

Sustainable Maternity Services in Remote and Rural Areas in Scotland

Implementation and external evaluation of maternity care models

Executive Summary, January 2006



**NHS Scotland RARARI
Maternity Services
Project Board**

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Executive Summary

Background and study design

Falling birth rates and medical workforce issues have been identified as driving further centralisation of acute obstetric and neonatal services in Scotland. One priority issue is to ensure sustainable and accessible maternity services in remote and rural locations in Scotland, in particular the sustainability of high quality and local intrapartum care. Policy reports highlight that medical staffing in small peripheral hospitals will be difficult to sustain, and the Expert Group on Acute Maternity Services in Scotland (EGAMS)¹ recommended the further development of tiered networks with appropriate levels of care for intrapartum according to clinical need.

This project aimed to implement and evaluate service redesign towards sustainable EGAMS level 1-type models of care in maternity units in remote and rural settings in NHS North of Scotland Region (2004-5). EGAMS Level 1 models are local, community-based, midwife-managed where appropriate, and woman-focused.

This project is made up of three sections of work:

- I The internal implementation of a process of managed change** by a midwife-led team consisting of the NHS North of Scotland Maternity Services Coordinator and RARARI Project Midwife, local staff and stakeholders;
- II The external evaluation of the quality of services** provided by different levels of care, by examining a) women's preferences, b) accessibility and costs to women and their families, and c) clinical appropriateness and safety;
- III The external evaluation of the implementation of the managed change process** to provide evidence about how to optimise effective change in remote and rural settings.

A case-study design used quantitative and qualitative methods. The external evaluation compared three sites with planned implementation of managed change with three matched comparison sites in a prospective study. Sites were stratified by levels of EGAMS staffing models as shown below. Comparisons were between EGAMS levels of care by local catchment and by hospital type at delivery. Implementation and comparison sites within levels of care were also compared.

Staffing models and reported throughput at study & comparison sites by EGAMS levels of care

<i>Implementation Site Number</i>	Annual Birth Rate	Level of care (EGAMS)	<i>Comparison Site Number</i>	Annual Birth Rate	Level of care (EGAMS)
12	240	Level 2a Consultant-led obstetric maternity unit	22	198	Level 2a Consultant-led obstetric maternity unit
11	143	Level 1c Community maternity unit adjacent to non-obstetric hospital	21	93	Level 1c GP-run community maternity unit
13*	56	Level 1b Stand-alone midwifery-led community unit	23	20	Level 1b Stand-alone midwifery-led community unit
14*	110				
15*	78				

*All part of one Local Health Care Cooperative

¹ Scottish Executive Health Department (2002) Report of the Expert Group on Acute Maternity Services (EGAMS). *Implementing a Framework for Maternity Services in Scotland*. Edinburgh. [http://www.scotland.gov.uk/Publications/2003/01/16018/15749].

Methods

I -The internal implementation: a process of managed change

A project management approach to implement change was adopted. In each of the three sites a local working group was established to involve all relevant professional groups, local agencies and consumers. The remit of this group was to: encourage participation; gain consensus on a new service model; and plan the change process and milestones. Key issues included: training and development; transport; recruitment and retention; and midwives' public health agenda. Delivering regional clinical guidelines to apply across all units was another goal of the implementation team.

II -The external evaluation of quality of services

- a) Women's preferences for attributes of care were collected using qualitative methods and a Discrete Choice Experiment (DCE) postal questionnaire. The DCE is an attribute-based method to quantitatively establish preferences and valuation. Qualitative methods included 12 focus groups with women in the study areas, 19 think-aloud interviews with women as they completed the DCE questionnaire, and analysis of one open-ended item in the questionnaire.
- b) The questionnaire included further items to capture user costs and reported travel time to hospital of delivery.
- c) Clinical appropriateness was assessed against national guidelines and protocols for referral for problems arising. It used a casenote review of a prospective sample of all pregnant women living in the geographical catchment of the study's rural maternity units. Data, including outcomes and process quality indicators, were collected after each consecutive delivery (both locally or at associated referral hospitals) from April 2004 to January 2005.

III -The external evaluation of the managed change process

Evaluation of the process of managed change used qualitative methods including: non-participant observation; interviews with staff and community informants; interviews with the implementation team; documentary review; and media report monitoring and analysis.

Results

I - The internal implementation: a process of managed change

Action plans for change and some agreement on target models was achieved, but without endorsement of the relevant NHS Boards. Issues around training, guidelines and critical incident review were successfully progressed towards supporting models of care in the implementation units.

