



ROYAL  
COLLEGE  
OF MIDWIVES

ISSN: 1479-4489 June 2013 Vol.11 No.2

EVIDENCE  
BASED  
MIDWIFERY



ROYAL  
COLLEGE  
OF MIDWIVES

June 2013  
Volume 11 Issue 2

# EVIDENCE BASED MIDWIFERY

EVIDENCE BASED  
MIDWIFERY IS  
A STANDALONE  
PEER-REVIEWED  
JOURNAL  
PRODUCED BY THE  
ROYAL COLLEGE OF  
MIDWIVES

*Evidence Based Midwifery*  
Royal College of Midwives  
15 Mansfield Street  
London W1G 9NH  
United Kingdom

Publishers:  
Redactive Media Group

© 2013 The Royal College  
of Midwives.

## CONTENTS

- Editorial: A rapid synopsis of the Caldicott 2013 information review. 39  
*Marlene Sinclair*
- The effectiveness of frenulotomy on infant-feeding outcomes: a systematic literature review. 40  
*Valerie Finigan and Tony Long*
- A survey to assess if guidelines for intrapartum fetal monitoring of women at low obstetric risk in Flanders, Belgium are evidence-based. 46  
*Mirella Sarrechia, Ann M Thomson, Bernard Spitz and Walter Sermeus*
- What is a good midwife? Some historical considerations. 51  
*Sara E Borrelli*
- The physical effect of exercise in pregnancy on pre-eclampsia, gestational diabetes, birthweight and type of delivery: a structured review of the literature. 60  
*Andrée Dignon and Amanda Reddington*
- Dignity in maternity care. 67  
*Sharon Morad, William Parry-Smith and Wilf McSherry*
- Information for authors, news and resources. 71

## A rapid synopsis of the Caldicott 2013 information review

*Key words:* Research, information sharing, data access, evidence-based midwifery

Midwives seeking to do research that requires access to social, treatment, GP, diagnostic and birth outcome data using health and social services ICT systems will welcome the recommendations and principles set out in the recent *Caldicott review* (DH, 2013). There is a clear acknowledgment of the value of research to the NHS and public and the need to find robust ways of sharing social care data and medical data to support better research. The review is published one year after the NHS in England published its 10-year strategy, entitled: *The power of information: putting us all in control of the health and care information we need* (DH, 2012). The overall aim of the strategy is to ‘use information and technology to improve health, care and support – to improve the patient experience and quality of care by putting people first’.

It is important to note, the review comes shortly after the Administrative Data Taskforce published its report and recommendations in December 2012 (ADTF, 2012) for linking data between government departments across the four UK countries. Among their recommendations for a single UK data research network include a call for legislation to enact and facilitate research access to admin data and to permit linkage between departments, a single UK-wide researcher accreditation process, a strategy for public engagement and allocation of appropriate funds.

Several of these proposals appear to be incorporated into the *Caldicott review*, including a proposed model for information sharing, more consistency and clarity around information research governance, the establishment of safe havens, the addition of a seventh principle to the Caldicott six principles set out in 1997, patient consent and ethical and legal practices.

The review states that linkage between data sets for good reasons and in line with the Caldicott principles, access to data will be supported as part of a robust approach to making information for research purposes more available within a secure environment (DH, 2013). This access will increase the potential for researchers to undertake population-based observational research studies as data linkage is essential.

The review also offers new hope for researchers who wish to conduct studies without facing complex information governance review systems and processes that lack consistency and clarity of interpretation. Clear instructions about access to different types of NHS information are provided: data that identifies individuals and can only be collated with a clear legal foundation; data that is anonymised using the ICO’s anonymisation code and can be accessed and published freely.

However, there is reference to the problematic category of data known as the ‘grey area’ where data that has been coded or given pseudonyms for data protection can be linked to other data and in doing so can become identifiable. For midwives doing research using maternity care records

and seeking to link data on GP databases, prescription databases and diabetic database, for example, and seeking outcomes for known groups, these issues have indeed been problematic. The good news is that Dame Caldicott recommends the establishment of ‘accredited safe havens’ where data can be accessed in ‘specialist, well-governed, independently scrutinised environments’. This information centre will be provided under the Health and Social Care Act (2012) and guidance on consent to use personal confidential data that can legally be shared has become the remit of the Information Commissioning Group.

It was refreshing to note the panel had received information about what could be done to improve public awareness of the benefits of research, what it involves and the way in which health and social data are used to provide meaningful interpretations of risk factors and health outcomes.

