

Reconfiguration of maternity units – what is the evidence?

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1. Introduction

In England, mergers of maternity units are being planned in order to implement the proposals in the document ‘Safer childbirth: minimum standards for the organisation and delivery of care in labour’.¹ This document was published jointly in October 2007 by four medical royal colleges, the Royal College of Obstetricians and Gynaecologists, the Royal College of Midwives, the Royal College of Anaesthetists and the Royal College of Paediatrics and Child Health. Although ‘Safer childbirth’ ranges more widely, it draws heavily on an earlier document, ‘The future role of the consultant’² in making recommendations about the reconfiguration of maternity units in order to enable cover by consultant obstetricians 24 hours a day.

This article discusses the evidence put forward for these recommendations after setting them in the wider context of developments and evidence about the benefits and hazards of possible places of birth. These include consultant obstetric units and units run by midwives either alongside consultant units or on other sites.

2. The development of maternity homes and hospitals

The idea of providing free-standing facilities run by midwives for women without obstetric complications was put forward in the mid nineteenth century when high mortality from puerperal fever made larger maternity units dangerous^{3,4} and became official policy after the first world war in the Ministry of Health’s plans for developing facilities for institutional birth in England.^{5,6} The Ministry funded the development of ‘Maternity homes having up to 18 or 20 beds ... mainly for normal cases, miscarriages or cases of minor difficulty’ and run by midwives. It envisaged that larger towns would need ‘...

maternity hospitals having 25 to 50 or an even greater number of beds ... fully equipped for the treatment of all complications and disorders of pregnancy and labour ...'.⁶

By the outbreak of the Second World War, there were over 4,000 maternity beds in municipal and voluntary homes and over 6,000 in hospitals and public assistance institutions in England. The percentage of births in England and Wales in these institutions rose from just over one per cent before the first world war to 15 per cent in 1927, 24 per cent in 1932 and 34.8 per cent in 1937.⁷

The development of institutional care continued after the war with the establishment of the National Health Service and its hospital building programme. No attempt was made to assess the relative merits and disadvantages of different settings for birth. Instead, the government was responding to the demand for hospital care, for example from the Association for Improvements in the Maternity Services, founded in 1960 to promote hospital birth. The percentage of births in hospitals and 'GP units' rose from 53.7 in 1946 to 64.7 per cent in 1960 and 86.5 per cent in 1970.^{7,8}

The NHS brought payments to GPs for involvement in maternity care and by the end of the 1950s, most of the maternity homes had become known as 'isolated GP units'. In parallel, 'integrated GP units' were developed in hospitals with consultant obstetric units. The extent to which GPs were actively involved in maternity care in labour and at birth is likely to have been small but highly variable. Data from the Hospital In-patient Enquiry show small numbers of caesarean sections and slightly larger numbers of forceps deliveries by GPs in the 1950s, 1960s and 1970s. The numbers of beds in GP units increased during the 1950s and 1960s but at a lower level than the rising numbers of beds in hospital units.^{7,8}

3. The role of evidence

In 1970, when the numbers of hospital beds had risen and the post war baby boom was tailing off, the Standing Midwifery and Maternity Advisory Committee, usually referred to as the Peel Committee, recommended a policy of 100 per cent hospital delivery.⁹ In doing so, it was doing little more than rubber stamping a change which had already taken place. No concerted attempt was made to review existing evidence, for example the local evaluations

by GPs of isolated units, or undertake new research to make a robust comparison between the safety of birth in different settings. The report, the correct title of which is 'Domiciliary midwifery and maternity bed needs', simply alluded to 'the greater safety of hospital confinement for mother and child'.⁹

In his book 'Effectiveness and efficiency', published two years later, Archie Cochrane castigated the Peel Committee for its failure to base its decision on evidence.¹⁰ He pointed out that all the Committee had produced was its Table 5, which showed an inverse correlation over time between maternal and perinatal mortality and the percentage of births in hospitals. There was no such correlation in another table, showing trends at regional level. To illustrate the invalidity of the Committee's approach, he pointed to the correlation, unlikely to be causal, between the fall in mortality nationally and the decline in length of postnatal stay. He commented that '... it is surprising how successive committees have been content to accept trends as God-given which must be followed, instead of demanding a more rigorous analysis looking into mortality'.¹⁰

This criticism was ignored and subsequent policy documents supported the phasing out of home births and isolated GP units. They also attempted to justify this by citing trends in mortality over time without any recourse to reviews of the available evidence.¹¹⁻¹³ The number of isolated GP units in the United Kingdom fell from 212 in 1980 to 106 in 1990.¹⁴