II - The external evaluation of quality of services

a) Women's preferences

From the postal survey using a discrete choice experiment

- 872/1400 (62%) of eligible women responded. Of those respondents, 460 (53%) offered additional comments on their experience of care at intrapartum.
- Women in this study preferred to deliver in a maternity unit rather than having a home birth.
- Predictably, women prefer shorter travel times from home to delivery units overall. Women indicated a threshold willingness to travel for approximately 2 hours for care in their preferred location rather than have a home birth.
- Overall women preferred consultant-led care to midwife-led care, but their preference for different models of care was associated with the care model they had experienced and their risk status during pregnancy and labour.
- Unlike women in the catchment of level 1c and 2 units, women living in the catchment of level 1b units (midwife-led stand alone units) did not express an overall preference for their local care

model. However, the minority of women who had delivered locally in a 1b unit did have a strong preference for midwife-led care.

- There were no differences in women's preferences between implementation and comparison sites.

From focus groups and open items in the postal survey.

- Ensuring the baby's safety was the foremost reason women gave for preferring consultant-led care to midwife-led care, although family circumstances could also affect their preferences for place of delivery.
- Overall women often felt they had little choice in deciding where to deliver. They thought health professionals decided or influenced the decision by advising on what was 'safe'. Homebirth was rarely offered as an option.
- Women tended to appreciate smaller units' higher quality of interpersonal care and environment. This was in contrast to some noted undesirable attributes of tertiary units; for example, impersonal treatment and a perception that staff lacked time to give support.
- Women living in the vicinity of the local rural maternity unit expressed 'loyalty' to the unit, but some living more distant from the unit expressed interest in delivering in a convenient 'service centre'.

b) Costs to women and their families

- Both direct costs and indirect costs in terms of loss of productivity can be substantial for users around time of delivery and varied greatly.
- Costs by level of care at delivery showed the biggest difference. Typical costs faced by families, based on travel costs and partner's lost income, ranged from a median of £121 for women delivering in local 1b units to £318 for referral unit deliveries.
- The highest proportion (41%) of women travelling for over one hour to hospital of delivery, did so to reach a level 3 referral unit.
- Use of air and road ambulance services was greatest for women delivering in referral units.
- The majority of women living in the catchment of hospitals level 1b (80%), 1c (75%) and 2 (85%) reported reaching hospital of delivery in \leq one hour. However, some women reported travel time as taking up to 24 hours. A higher proportion of those with care in comparison units (31%) had to travel for over one hour to delivery unit compared to implementation units (15%). Notably both the level 1c units (i.e. both the implementation and comparison unit) were island settings.

c) Clinical appropriateness and safety

- Three factors may contribute to define the proportions of women who deliver locally: clinical appropriateness by casemix and complications; women's preferences; and professional behaviour in risk assessment.
- In 1400 consecutive eligible cases, 34% of women remained without complications according to criteria and guidelines, and one-third of women living in the catchment of rural stand-alone midwife-led units remained low risk and delivered in the local unit (1b).
- The proportion cared for locally, however, doubled to just over two-thirds if the unit had access to trained staff to provide limited and appropriate acute clinical support. This was provided for women with some problem arising by surgeons/GPs in level 1c units in this study, both notably on remote island settings.
- There is little evidence of non-identification of high risk women in rural and remote units. Although 4% of women from the catchment of midwife stand-alone units had high risk characteristics and delivered locally, details of cases showed this was attributable to maternal preference against advice or precipitate deliveries.
- In terms of 'false positive' referrals for acute care, 6% of women did not have the maternal risk condition confirmed at referral and 5% experienced discharge from the referral hospital undelivered at >36 weeks gestation.
- There were differences in trends of onset of labour, mode of delivery and rates of neonatal admissions by level of catchment hospital that may be attributable to professional behaviour and care preferences.

III – The external evaluation of managed change process

All six sites studied had recently undergone, were undergoing or were about to undergo change. Thus change was studied in relation to a) this project's managed change process; and b) in terms of widespread general change.

In relation to this project's managed change process

- The managed change process achieved 'quick' concrete wins by providing training and agreeing clinical guidelines. Service redesign was most hampered by the existence of many change initiatives and management agendas and priorities that differed to the goals of the implementation team.
- The change process was slowed by some staffs' confusion about goals, lack of readiness for change and concerns about effects of the change process on recruitment and retention.
- The midwifery-led change team was popular with midwives because of reported perceptions of midwifery's lack of influence at strategic management level, but there was a lack of medical 'buy-in' to the change process.
- An external team leading change was useful in driving activity, although there were some tensions caused by perceptions of the team as 'outsiders'.
- The managed change process provided staff development for link midwives who benefited from networking and exposure to wider ideas.
- When comparing service redesign progress and outcomes between implementation and comparison sites, there was no evidence of different or greater change in implementation sites.

