need for access to a full range of primary health care services: acute and chronic care; health promotion and illness prevention. Residents and health professional stakeholders supported the current model of nurse-led health service provision with remote interdisciplinary support. Reported gaps included visiting allied health services, and issues of professional isolation and professional development for the rural nurses
Conclusion: Researching health needs of a confined community raises particular issues in confidential data collection and reporting. Remote health service provision brings unique challenges but Stewart Islanders believe the current model of nurse-led service provision largely meets their needs.

INTRODUCTION

Provision of health care to small remote communities is a challenge requiring careful consideration (Bidwell, 2001; Martin-Misener, Downe-Wamboldt, & Girouard, 2009). Stewart Island, the southern-most of New Zealand's (NZ) three largest islands, meets the definition of remote, being one to four hours transport time away from a major regional hospital in good weather (with no access in poor weather for several days at a time) (Wakerman, 2004). Previous publications have described the Stewart Island health care system and a community profile

(D.Dillon, 2006), noting an older age and male demographic susceptible to economic distress with high alcohol intake and recreational drug use (Armstrong & Pepers, 1999).

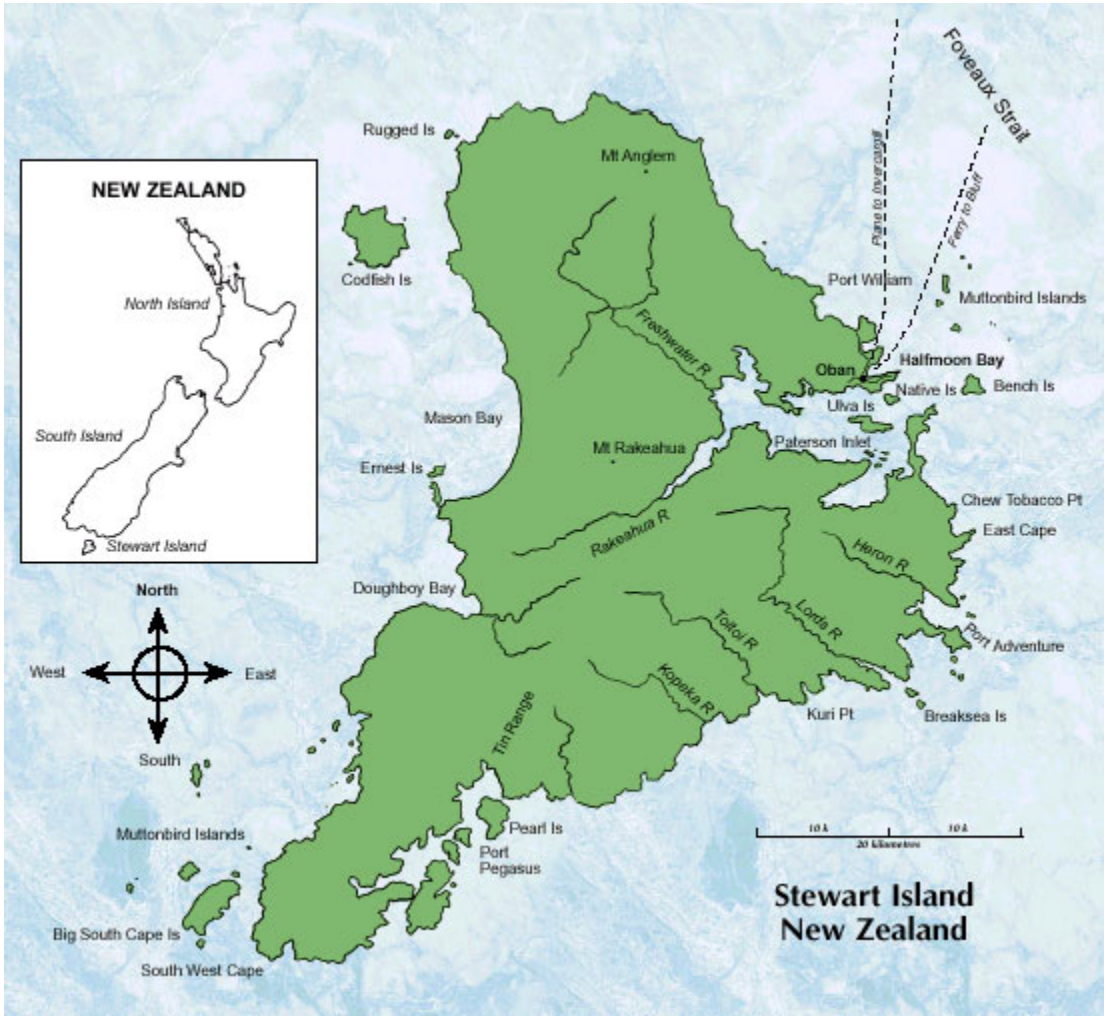
International and national research has identified challenges to life in rural or remote areas being geographical (and social) isolation (Goins, Williams, Carter, Spencer, & Solovieva, 2005; Martin-Misener et al., 2009), paucity of services (Barnett, Roderick, Martin, & Diamond, 2001; Mitton, O'Neil, Simpson, Hoppins, & Harcus, 2007), transportation cost (M. Fitzgerald, Pearson, & McCutcheon, 2001; Goins et al., 2005) , differences in cultural needs (Cormack, Robson, Purdie, Ratima, & Brown, 2005; Ellison-Loschmann & Pearce, 2006), low income,(Campbell et al., 2002; Elliot-Schmidt & Strong, 1997; Hall, Holman, & Sheiner, 2004) low or seasonal employment (D. Dillon, 2006; Goins et al., 2005; Jerant, von Friederichs-Fitzwater, & Moore, 2005), reduced availability of health specialists (Gill & Martin, 2002; Iezzoni, Killeen, & O'Day, 2006; Schoen & Doty, 2004), and perceived poor quality health professional care (Elliot-Schmidt & Strong, 1997; Jerant et al., 2005). Mental and physical health problems may occur at higher rates in rural or remote areas (Elliot-Schmidt & Strong, 1997; Rural Expert Advisory Group, 2002).