There were numerous well informed challenges, both to the policies and to the lack of evidence behind them¹⁵⁻²⁴ and opposition came from groups of midwives, GPs and service users. Official views began to change in the early 1990s when the House of Commons Health Committee's report on Maternity Services concluded that the policy of encouraging all women to give birth in hospital could not be justified on the grounds of safety.²⁵ In response to this, increasing choice about settings for birth, along with other aspects of maternity care, was a key theme of the Department of Health Expert Maternity Group's report 'Changing childbirth'²⁶, as it is now with the National Service Framework for Children, Young People and Maternity.²⁷ and its implementation document 'Maternity matters'.²⁸

'Maternity matters' was published in April 2007, promising 'the opportunity to make informed choices throughout pregnancy, birth and during the postnatal period'²⁸. This includes a promise of choice about place of birth. 'Depending on their circumstances, women and their partners will be able to choose between three different options. These are:

- a home birth
- birth in a local facility, including a hospital, under the care of a midwife
- birth in a hospital supported by a local maternity care team including midwives, anaesthetists and consultant obstetricians. For some women this will be the safest option.'²⁸

This came at a time when there had been heated debate about the ways in which the available evidence about the relative safety of birth in different settings was deployed in the section on 'planning place of birth' in the development of the NICE guideline on intrapartum care.²⁹ Because of the dearth of research on the subject within the UK health care system, the group developing the guideline drew on research undertaken in countries with very different health care systems and designed to answer other questions, for example about the reintroduction of midwifery care to British Columbia in Canada. In general, it tended to draw negative conclusions about the safety of birth outside hospital, but these were hotly contested by informed individuals and organisations in their replies to the two stages of the consultation.

At the time, the first ever large scale studies in the UK, the Birthplace in England research programme³⁰ were in the process of being commissioned. They are now under way, but are being undertaken *in parallel with* the implementation of the policies they are designed to inform. The overall aim of Birthplace is to compare outcomes of births planned at home, in different types of midwifery units, and in hospital units with obstetric services for women at low risk of complications at the start of labour.³⁰

4. Relationship between the size and safety of maternity units

As long ago as 1980, the House of Commons Social Services Committee's report on 'Perinatal and infant mortality' analysed

stillbirth rates for maternity units by numbers of births, without taking account of selection criteria or the characteristics of units and recommended that increasing numbers of births take place in larger units.¹³ As a result of closures over the past twenty years, the sizes of hospital maternity units in England and Wales have increased considerably, as units have been merged to meet the training requirements of medical royal colleges and the European Working Time Directive. This has been compounded by financial pressures and the rebuilding of hospitals under the private finance initiative.

The question of whether there is any association between the size of maternity units and the quality of their clinical care and their users' experiences has never been systematically evaluated. Clearly there are many other factors and complexities which would need to be taken into account, notably the need for women with complicated pregnancies to access specialised services which may be more likely to be located in larger hospitals. The findings of the Healthcare Commission's enquiries into Northwick Park Hospital challenge any assumptions which may have been made about the safety and quality of care in very large units.^{31,32}

In contrast, the Royal College of Obstetricians and Gynaecologists' report on 'The future role of the consultant' is a response to changes in specialist doctors' training which shortens their training period, the impact of the European Working Time Directive and the changing role of consultants in teaching, training and direct patient care.² In a context where trainee specialist doctors are less experienced than in the past and are no longer required to work antisocially long hours, the document focuses on the size of maternity unit needed to enable progress towards consultant cover for 168 hours per week.

The evidence for this approach is set out in Appendix 2 of the report. It is very inadequate and falls well short of what would be expected to provide an evidence base for policy. It starts with the rise in the caesarean section rate, described misleadingly as an 'epidemiological change', when it is in fact a change in practice. The claim that there is 'emerging evidence' that an increased presence of consultants will reduce the rate, is supported by reference to a personal communication from James Walker, Clinical Specialty Advisor to the National Patient Safety Agency.

Both this report and 'Safer childbirth'¹ make great play of data showing numbers of 'severe fetal distress events' reported to the National Patient Safety Agency' by time of day. A poorly presented graph appears to relate to just 53 events, four of which ended in death. These show an excess of events at night but no data are presented about the timing of all births or about their total number.¹ It also cites a study from Wales which showed that complications in labour were more likely to occur at night and during holiday periods than during the working week.³³

The version of the graph of National Patient Safety Agency data shown in 'Safer childbirth' shows percentages, although the basis for these is unclear.¹ This also cites studies in Sweden, Switzerland, Germany and the USA which showed greater risks of adverse outcome at night compared with during the day time, even after adjusting for differences in the characteristics of the babies born. As Germany and the USA have medically led maternity care and Switzerland has a mixed economy of care, this suggests that simply making consultant care as available at night as well as during the day will not of itself solve the problem and a more careful examination of the ways in which all categories of staff react to problems arising at night is needed to tackle this problem.

