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Patient safety: A literature review to inform an evaluation of a maternity service

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ABSTRACT

This literature review summarises the history of patient safety initiatives in health-care systems around the world. The need to improve patient safety is commonly called for following interrogation of data captured as a measure of patient safety including audit, clinical indicator reporting and evaluation methods. Many such reports exist for maternity services. Recommendations for improvement identified after review may be taken up, but there is little in the literature that demonstrates how clinicians consider such recommendations, implement improvement strategies and assess their impact. The authors of this paper concur with other authors who call for more research in this regard.

Introduction

Patient safety in maternity services is an important aspect of care. This literature review examines patient safety from a historical perspective, in the broader health context, to identify implications and application to maternity care. The review will demonstrate that patient safety is defined in many ways, with many interpretations of how these definitions apply and their implication for clinical practice. Outcome data are seen as useful measures of patient safety and are widely reported. Outcome reporting occurs at local, organisational, regional, state, national and international levels and are readily available and accessible. How health-care providers use these data to improve patient safety is not well reported in the literature. The challenge to improve patient safety was described in the report 'Organisation with a memory' (Department of Health, 2000). The report details the work of an expert panel that reviewed adverse events in England to identify failures in the systems of care in order to improve patient safety because despite 40 years of reporting adverse events and numerous recommendations to improve patient care, there was little evidence to link such efforts to improved outcomes. The report noted that 'systematic study of these issues is sparse but the available evidence suggests a complex pattern of cause and effect relations' (p. 19).

This paper reports a component of a broader literature review in the context of a research project to evaluate the process of antenatal care in a maternity service. The focus of the research is from a patient safety perspective and is part of a doctoral programme. The literature review includes a historical perspective on patient safety. Three broad aims were agreed by the authors to inform the evaluation methods used in the research:

1. to identify initiatives to improve patient safety, and their application to or adaptation for maternity services,
2. to identify tools that measure patient safety in maternity services,
3. to use information from the literature to develop tools to measure antenatal care in the context of the research project if there were none that could be directly applied from the literature.

This paper addresses the first aim.

Method

Literature published up to January 2009 was accessed via electronic databases CINAHL, Ovid MEDLINE and Proquest. The literature review includes a historical account of patient safety

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initiatives so there was no limitation to the date of publication. The focus of the research is an evaluation of a maternity service that is part of a large complex multiple site health-care organisation providing acute inpatient, ambulatory and community based care, with approximately 8000 births per annum across three sites. The researchers determined that evaluation methods applicable to whole health services be included in the search to provide organisational, social and political context. The literature review commenced in 2006. Initial evaluation processes informed by the literature were piloted on data samples. Lessons from the pilots and any new literature identified over time led to refinement of the evaluation methods, as did subsequent pilots. Organisational imperatives influenced literature inclusion. This iterative process was used to refine the methodology until there was agreement between the authors on the methodology to begin the evaluation.

Subject headings used to search databases included: antenatal care, maternity, maternity services, maternal health services, midwifery services, obstetrics, postnatal care, pregnancy, prenatal care, primary maternity care, professional competence, staff development, continuity of patient care, patient safety, safety and quality, audit in maternity care, perinatal audit, clinical teams, clinical decision making, process of care, measuring quality of care, measuring clinical outcomes, clinical outcomes, measuring clinical process, hospital evaluation, health service evaluation, evaluation, consumer participation. Subject headings were used alone and in combination yielding 114,132 results. Titles indicating specificity to clinical care in a discipline not related to maternity were excluded. Two hundred and forty-three references were selected by the principal researcher and critiqued in consultation with the other researchers, particularly where there was ambiguity about inclusion. The authors determined saturation of concepts at this point, acknowledging that the breadth of the search could reasonably dictate scrutiny of more literature. As this was not a systematic review but an overview to inform an evaluation process, the authors agreed to include the literature to that point, but incorporate any new material relevant to the research, during data analysis. Articles of empirical research as well as scholarly papers and Government publications were included. Moreover, a secondary 'hand' search of the references lists of articles was undertaken to further scope the literature for pertinent information. Subject matter broached:

- maternity care
- patient safety
- measurement—descriptions and data
- description of the provision of safe perinatal care
- translating emerging evidence into practice
- initiatives to improve systems of care
- evaluation

Material was excluded if it did not make reference to implementation strategies or how the uptake of new evidence might improve patient safety.