Stewart Island is 40kms from the NZ mainland across Foveaux Straight (see Figure One). Weather conditions are changeable; at times the Strait is treacherous and impassable to boat or light plane, and crossings are expensive.[i] Most of the island is unpopulated and covered in dense vegetation; walking tracks cover most of the island and there are few roads. Fishing and aquaculture are the main occupations but tourism is growing. The latitude results in very cold, often wet, short winter days with long days in summer and a persisting night glow from the sun.

As in a number of NZ rural areas, first-line primary health care is provided by rural nurse specialists (RNS) working within the registered nurse scope of practice,[ii] (Nursing Council of New Zealand) and using standing orders to distribute medication prescribed remotely and sent from the closest pharmacy (Ministry of Health, 2002 (revised 2006)). On Stewart Island the RNS are employed by the Southland District Health Board (SDHB).[iii] The Stewart Island RNS work ten days on and four days off. They are available 24 hours a day via phone or the 111 system, live on-island and are sometimes called to assist in emergencies when off duty. The closest medical support is in Invercargill (approximately 72 km away); a General Practitioner (GP), base hospital specialists, and a community pharmacy. Patients requiring emergency hospital care are evacuated by plane or helicopter, weather permitting. RNS services are provided at no-charge to the residents.

Undertaking a health needs assessment of Stewart Island residents provided opportunities to consider the challenges of researching small communities and utilise a mixed methodology including a resident health survey and examination of the health care provision. The project fieldwork was undertaken by a current University of Otago medical student, also a former resident of Stewart Island.

Figure 1: Map of Stewart Island in relation to New Zealand
(http://www.stewartisland.co.nz/Island_map.htm accessed 6/10/09 permission granted for use by Alan Kynaston)



METHODS

A mixed methods (quantitative and qualitative) approach was taken to conduct the health needs assessment as this method supports triangulation of data thus validating and strengthening research findings (Jack & Holt, 2008; Rowley, Dixon, & Sheldon, 2002). This approach is increasingly utilized in primary care health services research and was considered suitable for this project taking account of the potential vulnerability of the population.(Martin-Misener et al., 2009) It obtains "different but complementary data on the same topic" to best understand the research problem and draw on the strengths of different research approaches (Morse, 1991). The field researcher (JH-C) was based on Stewart Island for the duration of the study to administer the health survey; better understand the context of healthcare services through interviewing the stakeholders; re-familiarize with the lifestyle yet maintain a professional distance and assure

confidentiality. Ethical approval was obtained from the NZ Lower South Ethics Committee.

Stakeholder Interviews

Semi-structured, face-to-face or phone recorded interviews were conducted with four stakeholders; the two on-island RNS, and from the mainland, the Invercargill-based GP and the SDHB manager responsible for the service. Interviews covered the roles of those involved in the service as well as the advantages and challenges of the service. Recorded interviews were transcribed and these were checked and validated by each participant.