Recommendation seven of the review states: ‘All organisations in the health and social care system should clearly explain to patients and the public how the personal information they collect could be used in de-identified form for research, audit public health and other purposes. All organisations must also make clear what rights the individual has open to them including any ability to actively dissent.’ The government is clearly working to integrate information systems to enable data integration, data access, data sharing and data safety. The establishment of the Health and Social Care Information Centre, where all NHS, public health and social care information in England will be kept, will become a major centre for research and will attract global interest.

It is important for the voice of midwife researchers and professional representatives to be at the government table when action plans for the online or cloud-based information centre and ‘safe havens’ are being drawn up.

### References

- Administrative Data Taskforce. (2012) *The UK administrative data research network: improving access for research and policy*. See: [escr.ac.uk/\\_images/ADT-Improving-Access-for-Research-and-Policy\\_tcm8-24462.pdf](http://escr.ac.uk/_images/ADT-Improving-Access-for-Research-and-Policy_tcm8-24462.pdf) (accessed 13 May 2013).
- Department of Health. (2012) *The power of information: putting us all in control of the health and care information we need*. See: [www.gov.uk/government/publications/giving-people-control-of-the-health-and-care-information-they-need](http://www.gov.uk/government/publications/giving-people-control-of-the-health-and-care-information-they-need) (accessed 10 May 2013).
- Department of Health. (2013) *Caldicott review*. See: [www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/192572/2900774\\_InfoGovernance\\_accv2.pdf](http://www.gov.uk/government/uploads/system/uploads/attachment_data/file/192572/2900774_InfoGovernance_accv2.pdf) (accessed 10 May 2013).
- Parliament. (2012) *Health and social care act 2012*. See: [legislation.gov.uk/ukpga/2012/7/pdfs/ukpga\\_20120007\\_en.pdf](http://legislation.gov.uk/ukpga/2012/7/pdfs/ukpga_20120007_en.pdf) (accessed 13 May 2013).

### Professor Marlene Sinclair, editor

PhD, MEd, BSc, DASE, RNT, RM, RN.

Professor of midwifery research at the University of Ulster, Northern Ireland.

# The effectiveness of frenulotomy on infant-feeding outcomes: a systematic literature review

Valerie Finigan<sup>1</sup> PhD, MSc, BA, IBCLC, RGN, RM. Tony Long<sup>2</sup> PhD, MA, BSc, SRN, RSCN, RNT.

1. Consultant midwife – infant feeding, Pennine Acute Hospitals NHS Trust, Antenatal Clinic, Royal Oldham Hospital, Rochdale Road, Oldham OL1 2JH England. Email: val.finigan@pat.nhs.uk

2. Professor of child and family health, School of Nursing, Midwifery and Social Work, Allerton Building, University of Salford M6 6PU England. Email: t.long@salford.ac.uk

---

## Abstract

**Background.** Tongue-tie is a congenital anomaly in which the short lingual frenulum or highly attached genioglossus muscle restricts tongue movement. NICE (2005) called for robust clinical trials to be conducted on frenulotomy, the surgical procedure in which the lingual frenulum of infants is separated. The available evidence showed that the procedure posed very little, if any, risk for infants, yet NICE also noted that there was little evidence to underpin the conclusions being drawn by experts that frenulotomy improved infant-feeding.

**Aim.** To assess the effectiveness of frenulotomy on breastfeeding outcomes and maternal satisfaction with infant-feeding.

**Method.** The search was undertaken through Cochrane Library, Medline, CINAHL and UpToDate. Inclusion and exclusion criteria were set, and the search was restricted to evidence following the release of the 2005 NICE review. MESH search terms were applied: tongue-tie, ankyloglossia, frenotomy, frenulotomy, and breastfeeding. Two independent reviewers appraised all items, referring to the Cochrane Risk of Bias methodology. The Cochrane Library Critical Appraisal Skills Programme (CASP) tools and guidelines were used.

**Results.** A total of 53 papers were identified, of which 16 met the criteria: nine case studies, five randomised controlled trials, one prospective inter-rater reliability study and one systematic literature review. Frenulotomy appears to offer long-term breastfeeding benefits for more than 50% of cases. No evidence was available relating to the impact of tongue-tie on bottle-feeding infants.

**Implications.** Development of a robust, objective manual to assess the degree of tongue-tie and impact on feeding is vital. Research is needed to establish the impact on early parent-infant relationships of feeding a tongue-tied infant.