A further question to be considered in relation to the proposals in the two reports is whether the merger process may itself jeopardise the quality of care. To take two examples, the Healthcare Commission's Enquiry into maternity services at Ashford and St Peter's Hospitals³⁴ and the independent inquiry into maternity services at Wyre Forest Birth Centre³⁵ illustrate problems of management and staff morale which may arise as direct or indirect consequences of mergers.

5. How does this relate to the choice agenda?

'Changing childbirth' came at a time when the overall percentage of births at home in England and Wales, which had fallen to an all time low of 0.89 per cent of maternities in 1987 but had started to rise again, reaching 1.6 per cent in 1993 and 2.3 per cent in 1997. After that it fluctuated around the same level, but has started to rise again since 2004. Although 2.7 per cent of maternities in

England and Wales were at home in 2006, this varied widely both between regions of England, ranging from 1.4 per cent in the North East Region to 4.1 per cent in the South West.³⁶ The variation between local authority areas is much wider, with many areas having under one per cent of its births at home. In Wales, which has a policy of increasing numbers of home births, the overall percentage rose from 2.1 per cent in 2002 to 3.5 per cent in 2006, with considerable variation within the country.³⁶

‘Changing childbirth’ enabled some surviving GP maternity units to continue and, where possible, to develop their services. By this time only a relatively small number of GPs had any significant involvement in care in what have been described as ‘nominal’ GP units and the care was largely provided by midwives.³⁷ During the 1990s, these units were redesignated as midwife-led units while a few new midwife-led units were opened on sites with and without consultant units.

To a notable extent, the new freestanding units were opened in places where larger consultant units had been closed, such as Bournemouth, Edgware, Hemel Hempstead and the Wyre Forest Birth Centre in Kidderminster. This process is likely to continue calling into question whether the establishment of midwife-led units has increased or reduced choice for women. Added to this, at a time when ‘Maternity matters’ has stipulated that women should have the option of delivering in a midwife led unit, many free-standing units are closing in response to financial pressures. As data from the recent Healthcare Commission survey shows, for many women, neither this form of midwife-led care nor the option of a midwife-led unit alongside a consultant obstetric unit is available locally.

A survey of the maternity units in the United Kingdom in 2002, showed a tendency for areas with free standing midwife led units to also have above average percentages of home births.³⁷ Thus there is a considerable ‘postcode lottery’ in the extent of choice available to women.

Despite the fact that two thirds of deliveries are supervised by midwives, there is an implicit assumption that midwife led units continue to be an alternative ‘choice’ for the minority. It could be argued that if they were seen as the usual form of care for the

majority of women, this would enable consultants based in centralised specialist units to concentrate their skills on giving care to the women with complications. Thus reconfigurations which expanded midwife-led care could have the potential to retain services locally while making better use of medical skills. So far, reconfiguration plans, notably those in Manchester and surrounding areas, have tended to focus on mergers of consultant units and then to consider midwife-led units as an afterthought.

Thus although 'Maternity matters' promises greater choice, for women in the parts of country without either midwife led units or well developed home birth services, the reality is that reconfiguration may actually limit choice to a smaller number of larger and more geographically remote consultant units. There is no guarantee that this will offer them safer childbirth.

References

1. Royal College of Obstetricians and Gynaecologists, Royal College of Midwives, Royal College of Anaesthetists, Royal College of Paediatrics and Child Health. Safer childbirth. Minimum standards for the organisation and delivery of care in labour. London: RCOG Press, 2007.
2. Royal College of Obstetricians and Gynaecologists. The future role of the consultant. London: RCOG Press, 2005.
3. Nightingale F. Introductory notes on lying-in institutions, together with a proposal for organising an institution for training midwives and midwifery nurses. London: Longmans, Green and Co., 1871.
4. Farr W. Letter to the Registrar General. In: General Register Office. Thirty-third report of the Registrar General for 1870. London: HMSO, 1872.
5. Local Government Board. Forty-seventh annual report of the Local Government Board, 1917-18. Part I. Cd 9157. London: HMSO, 1918.
6. Ministry of Health. Memorandum with regard to maternity homes and hospitals. 15/MCW. London: HMSO, 1920.
7. Campbell R, Macfarlane AJ. *Where to be born? The debate and the evidence*. Second edition. Oxford: NPEU, 1994.