In relation to general rural maternity service redesign

- Staff and the public often felt excluded from redesign processes and this caused resentment and distrust of senior management. Simultaneously, some managers expressed concern about implementing public involvement. Staff and the public indicated that early and repeated opportunities to openly debate issues underlying redesign would be valued.
- Media reporting around each site was different perhaps due to different styles of reporting or relationships between NHS management and the press.
- Findings revealed some poor planning and foresight around the impact of redesign on operational working and staff morale.
- Staff and management showed a general lack of awareness about change and its pressures.
- There was evidence that change is subject to particular pressures in rural areas due to particular social and economic circumstances.
- Most concern, among both public and staff, was related to potential change in care from consultant-led models to midwifery-led models, and this was associated with fears about the safety of mothers and babies. The public and staff also feared that loss of the local obstetric consultant might trigger decline in local health services and ultimately affect the sustainability of rural communities.
- Some midwives were not confident about developing advanced clinical competencies. Arrangements around referral in emergencies were a particular cause for concern.

Conclusions & findings to inform policy and practice

This study presents new evidence about some dimensions of quality of intrapartum care in existing, and still evolving, models of rural maternity care. For providers choosing new configurations of services in the context of limited resources (including skilled staff), the dilemma remains around making judgments to maximise safety while balancing the goals of efficiency, local access and acceptability. The study further highlights aspects of managing change, particularly relevant to rural areas, for consideration by policymakers and practitioners.

Quality of care

Women's preferences

Rural women appreciated the environment of local midwife units, but overall expressed a preference for consultant-led care because they felt safer should complications arise. Women's preferences reflected their previous experience and risk, so tend to support the status quo.

Clinical appropriateness, not choice, generally drives place of birth. There were only a few instances where women's preferences defined place of delivery as noted their records, and women reported that health professionals generally steer decisions about place of delivery based on risk assessment.

Accessibility and costs

Rural women and families may incur substantial costs through delivery at distant referral units. Clearly service reconfiguration will influence both user and service costs. Further work is needed to ascertain transport costs and NHS costs associated with different service configurations.

Clinical appropriateness and safety

Overall women were referred in a clinically appropriate way within the tiered maternity network. The 6% of referrals with no confirmation of indication on arrival at the acute hospital may reflect a tendency of rural staff to err on the side of caution. Rural midwife stand-alone units played an important part in dealing with unavoidable precipitate deliveries and high risk women who deliver locally against advice.

The proportion of women living in the catchment of rural stand-alone midwife-led units who remained low risk and delivered locally is small and has implications for sustainability of local intrapartum care due to low throughput. If policymakers wish to maximise and support proportions of local deliveries in rural and remote settings, given risk categorisation, this has to be achieved by ensuring timely access to clinical support for acute intrapartum care. As yet there is no evidence that defines the safe distance/travel time threshold. But taking account of geography and travel time, access to acute clinical support in some rural settings² might be at the nearest referral maternity unit. *In remote and very remote settings local acute clinical support is needed.* Given contemporary obstetric medical workforce pressures, this might be through appropriately trained local clinical generalists. Models of rural medical practitioners fulfilling this role currently exist.

Further evaluation of process and quality outcome indicators of models of maternity care are required. These should include details of perinatal transfers, critical incidents and neonatal outcomes.

Evaluation of managed change

The implementation of managed change achieved goals in terms of education, professional networking and guideline development; however it achieved little redesign of models of care. To improve chances

² Rural settings can be regarded as those within one hour's drive of a tertiary maternity unit (categories 3,4,6 & 7 according to Scottish Executive 8-fold urban-rural classification); remote and very remote settings are more than one hour's drive from a tertiary unit (categories 5 & 8).

of achieving changed models of care, service redesign initiatives require management commitment, multi-professional support and a consistent high priority.

Current models of rural maternity service staffing are fragile. This study showed extreme fragility of medical staffing, but also stresses in midwifery service provision due to heavy on-call commitment and unfilled midwifery posts. In some instances then, more resolute and timely decisions about change would have ended uncertainty around service redesign and aided recruitment and staff morale.

Some staff lack the confidence to engage in new service models. Some midwives in this study were concerned about changes in their roles and responsibilities. Midwives need to feel confident that the system, including transfers, will support them in practice and ensure appropriate training to undertake new roles.

Change for staff in rural health services may be subject to particular social and economic pressures. Social issues of living and working in small communities, together with economic pressures such as community sustainability and lack of alternative local jobs, can bring difficulties when change is occurring. Elements of best practice in effecting change in remote and rural settings are suggested in the full report of this study.

Public and staff often felt excluded from influencing the nature and processes of change. Local people and staff perceived change was driven by a management agenda and that they were not invited to participate in early discussions about the possible change. Commitment is required to explore innovative and effective ways to engage public and staff. Relationships with the media are also important as these are likely to affect public perceptions and some poor media portrayals of NHS management were found in this study.

Some managers and staff had insufficient understanding of change processes, the emergent nature of change and the kinds of pressures change brings. They consequently struggled to manage change and its impacts. Policymakers might consider education to better prepare staff for what to expect and how to manage through redesign.