NEW DIRECTIONS FOR DECISION SUPPORT SYSTEMS – SUPPORT OF CARE AND CARING
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Introduction: Many technically adequate computer systems fail from lack of attention to the organisational and social context of the work system(1). Lack of an understanding of the unpredictable nature of clinical work in the design of a system can also constrain the way work is accomplished (2). Over the past 12 years our group has developed a decision support system to aid clinicians in the care of the mother and baby in labour. As part of the final development of this system, prior to a multicentre randomised controlled trial, we undertook a work activity study, which included observation of direct patient care within a single delivery room.

Methods: Informed consent was obtained from patients. All mothers were provided with one-to-one midwifery care. The care of twenty women was recorded by audio-video camera over 111 hours of the first stage of labour and 12 hours of the second stage and digitised to computer files. Recurrent themes were identified and coded, quantitatively and qualitatively.

Findings: There were striking and unexpected observations of midwifery care practice. Midwives left the room on average every 15 minutes to be absent from the delivery room for 27% of the time in the first stage of labour. This was often an anxious time for parents and particularly fathers. Record keeping inhibited interaction with parents and accounted for 19% of midwives’ time.

The qualitative visual data found the clinicians’ preoccupation with frequent changes in the graphical recording of the baby’s heart rate pattern (the Cardiotocogram or CTG), and their body language transmitted anxiety rather than reassurance. Parents concerns were not addressed.

Parents were generally excluded from communication between professionals yet 108 took part in the care of the 20 women and 14/20 experienced at least one change in principle carer and 3/20 two changes.

Midwives spent just 15% of their time sitting at the bedside but when they did so the ‘atmosphere’ in the room was immediately transformed with midwife, mother and partner engaged in animated conversation.

‘Pictures paint a thousand words.’ These data have provided us with a new sense of direction for the design of clinical decision support systems at the bedside. Issues will be illustrated with video clips.

Conclusions: Care in labour is information rich and communication poor. The introduction of computer technology into the delivery room has the potential to improve not only decision-making but also communication between clinicians and parents. Sharing of information on computer screens has been found to create joint effort and engage patients (6,1). Some clinicians have articulated concerns, that information from the system will be available to parents. Researchers have found that clinicians experienced feelings of loss of control when ‘high-risk’ messages appeared on a computer screen shared with ‘simulated’ patients (6). In prototype testing we found mothers used the computer display of labour progress to plan their analgesia. The introduction of the computer system into the labour ward may therefore promote a shift in authority and empower parents to engage more effectively in decision-making and communication with clinicians.

The most effective intervention in obstetrics is the provision of continuous psychosocial support by an experienced female companion (3). This reduces the need for analgesia, operative delivery and Caesarean section. Currently, only 60% of mothers in the UK receive one-to-one midwifery care in labour (4) but our study shows that even one-to-one care does not equate to continuous support. Emotional support is overshadowed by practical and clerical demands. Midwives had little time to sit and talk with mothers. This is particularly important, as mothers have rated this as the most important supportive activity (5). Midwives are expected to provide exemplary care, keep contemporaneous records and care for more than one mother. Our data find these are incompatible goals. The design of our system employs technology to support less frequent, non-intrusive bedside record keeping. This may help midwives spend more time in their caring role for mothers.

Monitoring the baby is clearly an onerous and worrying activity for parents and midwives. Decision support with central monitoring and room-to-room access may free the midwife to be available for more meaningful interaction with parents and improve the confidence of both in the care system. We are continuing to develop the totality of the decision support system with parents’ needs in mind and observation of the system within the trial sites will continue by audio-video recording to evaluate the impact on decision-making, clinician-parent interaction, communication and importantly the influence on care.

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References: