

Providing health care across distance – Scottish solutions to rural challenges

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The sustainability of rural health services is important. One in four New Zealanders lives in communities of < 30,000 people, and one in six lives in small towns and rural areas of < 10,000 people.¹ Providing rural health services over distance with ongoing workforce difficulties is challenging.² As the population ages, obesity increases, and more people have multiple long-term health conditions, the health system will struggle to meet demand for high quality care using current approaches.³ Generalism and teamwork will be required.⁴⁻⁶ Solutions designed to provide sustainable rural health services might also be applicable to future urban needs.

Providing sustainable services on the sparsely populated West Coast has long been challenging.² I helped develop the health system's response to these concerns.^{2,6} Solutions included greater primary care capacity for managing long-term conditions, better coordination for people with complex health needs, and the *Transalpine Health Service*, a 'hub and spoke' partnership model developed with tertiary clinicians and managers in neighbouring Canterbury. Greater roles for generalist doctors in hospitals, telemedicine capability and integrated electronic patient information systems, and more generalist clinician training locally were parts of the solution.

Scottish solutions

In 2010, a model to provide sustainable rural health care in north-west Scotland defined services to be provided by extended community care teams (an evolution of rural general practice teams), and rural and urban hospitals.^{7,8} This informed the West Coast service redesign and we were interested in its ongoing application, so in April 2014 two of us visited the region.

We met over fifty general practitioners (GPs), specialists, hospital and community based nurse

practitioners and nurses, allied health professionals, planners and managers in villages and small towns in the Highlands, Western Isles, and Inverness. We explored local problems and solutions.

NHS Highland serves a population of 300,000 people. Local general practices, 20 community hospitals, three rural hospitals, and the 452 bed district general hospital in Inverness provide their care, with links to Edinburgh and Glasgow for tertiary services. NHS Western Isles serves 26,500 people living in the island chain 40 miles off the north-west coast of Scotland, served by general practices, community health services and two community hospitals. Stornoway's 97 bed rural general hospital provides obstetric, acute and elective specialities. Inverness, Aberdeen, Glasgow and Edinburgh provide specialised support by air.

Providing clinically viable services with sustainable workforces within financial constraints, in areas of low population density and large travel distances was challenging. One person we spoke to observed that '*history was more important than geography*' in service delivery. Service change met with local concern about potential service loss. Strategies to increase local capability and build networks are described below.

'Will I die?' - Increasing community capability

When faced with amalgamation of small general practices, rural communities were most concerned about access to emergency health care. A solution was for volunteers in isolated communities to receive training from the Scottish Ambulance Service (SAS) as 'first responders' with basic first aid, cardiopulmonary resuscitation and automatic defibrillator skills. 'Emergency responders' had more training and a well equipped minivan, with telemetry and

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videoconference links to the SAS Centre for advice and support. Rescue helicopters were sent when required.

Community medical assistants, following Alaskan Community Health Aides models,⁹ were trained under the community nursing umbrella as first contact for isolated communities. They provided basic assessment, tasks such as wound care, and liaison with GPs who visited the island or isolated community weekly or fortnightly.

Increasing general practice capability

Continuity of care and generalism were essential to support frail elderly people living well at home. Practices found that good quality, proactive, accessible, in-hours care reduced demand for urgent care. Less busy on-call commitments made rural GP roles more attractive. Integrating general practice teams with community nursing extended the general practice reach. Nurses acted as clinical links between patients at home and GPs. Continuity of care was 'prescribed' to frail elderly, people with complex conditions, children with long-term conditions, people with learning disabilities or borderline personalities, and others. These patients had planned annual reviews. Consultations were preferentially booked with their 'continuity doctor' and their named nurse provided regular telephone follow-up.

Multi-level approaches aimed to recruit and retain home-grown rural GPs. Interested rural school students were identified and encouraged. Rural pathways and mentoring were developed at medical schools. Rural streams for junior doctors in rural hospitals, and rural General Practice training streams were developed. Rural GP trainees had an extra rural fellowship year for experiential and skills based learning relevant to rural settings.

Local integration - general practice and rural hospitals

Easier GP access to hospital diagnostics and videoconference advice from hospital colleagues helped avoid admissions. At one rural hospital, all in-patients for > 48 h had their general practice team involved in their discharge planning.

The Emergency Department (ED) were happy for GPs to send in patients for assessment, as ED had the time and facilities to 'sort' deteriorating patients and avoid admissions. The General Physician service provided home visits, and patients could go home with a planned home visit in a day or two, as admission alternatives.

Where local general practices joined together and co-located within the local community hospital, realignment created interesting roles for doctors and nurses working across hospital and community settings. The GPs provided medical care for inpatients. Blurring of hospital and general practice silos into one team promoted a total budget perspective and emphasised anticipatory care. As one person noted, *'the most expensive thing GPs did was put people in hospital'*.