Resident Health Survey

In line with the New Zealand Chatham Islands Focus survey (Ministry of Health, 2005), the sampling structure was designed to sample as many members of the Stewart Island usually-resident population as possible. The first challenge was finding a denominator population of the island as this fluctuates with seasonal work and is confounded by a sense of belonging retained by past residents and cottage owners. Published (Statistics New Zealand, 2001) and unpublished data (Statistics New Zealand. *Unpublished data* 2007) indicate an estimated 390 permanent residents over the age of 15 years and an indeterminate number of transient workers. Even with local Post Office staff knowledge, it was difficult to know how many people resided at each address since shortage of post boxes necessitates sharing. A pragmatic decision[iv] was taken to supply two copies of the resident survey to every post-office box[v] with a note requesting each householder over 15 years complete a survey. Thirty survey additional tools were supplied to the local Department of Conservation to distribute to their workers and twenty placed on the post-office counter where counter mail is collected. In total 420 surveys were distributed. The time of the year (tourist season) meant that some permanent residents had departed and many prior residents and holiday cottage owners had returned. Despite all this the survey attracted 106 returns (approximately 27% of adult residents). In terms of statistical power, this meant that proportions calculated for this sample should be accurate to within plus or minus 10% of the true population value (in other words, confidence intervals calculated for sample proportions will spread plus/minus 10 percentage points of the point estimate). Confidence intervals are given for all sample statistics.

The resident health survey was adapted (and shortened for participant acceptability) from the 2005 Chatham Island Focus survey (Ministry of Health, 2005). The Chatham Island Focus survey[vi] included questions from the New Zealand Health survey, undertaken every three years, and given that the Chatham Islands are remote and health services different from the rest of NZ, questions were added to determine local health service acceptability and use. Questions in the Stewart Island survey covered self-reported general health, health behaviors, health service utilization and assessment of current services. Qualitative comments were sought about perceptions of health service provision and possible improvements to services.

A reminder was placed in each post box and on the community notice board approximately three weeks after the survey distribution. Following this, a further notice was posted on the community board, along with further survey forms, thanking those who had returned surveys and inviting those who had not to do so.

To ensure anonymous return the completed surveys were posted to the health clinic postal address via the NZ postal system then redirected to the researcher. Returned surveys were numbered and the data entered into the Microsoft access database for analysis. An inductive approach was undertaken by the research team (medical student, academic/research

nurse and doctor) to analyze the qualitative interview data (Cresswell & Plano Clark, 2007.; Morse, 1991). Data were independently reviewed, looking for similarities, differences, emerging themes and commonalities with existing literature (Crabtree & Miller, 1992; Dew, 2007).

A biostatistician advised on the design of the study and indicated that the small population of Stewart Island would not allow the use of comparative statistics for contrasting patterns on Stewart Island with the remaining New Zealand population but would provide an indication of health status at one point in time. A Microsoft Access database was developed for the survey results and descriptive statistics are reported for proportions of respondent's self-reported illness responses, with confidence intervals for these proportions.

RESULTS

Stakeholder Interviews

Two main themes emerged from the interviews: Professional Aspects and Health Care Provision.

*Professional Aspects***.** This discussion focused on the scope of the RNS role, basis of employment, training and interface with other health professionals off the island.

> [Their] employment structure same as other district nurses, [with a SDHB] manager. [The] funding comes from district health nurses budget [and] includes funding for them to travel to conferences, do study. The clinic building etc is owned by the SDHB [and] they supply the equipment in the clinic. (SDHB manager)

A broad nursing role was described:

> …its provision of health care both on demand but also in response to our own strategic planning… And it's a broad role because it encompasses acute and chronic care and management, common illnesses, emergency care for people, antenatal, postnatal, well child, well persons, district nursing, occupational health, palliative and home care and also organizing things like assessments for [secondary] services as well. (RNS 1)

Primary health care clinics were provided routinely:

> You have your morning clinic, quite often we'll have an afternoon clinic as well if we're too busy, or we'll actually advertise and say that we're having a well child afternoon, or a women's health , or a men's health afternoon. (RNS 2)

The availability and promptness of the local health service was seen as a bonus.

> People are lucky as they can see them in the clinic straight away for free, whereas in town ED might be waiting for 6-8 hours for similar problem.(SDHB manager)

RNS were always on-call for emergencies:

> Well we have sort of all the equipment a GP would have but we've got more than that. We've got our life-pac 12 which is vital for diagnosing and treating people with cardiac problems. We don't have a ventilator no- we don't We have a [equipment] bag set up that we can mobilize into a boat or helicopter or whatever and we have an ambulance set up that we can drive where we need it and we can use it in the clinic too… Lots of drugs intravenous and oral - everything you need in a situation, like adrenaline, amiadarone, atropine lots of cardiac things, anti-emetics, pain relief, buscopan etc. We do give antibiotics… we have enough stuff to last us for three days … because of the weather. (RNS 1)

The off-island manager had a different perspective on their equipment and preparedness:

> …everything that opens and shuts is available to them. (SDHB manager)

Both RNS were highly trained in technical nursing and emergency skills.