**Key words:** Tongue-tie, ankyloglossia, frenulotomy, breastfeeding, bottle-feeding, evidence-based midwifery

---

## Introduction

Partial ankyloglossia (tongue-tie) is defined as a short lingual frenulum that results in restricted movement of the tongue (Hazelbaker, 2010). The restriction appears to be in the forwards protrusion of the tongue (extension); lateral mobility (lateralisation) and tongue lift (Geddes et al, 2008). The reported incidence ranges from 3.2% to 10.7%, depending on the diagnostic criteria used at assessment (Messner et al, 2000; Ballard et al, 2002). There is a greater incidence in boys, with a male to female ratio of 1.5-2.6:1 (Renfrew, 2012). Anterior ankyloglossia is most common, being easily seen near the tip of the tongue and lending a classic heart-shaped appearance to the tongue. It often restricts extension, lift and lateralisation. The less common posterior ankyloglossia is often missed on examination, lying at the base of the tongue. Nevertheless, its functional effect also causes problems with feeding, particularly causing nipple pain and trauma (Hazelbaker, 2010). The findings of recent studies suggest that this condition is associated with feeding problems in early infancy and also with mastication, swallowing, dental and speech problems later in infancy (Geddes et al, 2008).

Historically, division of the lingual frenulum was performed routinely and early in infancy in order to prevent challenges with breastfeeding. The procedure was performed swiftly by the midwife (Notestine, 1990). There is convincing evidence that breastfeeding prevents infection, allergies and obesity in infants (Horta et al, 2007;

UNICEF, 2012). It also impacts on maternal health and wellbeing, reducing the risks of breast and ovarian cancer (UK National Case Control Study Group, 1993; Furberg et al, 1999; Marmot et al, 2007), uterine inertia (Riordan, 2005) and osteoporosis (Chantry et al, 2004).

The purpose of this systematic review was to assess the effectiveness of frenulotomy on breastfeeding outcomes and maternal satisfaction with feeding infants.

---

## Rationale

In order to feed from the breast, a baby must be able to extend its tongue across its lower gum margin, cup the areola with its tongue, and elongate its mother's nipple to extend to the junction of its hard and soft palate (Geddes et al, 2008). The position of the tongue protects the delicate maternal nipple from trauma and enables the baby to move its tongue and jaw freely to extract milk from the ducts within the breast (Geddes et al, 2008).

The symptoms reported by mothers of tongue-tied babies are clearly similar to the symptoms reported in the infant-feeding surveys (Bolling et al, 2007; Renfrew, 2012) that caused mothers to stop breastfeeding prematurely. These were detailed as:

- Sore, cracked and bleeding nipples
- Engorgement
- Recurrent blocked ducts
- Mastitis
- Breast abscesses

- Poor milk supply
- Unsettled baby
- Frequent feeding
- Faltering infantile growth.

With the resurgence of breastfeeding in the UK, ankyloglossia has again become an important issue in breastfeeding success or failure. However, across the UK, services to divide a tight frenulum in infants are sparse. The lack of objectivity in available studies to support assessment, treatment and evaluation of ankyloglossia results in inadequately robust foundations to underpin future service development.

Breastfeeding is pivotal to infant and maternal health and wellbeing; a key component in enabling mothers to build reciprocal and meaningful relationships with their infants (UNICEF, 2012). Advances in neuroscience have shown that the close and intimate contact during breastfeeding episodes enhances infant brain development and thus impacts on later life outcomes (Gerhardt, 2004; UNICEF, 2013).

## Method

A systematic review of the literature 'is a well planned review to answer a specific research question using a systematic and explicit methodology to identify, select and critically evaluate the results of the studies included' (Brettell and Grant, 2004; Aveyard, 2007). The Cochrane Critical Appraisal Skills Programme (CASP, 2004) tool was used to ensure consistency in review of the evidence, and the *Cochrane handbook for systematic reviews of interventions* (Higgins and Green, 2011) guided efforts in risk of bias assessment.

### Search strategy

The search strategy involved interrogation of electronic databases: Cochrane Library, Medline, CINAHL, and UpToDate. Limits were applied to restrict the search to publications from 2005 (the year of the NICE review) to 2013, relating only to humans, in English, and with full text available. MESH terms relevant to tongue-tie division in infants were applied: 'tongue-tie', 'ankyloglossia', 'frenotomy', 'frenulotomy', 'breastfeeding' and 'bottle-feeding'. A further search of Google Scholar and bibliographies sought papers that might have originally been overlooked. A total of 53 papers were identified.

