Routine examination of the newborn: the EMREN study. Evaluation of an extension of the midwife role including a randomised controlled trial of appropriately trained midwives and paediatric senior house officers

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Executive summary

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Executive summary

Objectives

To assess the implications and cost-effectiveness of extending the role of midwives to include the routine (24-hour) examination of the healthy newborn. The main comparison is examination by a midwife specifically trained for the examination (ENB N96), with standard practice, which is routine examination by a paediatric senior house officer (SHO).

To assess the value of a repeat examination by a community midwife at home at 10 days.

Design

The study included a prospective randomised controlled trial (RCT) with mother and baby dyads randomised to either SHO or midwife for the routine examination of the newborn. In addition, a sample of midwives and SHOs were videoed while performing the examinations and the videotapes were rated by an independent consultant and senior midwife. Interviews were held with health professionals and mothers for qualitative assessments of their opinions; a National Survey of current practice was conducted; there were consultations with representatives of professional bodies and relevant consumer bodies and cost implications were assessed.

Setting

A District General Hospital (for the RCT), a London Teaching Hospital, general practices and mothers' homes (for interviews); questionnaires were sent to all maternity units in England (for the National Survey).

Subjects

Mother and baby dyads in a District General Hospital in south-east England who fitted the inclusion criteria for examination by midwife were potentially included in the RCT; all midwives and SHOs examining during the research period were included in the video study; a midwifery manager and a named paediatric consultant in each midwifery/paediatric unit in England were included in the National Survey; purposively selected samples of 10 midwives, SHOs, general practitioners and new mothers; representatives of the Royal College of Midwives, the Royal College of Paediatric and Child Health, the Royal College of General Practitioners, the Nursing and Midwifery Council, the English National Board, the Maternity Alliance and the Association of Improvement of Maternity Services for the interviews.

Interventions

The intervention consisted of a routine examination of a newborn baby at about 24 hours from birth and a further examination for half the babies in each group, at 10 days at home by the community midwife; 826 mother and baby dyads were included in the study.

Main outcome variables

Maternal satisfaction assessed on a range of aspects, shortly after the examination, and again at 3 months. Referral assessed as appropriate and as major or minor, by three independent consultants. Problems identified during the first year of life assessed as identifiable at 24 hours. Quality assessment by video, rated independently by two consultants and two senior midwives against an agreed written proforma. Opinion of professionals and mothers about aspects of the examination.

Results

There was no statistical difference between SHO and midwife examinations in appropriate referral rates to hospital or community or in inappropriate referral rates to hospital. Midwives made more informal community referrals to general practitioners or community midwives. For problems occurring in the first year of life, there were no significant differences between the groups in problems either identified or not identified at 24 hours. ▶

In the audio-visual quality assessment, for each item where significant quality differences between examinations were identified, the item was rated as carried out more appropriately by the midwives than by the SHOs. Major differences were found for examination of the heart and lungs, for overall quality of the examination and in communication skills. Overall quality of the physical examination by midwives was rated as good or very good by the midwife raters for 73% of the examinations and by paediatric consultant raters for 23%. Corresponding figures for SHO examinations were 12 and 0%.

Overall maternal satisfaction was high, with 81% (547/674) of mothers reporting that they were satisfied or very satisfied with the newborn examination. However, mothers were more satisfied when a midwife rather than an SHO examined their babies. The discussion of healthcare issues by the examiner and continuity of care were both significantly related to higher satisfaction. Midwives were significantly more likely to discuss healthcare issues such as feeding, sleeping and skin care than were SHOs (61 versus 33%), and could provide continuity of care. After controlling for both of these factors and for history of miscarriage, maternal satisfaction was no longer significantly related to randomised group.

Few new health problems were identified at the extra 10-day examination.

From the National Survey, it was estimated that about 2% of babies in England are examined by a midwife, although 44% (74/167) of midwifery units had midwives (median of two) with a postregistration qualification in the examination of the newborn. Of these units, 51% (38/74) reported that all and 18% (13/74) reported that some of these trained midwives conducted the examination. About one-third (23/74) of those so trained were not examining at all. Reported referral rates were very similar at 6.8% for SHOs and 6.6% for midwives. In 60% (103/173) of units, all babies were examined before discharge. In the remaining 40% (70/173), a median of 3% were transferred home without the examination and were examined mostly by a GP. About 1% of babies born in hospital were examined at home. None of the consultants or midwifery managers had major objections to midwives examining; with training and resources, midwife examination was acceptable.

Twelve universities in England were identified as approved to train professionals for the N96 programme with 286 completions over 4 years. Nearly all those trained were midwives, although the courses were open to other professionals, notably doctors and health visitors.

In the interviews with health professionals and mothers, there was general agreement that either SHOs or midwives were appropriate to carry out the examinations if trained; most mothers had no preference provided that the person was qualified and trained. SHOs reported that they had received little training for the examination.

Costs

Costs were considered in terms of three different scenarios suggested in the interviews with the representatives of the professional organisations. If midwives were to examine all babies where there were no complications of birth or antenatal history (i.e. about 50% of newborns), there would be savings of about £2 per baby born, equivalent to savings of £1.2 million nationally per annum. Were midwives to examine all babies on normal wards (i.e. about 90% of newborns as recommended by some of the professional bodies), with other babies examined by registrars, there would be savings of about £4.30 per baby born or £2.5 million nationally per annum.

Were there no extension of midwife examination, but registrars were to examine instead of SHOs, there would be an extra cost of about £1 per baby or £0.4 million nationally per annum. There were differences of opinion between the paediatric representatives and the midwives about whether all or only selected midwives should examine. This would have implications, particularly for costs of training, and these issues would need to be agreed by the professional bodies concerned. There would be likely costs of training of £0.1 million nationally for 4 years for midwives or £0.56 million (£0.47–0.65 million) ongoing annually for SHO training. Overall, the economic implications of any of the scenarios were not major but mostly would imply some net costs to midwifery departments.

Professional opinion

All the representatives of the professional bodies were of the opinion that having trained midwives, carrying out the examination would be valuable. Concern was expressed about the SHOs examining without formal training, although ►

the need for them to have experience of examining healthy babies was stressed. Midwife representatives of professional bodies suggested that certain other aspects of both training and practice could be omitted to allow time for midwives to examine the newborn.

Conclusions

All component aspects of the study were consistent in showing benefits or at least no significant barriers to suitably qualified, trained midwives carrying out the examinations. It was surprising, given the findings, that midwives currently examine only 2% of babies and that some N96 trained midwives are not carrying out examinations.

Implications for the health services

Developing the role of the midwife to include examination of the newborn would slightly reduce overall health service costs, with some increased resources needed by midwifery departments, and some decrease in resource needs of paediatric departments. This is likely to result in improved quality of examinations and higher satisfaction from mothers. There would be need for appropriate training of midwives, possibly as part of core preregistration training. Consideration would need to be given to how and when midwives would be trained and the criteria for babies to be examined. An overall improvement in examination of babies' hips is needed.

Recommendations for further research

There is a need for research into:

- the value of the examination being carried out at home rather than in hospital
- the overall unsatisfactory quality of the examination of the hips
- appropriate inclusion criteria for which babies' midwives should examine.

Publication

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