> …we're PRIME[vii] trained and several years experience -that's all you need for the role according to the DHB at this point in time -but we've elected to do a lot more training. It's a clinical masters focusing on pharmacology mainly and assessment. RNS 1)

> …a lot of it was taught just from experience: IV insertion, prescribing, suturing and everything was just something that had to be done and I got on with it and did it but whenever I could pick someone's brain [I did]… (RNS 2)

The RNS compared their first-line health care to the GP scope of practice:

> You must remember that rural GP retention in NZ is a massive problem. Keeping GPs in rural practices is very, very difficult and there's a lot of rural areas now where there's no GP so we've had to step into that role. Therefore, that's why we've advanced our training. (RNS 2)

Regular professional supervision (off the island) for RNS was funded by SDHB. Both nurses were undertaking academic study and working towards Nurse Practitioner (NP) scope of practice[viii] but finding time to undertake the study was challenging, ongoing funding was piecemeal and the local program of advanced nursing study was closing down.

> We're actually quite sad that they've closed that Masters program, they're still putting the last people through, but it's all to do with funding, real sad actually 'cause we felt it was good having a southern center. (RNS 1)

The RNS have to organize their work in order to have adequate time-off and have privacy in their lives.

> …well we structure our working life ten days on four days off so we can take a decent break and get off the island if we want to. To give is enough time to do that. It is and it's pretty hard on your health it is generally because you can't just go for a walk and take your mind off things if you want to. (RNS 1)

> You don't have a lot of your own personal privacy. (RNS 2)

*Health service provision***.** The RNS described how they typically worked in isolation and balanced routine primary health care with emergency services, training of ambulance and volunteer staff.

> … the most challenging thing …of our workplace is the isolation. It is isolated and we don't often hear from our [local] DHB … [A] typical week is clinic in the morning 10 till 12.30 or till we've got through everybody. Home visits before and after clinic to patients for 'cares' or whatever in their own homes. We might get called out we'd have to close the clinic, put a sign up if there's time and re-run it later in the day. Apart from that we do home visits. …we've got certain things we do monthly and fortnightly basis, like we have our ambulance training our St Johns [ambulance] volunteers. … during the week I try to round up women for their cervical screening in the afternoons to do them in a bunch and well child checks at any stage just to give a focus to organizing. (RNS 1)

Time-intensive care competed with routine health services.

> …well palliative cares about meeting patient's needs rather than trying to make them well, … you're making them comfortable and meeting their needs and their major one need is that they want to die at home on the island. …it's hard work, it's very challenging for us, especially towards the end when they're in terminal restless stage. Quite often you might not get any sleep at all for a week yourself, you have to watch yourself because you're still responsible to the community as a whole. You still have to make sure you're able to diagnose a sick baby or someone else and not be totally strung out. So it is difficult at times. (RNS 2)

Stewart Island has always had a nurse-led service and there has never been a resident GP. Collaboration and team work has always been a focus and the advancing RNS role has evolved from a sharing of healthcare knowledge and formalized support. The RNS have phone support from the Invercargill-based GP or hospital specialists. Mutual respect was evident in the combined working relationships.

> …we have our doctor Dr X and we've always worked with him clinically, we've got assistance we've always got back-up. Two heads are better than one anyway so they might think of something we've missed. We've got all the referral guidelines and stuff just pretty much like throughout NZ, they're all pretty much the same. (RNS 1)

> Y [RNS 1] and Z [RNS 2] are very good; I provide treatment advice for them… Basically I'd write about 50 to 60 scripts each week. They would ring me about twice a day…. And I had two SI patients come here today. The one thing is that it is much easier to order investigations here [Invercargill] and they are more immediate. That is limited there. (GP)

> And we use whoever, the thing is if it's an O&G emergency we use the O&G registrar, if it's an orthopaedic emergency we'll ring the orthopaedic registrar or consultant. The thing is usually with eyes and children, paediatrics, we'll talk directly with the consultants and they're quite happy with that and we work very closely with them in a very collegial way. (RNS 2)

> I might suggest some investigations they need to do or they might have some they still want to do. (GP)

There is no dedicated primary health electronic patient management system but a secondary care database collates information. This lack of appropriate practice support software as well as no videoconferencing facilities adds to professional isolation and vulnerability Recalls and reminders were manual and often personal.