Local networks with emergency services

Health and ambulance services worked collaboratively to provide urgent care for rural communities. Emergency '111' Calls were triaged and diverted to primary care phone lines when appropriate. Ambulance officers were 'clinicians who could drive', and provided first contact for patients, with decision support from the SAS. Ambulance drivers could contact GPs from patients' homes as well as transporting to hospital.

A key enabler for this system was ambulance services' electronic access to key patient information. Across Scotland the electronic National Emergency Care Summary showed people's regular medications, recently dispensed medications and allergies. In addition, in NHS Highland the electronic National Key Information Summary (NKIS) was being implemented. Patients at highest risk of admission¹⁰ were identified and invited to a funded consultation at their general practice. Patient demographics, advance directives regarding emergency resuscitation, patients' preferred place of care (eg local or district general hospital) and likely illness trajectory were uploaded into NKIS, which ambulance services, GPs, and hospital services could access. As well as assisting ambulance officers' decision making, reductions in emergency admissions and lengths of hospital stay were seen for people with completed NKISs.

The Glasgow-based Emergency Medicine Retrieval Service (EMRS) of the SAS services was highly valued throughout rural Scotland. Its expert team of anaesthetists and specialist nurses, with specialised helicopters, provided confidence that emergency care and retrieval was rapidly available. The EMRS supported emergency and first responder services in small isolated communities with training, clinical support and air retrieval. There was structured liaison between the EMRS and the rural health services, with liaison anaesthetists assigned to local GPs and rural general hospitals in the region. This education and support was highly valued by rural doctors.

Networks with larger hospitals

Working relationships developed between the smaller hospitals visited and larger hospitals across Scotland. These were based on historical connections, natural transport links, and clinician relationships. Most agreed that formal networks between smaller and larger hospitals were not yet functioning as designed. One person observed:

'We had all put so much effort into developing the document on obligate networks that we had run out of energy to implement it'

There was a lack of clarity about how to make the networks function. A stable workforce was required to develop teamwork. Many specialist Royal Colleges no longer provided generalist training, reducing supply of generalist surgeons and physicians. Attitudes were a barrier. Doctors disliked travelling to smaller hospitals to provide services, especially for overnight stays. There was reluctance to take responsibility for advice given in 'virtual' consultations.

Enablers for regional network development

There was general agreement that sustainable rural health services and rural hospitals required functioning regional inter-hospital networks. Turning the existing informal networks into formal networks required effort and organizational resolve. Structures and processes needed to be developed that protected networked service

delivery from local service pressures. Clinicians across sites needed to see themselves as part of one service and one team. Leaders needed to consider the whole service's requirements. People needed time and capacity within their day jobs to develop relationships and processes, and that needed to be recognised in contractual and employment arrangements.

Shared understanding of staff capabilities and work environments required fostering. The generalist skill set of doctors at smaller hospitals, with good triage and networking skills, and broad general knowledge, needed to be recognised and trained for, with planned time at larger centres for skills maintenance. Decision support, including telemedicine, needed to be planned and implemented in all services ahead of crises.

Broad public and political agreement was needed on which services should be provided at central and local levels. Nationally, it was recognised that medical training needed to focus more heavily on generalism,¹¹ and to allow career flexibility and leadership development.

Observations

Similar challenges to sustainable rural health services exist in rural New Zealand (NZ) and Scotland. Not surprisingly, the responses are similar. The historical Scottish model of small isolated sole doctor general practices is evolving into primary health care teams providing anticipatory planned care, as well as unplanned care, focused on care continuity for frail elderly and people with complex health needs, collaborating with all local service providers. Similar developments in NZ have seen integrated family health care centres and large group practices developing, working more closely with community nursing and allied health, and (when present) local rural hospital services.

More isolated NZ communities could consider increasing local community capacity through approaches similar to Scottish community-based first responder and community medical assistant roles. In both countries, increasing local nursing capacity and scopes of practice were important to maintain system resilience. Scottish expanded

nursing roles were seen more in rural hospitals, whereas the West Coast focused more on role expansion in community settings. The clear career pathway created for generalist doctors working in community and hospital settings through Rural Hospital Medicine in NZ could benefit rural Scotland.

Both countries have used information technology to enable integrated care. Telemedicine is helping the *Transalpine Health Services* to develop. The NKIS electronic health information summary in NHS Highlands, viewable by ambulance services, as well as general practice and hospital services appeared to reduce hospital usage. The South Island's *HealthOne* integrated electronic summary of patient data from general practice, community pharmacy and hospital information plans to include St John Ambulance. It will be worthwhile tracking its impacts on South Island hospital usage.

The approaches required to develop networks between rural and urban hospitals in rural Scotland were consistent with the enablers identified by West Coast and Canterbury clinical teams.⁶ Well functioning regional clinical networks will be important to sustainable rural health delivery in NZ, as in Scotland. It will need dedicated time for clinical leaders redesigning services, support for workforce development and organizational commitment to new ways of working.

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COMPETING INTERESTS

None declared.

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