8. Macfarlane AJ, Mugford M. *Birth counts: statistics of pregnancy and childbirth. Volume 1, Text*. Second edition. London: The Stationery Office, 2000.
9. Department of Health and Social Security, Welsh Office. *Domiciliary midwifery and maternity bed needs. Report of the subcommittee. [Chair: Sir J. Peel]*. London: HMSO, 1970.
10. Cochrane AL. *Effectiveness and efficiency: random reflections on the Health Service*. London: Nuffield Provincial Hospitals Trust, 1972.
11. Department of Health and Social Security. *Priorities for health and personal social services in England*. London: HMSO, 1976.
12. Department of Health and Social Security. *The way forward*. London: HMSO, 1977.
13. Social Services Committee (Chairman, R Short). *Perinatal and neonatal mortality. Second report from the Social Services Committee, Session 1979-80, Vol. I, HC 663-I*. London: HMSO, 1980.
14. Campbell R, Macfarlane AJ, Cavenagh S. Choice and chance in low risk maternity care. *British Medical Journal* 1991;303:1487-8.
15. Kitzinger S, Davis JA, (eds.). *The place of birth*. Oxford: Oxford University Press, 1978.
16. Tew M. The safest place of birth. *Lancet* 1979; i:1388-1390.
17. Tew M. Letter. *Lancet* 1979; ii:523-524.
18. Murphy JF, Dauncey M, Gray OP, Chalmers I. Planned and unplanned deliveries at home: implications of a changing ratio. *British Medical Journal* 1984; 288:1429-1432.
19. Tew M. Do obstetric intranatal interventions make birth safer? *British Journal of Obstetrics and Gynaecology* 1986; 93: 659-674.
20. Campbell R, Macfarlane AJ. Place of delivery: a review. *British Journal of Obstetrics and Gynaecology* 1986; 93:675-683.
21. Young G. Are isolated maternity units run by general practitioners dangerous? *British Medical Journal* 1987; 294:744-746.
22. Campbell R, Macfarlane AJ. *Where to be born? The debate and the evidence*. First edition. Oxford: NPEU 1987.

23. Garcia J, Kilpatrick R, Richards M eds. *The politics of maternity care*. Oxford: Oxford University Press 1990; 217-237.
24. Tew M. *Changing childbirth*. London: Chapman and Hall, 1990.
25. House of Commons Health Committee, (Chairman N Winterton). *Maternity services*. Vol I, report. HC 29-I. London: HMSO, 1992.
26. Department of Health. *Changing childbirth*. Part 1: Report of the Expert Maternity Group [Chair: Baroness Cumberlege]. London: HMSO, 1993.
27. Department of Health, Department for Education and Skills. *National Service Framework for children, young people and maternity*. Standard 11. Maternity. London: Department of Health, 2004.
28. Department of Health. *Maternity matters: choice, access and continuity of care in a safe service*. London: Department of Health, 2007.
29. National Collaborating Centre for Women's and Children's Health. *Intrapartum care: care of healthy women and their babies during childbirth*. Commissioned by the National Institute for Health and Clinical Excellence. London: RCOG Press, 2007.
30. National Perinatal Epidemiology Unit. *The Birthplace in England Research Programme*. <http://www.npeu.ox.ac.uk/birthplace> Accessed February 17 2008.
31. Healthcare Commission. *Review of maternity services provided by North West London Hospitals NHS Trust*. London Healthcare Commission, 2005.
32. Healthcare Commission. *Investigation into 10 maternal deaths at, or following delivery at, Northwick Park Hospital, North West London Hospitals NHS Trust, between April 2002 and April 2005*. London: Healthcare Commission, 2006.
33. Stewart JH, Andrews J, Cartlidge PHT. Numbers of deaths related to intrapartum asphyxia and timing of birth in all Wales perinatal survey, 1993-5. *BMJ* 1998; 316: 657-60.
34. Commission for Health Improvement. *Maternity services – Ashford and St Peter's Hospitals NHS Trust*. London: Commission for Health Improvement, 2003.

35. Maternity Services at Wyre Forest Birth Centre. Report of an independent inquiry under Section 2 of the NHS Act of 1977. South West Midlands Strategic Health Authority, 2004.

36. Office for National Statistics. Birth Statistics 2006, Series FM1 and VS tables. London : ONS, 2008.

37. Smith LFP, Smith CP. UK childbirth delivery options: alternatives to consultant unit booking and delivery. British Journal of General Practice 2005; 55: 292-297.

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