> …people … they like to be personally approached, that works best with everybody. So reminders, notices and things don't always work. That's the nature of the people… (RNS 1)

RNS identified privacy as a barrier unique to the small island community.

> My colleague will quite often run a clinic in the afternoon to do smears with the female patients because it's more appropriate for them than to sit in the waiting room. …. Here everyone knows everyone and so we tend to split the clinic up and use a little more diplomacy and make things as private as possible. (RNS 2)

Health professionals in small communities must retain professional reserve to assure confidentiality.

> I guess one of the main barriers is that they know us quite well and maybe they might have reservations about what they might want to talk about, that's concerning at times, wondering if there was something else. (RNS 1)

> Boundaries are difficult…I don't go to parties very often at all now, I don't hardly socialize with island people at all now because I find all you end up talking about their sore knees and work…you have to be a little bit aloof and professionally aloof from the community at times (RNS 2)

Young people have to learn to independently access health care, trusting it will be confidential, although the RNS also care for their parents.

> I think the young ones, definitely there [are more] problems [for] the young. … you know, as the kids get older at the school…they have their own relationship developing with us, so they can have that without the parents. (RNS 1)

Those residents with chronic conditions had to face additional barriers.

> People that are stuck at home in wheelchairs and you know they want to live here still but there are problems in accessing the services they deserve. …we have to get OTs (occupational therapists) over in order to do assessments to get ramps into peoples homes…Its got to be brought across the strait…so just the remoteness of the place and the fact that everything comes by boat and by plane is a barrier in itself. (RNS 2)

Small population numbers deterred specialist services from visiting the island.

> …we actively campaign every now and again, we'd like to have a visiting psychologist sometime, we have had at times when we've managed to get enough patients together. But the numbers, it's always the numbers. Anything less than eight doesn't seem to qualify for anything…like right down to weight watchers they won't form a group unless there's more than eight clients…you know a scale of economy. (RNS 1)

There was an insider-outsider culture, which refers to the culture of slow community acceptance of newcomers and consequent sharing of information, which influenced health care approaches.

> ….there's a lot of new people and they might not understand [the health care services] very well. And it's all very well the old hands, they know us, so they know what we do, but the new people might not know what's available- like the perceptions can be quite different.

Overall, the community were viewed as extremely resilient.

> …yes one thing its wonderful because they are so hardy and they're very confidant, people just carry on with their illnesses (GP)

Population Health Survey

The research and researcher were well accepted by the community. The survey time frame constrained return rate, compounding anonymity and confidentiality considerations. The time of the year (tourist season) meant that seasonal workers were very busy, some permanent residents had departed and summer residents and long-term holiday cottage owners had returned. Despite this one hundred and six of the distributed surveys were returned (27%), which must be

interpreted with caveats on the denominator as mentioned earlier and vagaries, such as some surveys, being returned on behalf of several household members, contrary to instructions. Selected physical and mental health findings are presented below (Table 1). The range of conditions resembled the 2006 NZ National Health Survey (Ministry of Health, 2008), with expected departures such as more arthritis due to physical labor and stroke absent as island life is a barrier to living there with such conditions.

Table 2 shows resident age and some self-report lifestyle factors by sex. The average age of male respondents was 52.2 and females 48.7 years (Table 2). The alcohol use reported here is number of drinks, not necessarily standard drinks, calculated from self-reported intake. It would appear that the hours of exercise involved in daily chores went unrecognized by some women respondents.

Drinking behaviour was extremely variable but many respondents reported drinking patterns in excess of (then) current intake guidelines and at worse this was hazardous consumption (Alcohol Advisory Council of New Zealand, 2009), as Figure 2 demonstrates. The solid line in the centre of the box shows the median; the box edges show the upper and lower quartiles.

The reference lines show the New Zealand Alcohol Liquor Advisory Council recommended guidelines for safe drinking for females (14 standard drinks, short dotted line) and males (21 standard drinks, long dashed line) (Alcohol Advisory Council of New Zealand, 2009): standard drinks equal 10 g of alcohol with self-reported drinks likely to be larger.

Use of Health Services

Overwhelmingly, residents highly rated their local health service. Approximately 95% of residents thought the healthcare available was ‘very good’ or ‘excellent’ compared to that available on the mainland. Positives of the service commonly cited included immediacy, availability, price (the service was free), friendly caring service, the competence of the RNS and their willingness to go above and beyond call of duty. The few negatives were: no resident GP, no visiting specialists, delays in getting some prescriptions, and cost of travel to mainland for non-emergency specialised treatment.