Measuring patient safety—a literature review

Collecting and analysing information about adverse events is one type of patient safety measure. 'Measurement for improvement is an evolving science. Limited tools developed in accordance with high quality research methodology are available, and few are validated within the Australian context or across different health-care settings' (Australian Commission on Safety and Quality in Health Care, 2006, p. 13). This mirrors assertions in the afore mentioned 2000 NHS report 'Organisation with a memory'.

The emergence of patient safety and quality in surgery in North America is chronicled by McCafferty and Polk (2007). They report that Ernest Amory Codman, a noted staff surgeon who pioneered patient safety in surgery, was ostracised by his peers for reviewing patient outcomes in 1895. McCafferty and Polk state that by 1913, when the American College of Surgeons was founded, patient safety was central to the College. They provide a comprehensive summary of initiatives to improve patient safety in surgery, including the College's role in developing hospital standards in the United States which became the Joint Commission on Accreditation of Health-care Organisations (JAHCO). McCafferty et al. provide examples from anaesthesia and the aviation industry to improve surgical care. They assert that 'The nearly automatic performance of an operation can lead to a failure to recognise the need to change something in unique circumstances. This points to the importance of appropriate mentoring and oversight of younger surgeons, and the need for vigilance and open dialogue among operating team members for all surgeons', p. 870. This is equally applicable in maternity care, particularly in areas such as birth suite where an expectation of birth as a normal process may influence a birth attendant's ability or willingness to identify deviation from normal processes. Conversely, in a maternity model with high intervention rates, a proceduralist may see the need for intervention where it may not be medically indicated. McCafferty et al. refer to crew resource management, developed for the aviation industry, which builds systems to ensure all staff members involved in a case have the opportunity to participate in robust discussion centred around the patient. Such measures within birthing services would enhance communication between various disciplines and between staff with varying levels of experience and expertise.

The evolution of quality improvement initiatives is summarised in a commentary by Chassin (1996). Although the paper is dated the lesson are relevant and noteworthy given Chassin's influence in the Patient Safety Movement, including his current role as president of the Joint Commission in the United States (formerly JAHCO) and previous research on developing and using measures of quality to improve health care. Chassin (1996) describes scepticism among the medical fraternity who have endured numerous quality improvement 'fads' including improving access (1960s); peer review (1970s); quality assurance (1980s); and report score cards (1990s), many of which were cynically perceived as cost cutting measures initiated by people who were not directly involved in patient care. Such initiatives were not seen to be evidence based and were therefore met with resistance. This perceived lack of evidence underlying quality activities is an important issue to consider when engaging medical staff who may be actively involved in research to discover innovations in medical care. However, Chassin asserts that clinicians can embrace system improvement initiatives when it is clear that patient outcomes are improved. He provides examples including the introduction of a computer based programme to aid clinician decision about antibiotic regimes which resulted in a 30% reduction in adverse events from antibiotics, a 27% reduction in mortality in people treated with antibiotics and a reduction in the medication costs per patient. Notwithstanding such assertions of clinical engagement, standardised practice regimes are not always well adhered to. A maternity audit measured compliance against four evidence-based standards after systematic implementation in 20 randomly selected units across England and Wales (Wilson et al., 2002). The standards were for maternal steroid administration in preterm birth, antibiotic use during caesarean section, application of ventouse as first choice during instrumental birth, and use of polyglycolic sutures for perineal repair. The audit demonstrated that adherence with standards was disparate across the services audited, ranging from 0–100% compliance. The researchers concluded that the adverse