DISCUSSION

This model of health care, although very different to other parts of NZ and despite some drawbacks in service provision, is well accepted by the Stewart Island community and is an example of a successful health care innovation in a remote setting. It does meet the first-line primary care and emergency health care needs of Stewart Island population, which overall are not dissimilar to the NZ population as a whole.

Researchers studying in a remote community should consider potential vulnerability and unique community issues (Taylor, Hughes, Petkov, & Williams, 2005). Remote communities may have unique and special health concerns which are not well recognised. Although under-researched in comparison with the wider community, the vulnerability of a small or a remote population raises methodological challenges which require trust and close engagement with the community itself to solve. This project has demonstrated a methodology that achieved such engagement.

Table One: Self-report morbidity (residents aged >15yrs) for respondents on the 2007 Stewart Island survey and from the 2006 NZ Health Survey.

Self-report health condition	2007 Stewart Island survey prevalence (95% CI)	2006 NZ Health survey prevalence [a] (95% CI)
Heart [b]	16% (9.2, 25)	5.2% (4.7, 5.6)
Stroke	0% (0, 3.1)	1.8% (1.6, 2.1)
Diabetes	6.4% (2.4, 13.4)	5% (4.6, 5.5)
Asthma	6.4% (2.4, 13.4)	11.2% (10.4, 11.9)
Lung [c]	5.3% (1.7, 12)	6.6% (5.9, 7.3)
Arthritis	25.5% (17.1, 35.6)	1.5% (1.4, 1.5)
Osteoporosis	2.1% (0.3, 7.5)	2.9% (2.6, 3.2)
Back	19.1% (11.8, 28.6)	24.2% (23.2, 25.2)
Cancer	7.4% (3, 14.7)	Not collected
Depression	5.3% (1.7, 12)	10.5% (9.9, 11.1)
Gynecological [d]	12% (4.5, 24.3)	Not collected
Kidney or Bladder	7.4% (3, 14.7)	Not collected

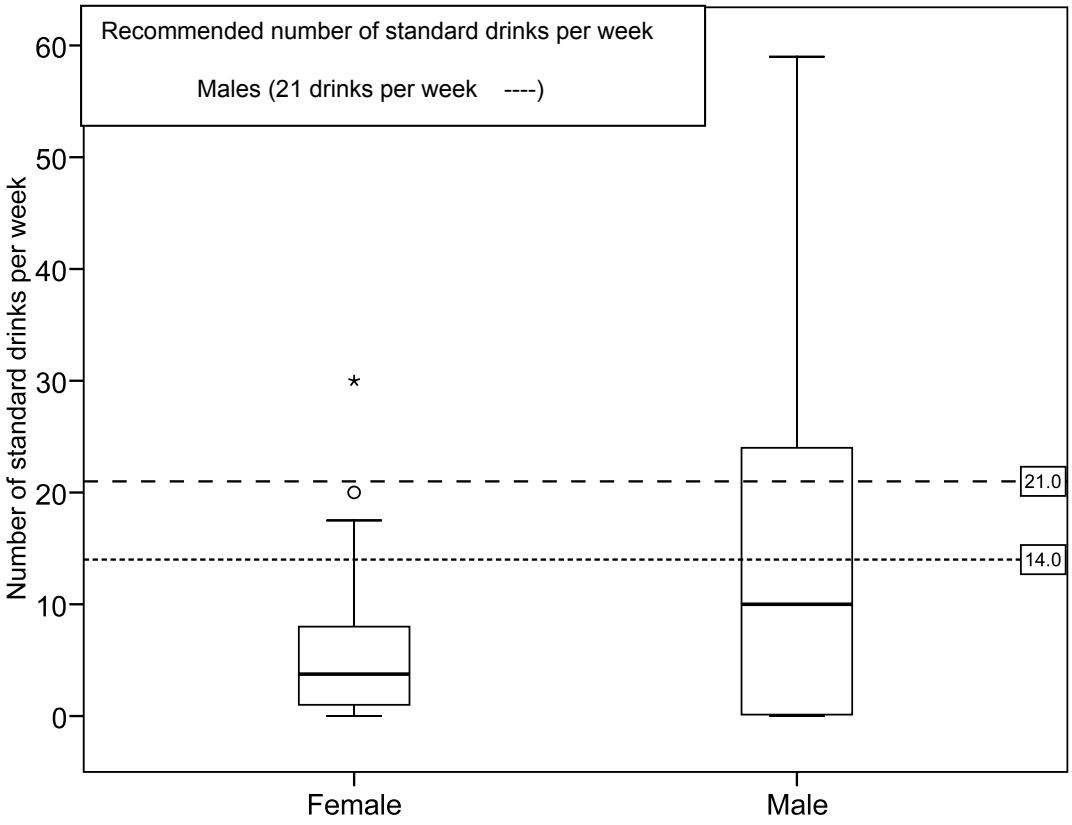
a. Cited prevalence figures and confidence intervals are for all adult respondents (unless otherwise noted) from the 2006 NZ Health survey.(Ministry of Health, 2008)
b. Heart disease for 2006 NZ Health Survey is limited to ischaemic heart disease.
c. Lung disease for 2006 NZ Health survey is for chronic obstructive pulmonary disease.
d. Prevalence estimate is based on female respondents only

Table 2: Descriptive statistics for lifestyle factors by gender (male $n = 42$; female $n = 40$).

Questionnaire item	Gender	Mean	Median	Lower quartile	Upper quartile
Age					
	Male	52.5	54	38.5	65
	Female	48.6	51	36.25	59.75
Alcohol use (number of drinks* per week)					
	Male	14.4	10	0.34	23
	Female	5.5	3.75	1	8
Average number hrs exercise per week					
	Male	20.8	16.25	3.13	40
	Female	8	5	2	8.88

		Proportion	95% Confidence Interval
% reporting using any marijuana at least once per week			
	Male	11.9%	3.9, 25.6
	Female	6.0%	1.3, 16.6
% reporting using tobacco at least once per day			
	Male	19.0%	8.6, 34.1
	Female	6.0%	1.3, 16.6
% told overweight			
	Male	16.7%	7, 31.4
	Female	18%	8.6, 31.4
% told hypertension			
	Male	26%	13.9, 42
	Female	26.2%	14.6, 40.3

Figure 2: Distribution of number of self-reported alcohol drinks consumed by males and females per week.



This Methodology for a Small Community

There are recognized challenges in conducting health needs assessments in small remote communities. These include issues of study logistics, confidentiality and liaising with and reporting back to the community (MacLeod, 2006).

Although nominally a pilot study, this survey achieved what was most practicable, short of an official census of the adult residents. Seemingly simple issues create challenges in small communities, such as determining the current denominator population which was a close-as-possible estimate. The small and close-knit community made it difficult to confidentially distribute and collect surveys from participants. In this instance local knowledge was used to maximize survey return rate.

An important philosophical consideration is an ethical research agenda. Small communities should not be viewed as convenient data sources but as potentially vulnerable populations (Taylor et al., 2005). Research undertaken must be useful to the community and service providers, wanted and endorsed by the community – in this case to identify and facilitate

improvements to the local health service. It is also important that the confidence of the community is gained; in this study the field researcher was from a respected local family, but sufficiently distanced as not now a resident.

Timely feedback in a suitable format is important. After this needs assessment news clips and longer research summaries were publicized in the local newspaper and a full report was made available to stakeholders providing the health service. Great care was taken in reporting back to this community as all residents are potentially identifiable, a caveat which has prohibited reporting on and publishing potentially useful data on less common conditions and identifiable qualitative comments.

The Results in General

Although the response rate was lower than hoped, this was in part due to the timing of the survey at the beginning of peak tourist season, and one of the most demanding times of year for fishing and aquaculture. As more surveys were distributed than there were residents, the reported return rate is probably an underestimate. In addition the younger seasonal workers (who would be counted in the national census) may have felt unqualified to complete the survey, especially if they had not used the health service. Despite the intention to pilot an adult health population survey this proved more akin to a household survey. 75% of the returned envelopes only contained one survey form but many respondents also mentioned children or partner's health, therefore a greater number of individuals were represented than the number of completed returns.

This Stewart Island nurse-led health service is highly appreciated and well-utilized by the residents. This service depends heavily on the good will and dedication of the two health professionals on-island. Much of its success is due to their personal characteristics and clinical competence and their understanding of island identity (D. Dillon, 2008). Stakeholders and residents alike agreed on gaps in health service provision issues: lack of allied health services (especially dentists, counselors, drug/alcohol professionals and physiotherapists), cost and time to access medical care on the mainland.

A gap also exists in role support of these health professionals. Like other NZ rural nurses these two work long hours (frequently on-call), have high workloads and lack privacy as they and their families live on the island (Barber, 2007; Ross, 1999). They can spend days-off away from the island, but whilst on-island can never be completely free from their roles. By necessity the nurses have taken on expanded roles including traditional medical activities (Ross, 1999), but their nursing professionalism has been challenged by some medical and nursing professionals in other parts of NZ as losing sight of their nursing role to become 'mini-doctors' (R. Fitzgerald, 2008).

The current service is praised and actively supported by off-island stakeholders but considerations of cost and convenience may have over-ridden due consideration for health professional wellbeing. The health service is particularly vulnerable to the continuing availability of a small and highly skilled on-island professional workforce and there is potential conflict with the requirements of the New Zealand Health Practitioner Competence Assurance Act to have peer review, continuing education and professional support in roles (New Zealand Government, 2003).

Unmet Health Issues on Stewart Island

There is a reassuring resemblance of this self-reported resident health survey to New Zealand's health status as a whole (Ministry of Health, 2008), even allowing for differing taxonomy, a predominance of men of workforce age (15 and 65 years), few resident children and young people (Statistics New Zealand, 2001), despite considerations of return rate and respondent bias. Self-reported morbidity and lifestyle risk factors support the current RNS dual focus on chronic and acute care management (Wagner, 2001). An expanded chronic condition management approach (Barr et al., 2003), endorsing health promotion and disease prevention, includes community services and allied health disciplines, however stakeholders report both the latter are missing at present. While the health service meets day-to-day primary care and emergency needs the noticeable deficiencies lie in access to services for mental health and addiction problems, physiotherapy to address the physical demands of island life, as well as dental health care.

Similar to the 2005 Chatham Island Focus survey (Ministry of Health, 2005), the amount of alcohol consumed, mostly by male residents, seemed greater than documented in overall NZ drug use surveys (Wilkins & Sweetsur, 2008), which may carry implications for health service provision to meet mental health, social and general health consequences, but particularly workplace safety in an environment where manual labor predominates. These factors, combined with stated resident concerns about the visibility of mental health, drug and alcohol issues, and the difficulty of accessing services, suggest that this is a particular area for service development. It is possible that remote life, harsh living conditions, short winter days and unpredictable weather pre-dispose to higher alcohol intake but alternately, as one off-shore stakeholder explained, people who are predisposed to significant drug, alcohol and/or mental health problems may choose the isolated setting. This is an area deserving further study.

CONCLUSION

Researching the health needs of a remote island community raises methodological and pragmatic issues including confidential data collection and reporting as well as determining the denominator population and efficiently disseminating surveys. The methodology of this study took into account that the first author was known and respected, and who committed to work closely with the community to achieve the overall aims of the project. Providing and tailoring health services to a small isolated community are challenging especially using available resources wisely. The survey showed the health needs of Stewart Island residents seem very similar to the rest of New Zealand except for alcohol intake being higher. This means a full range of primary health care services are required and can be delivered by rural nurse specialists, closely supported by mainland specialist services. Rural nurse specialists offer expert service to remote communities and have particular education and support needs which must be accounted for by health funders and planners. There are some gaps in service provision but as a whole Stewart Islanders believe the current delivery model largely meets their needs.

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ENDNOTES

[i] Access to the island is either by ferry ($120NZ return from Bluff on the mainland to Halfmoon Bay on the island per person peak time – an hour's trip) or air carrier ($175NZ return from SI air strip to Invercargill- 30 minutes flight time). These reflect isolation and single carrier operations.

[ii] There are four scopes of nursing practice in NZ: Registered Nurse, Nurse Practitioner, Enrolled Nurse and Nurse Assistant

[iii] NZ has twenty one District Health Boards. SDHB services the far south of the south island and includes the regional secondary care services at Invercargill.

[iv] The 2001 Statistics New Zealand community profile found 1.9 people living at each Stewart Island address.

[v] In Stewart Island mailboxes are centrally located. Some households share boxes as there is a waiting list.

[vi] The Chatham Island Focus survey was administered by face-to-face professional interviewers who were non resident. 73% of the population over 15 years took part.

[vii] Primary Response In Medical Emergencies. The PRIME scheme utilises the skills of rural GPs and/or rural nurses (RNs) in areas where an ambulance crew (two ambulance officers, where one is a paramedic) is more than 20 minutes away (40 minutes in the South Island). PRIME provides a coordinated response to rural emergencies and consistent, and appropriate, management of trauma and medical emergencies. The PRIME service provider is required to have undertaken a PRIME training course (approved by ACC), within a maximum of two years after signing up with the scheme, followed by a two-day refresher training course for trauma and medical emergencies (approved by ACC) at least once every two years.

[viii] In NZ a NP is a licensed registration with a particular scope of practice. Preparation includes completing a Master of Clinical Nurse and an examined portfolio of practice. Some NPs prescribe within their scope of practice.