### Study selection

Two reviewers independently reviewed the initial selection, applying inclusion and exclusion criteria. Items in which either reviewer was uncertain, or on which the reviewers differed were discussed and reviewed jointly until agreement was reached. The inclusion criteria for studies were:

- Included infants aged from birth up to six months of age
- Addressed challenges with breastfeeding or bottle-feeding
- Reported means of measuring the frenulum
- Employed randomised controlled trial (RCT), systematic literature review (after 2005), or case controlled study.

Exclusion criteria were:

- Sample focused on children older than six months
- No focus on feeding problems
- Reporting only on non-measured and non-notable frenulum
- Case series of less than five infants
- Surveys or opinion-based papers
- Duplicate studies.

A total of 16 reports met the criteria and formed the final selection: nine case studies, five RCTs, one prospective inter-rater reliability study, and one systematic literature review. No papers were found that examined the impact of ankyloglossia on bottle-feeding, most likely because the mechanics of feeding from the bottle differ and it is less common to find bottle-feeding problems in tongue-tied infants.

### Data extraction and synthesis

Data were extracted from the studies according to study design, nature and size of sample, intervention, outcomes, and significance and confidence intervals (see Table 1). The quality of the studies was assessed using the CASP tool. Risk of bias was evaluated with consideration of sample, data collection, clarity of inclusion and exclusion criteria, outcome measures and reliability. The review also appraised outcome level for randomisation, blinding and withdrawals. Quality assessment of RCTs was based on the classification of 'risk of bias' (Higgins and Green, 2011). The domains included low risk for bias, high risk for bias, and unclear categories.

## Results

All studies, except for Dollberg et al (2011), employed consecutive sampling. The RCTs employed double-blinding (Amir et al, 2006; Dollberg et al, 2006; Berry et al, 2012), or single-blinding of mothers (Buryk et al, 2011) or researchers (Hogan et al, 2005). Blinding with this procedure relies on comparable periods of time for removal of the baby from the mother, insertion of a swab under the tongue for both intervention and control group babies, and feeding after the procedure without examination of the mouth by mother or observer. Even in a well-planned and competently conducted trial, such as that by Berry et al (2012), blinding can fail when a small blood stain appears on the swab. Clearly, blinding can be maintained for only a short period.

Details of blinding were not always clear, resulting in a greater risk of bias. Of the five RCTs, only one study presented effect size calculation (Buryk et al, 2011). Confidence intervals varied as would be expected in case series of different sizes, with smaller samples leading to wider confidence limits. However, the results indicated that the effect would still be likely to be demonstrated in larger studies.

### Assessment of degree of tongue-tie

Assessment of the degree of tongue-tie and impact on tongue function was mainly subjective, with the construction of questionnaires as a common approach to assessment in case studies. Three studies employed the Hazelbaker Assessment Tool for Lingual Frenulum Function (HATLFF)

**Table 1. Summary of studies**

Study	Study design	Sample	Intervention	Outcomes
Argiris et al, 2011; UK	Prospective case series	33 boys, 13 girls. Age range: 1 day to 12 weeks.	Assessment of pain made by devising a questionnaire.	Indications of clinical diagnosis of ankyloglossia with breastfeeding problems: 67% poor attachment, 63% sore nipples, 43% nipple damaged, 50% losing attachment at breast, 30% not satisfied after feeds, 22% slow weight gain.
Amir et al, 2006; Australia	Inter-rater reliability study	58 babies referred for tongue-tie assessment. Age range: 1-84 days. 25 controls. Age range: 7-55 days.	HATLFF	Kappas between 0.4 and 0.6 (moderate reliability) of tool. Extension, lateralisation and tongue lift: Kappa >0.65. Tongue spread, peristalsis, snap-back: insignificant result. Frenulotomy led to increased parental satisfaction.
Berry et al, 2012; UK	Double-blind RCT	57 breastfed babies 5-115 days old (mean, 32 days; median 23 days) Ratio boys to girls 2:1.	LATCH IBFAT Pain scale 1-10	Immediate, sustained improvement in breastfeeding following frenulotomy, detectable by the mother in 78% intervention and 47% control, (31% difference, two-tailed X <sup>2</sup> , p<0.02; 95% CI 6-51).
Buryk et al, 2011; US	Single-blind RCT	38 boys, 20 girls. Age range: 1-35 days. Mean: 6 days.	HATLFF. IBFAT Nipple pain by Short Form McGill Pain Questionnaire.	First 3 function assessment areas of HATLFF have good inter-rater reliability but remaining 4 items do not. SF-MPQ scores reduced significantly more in frenotomy group (p<0.001). IBFAT scores improved significantly more in frenotomy group (p<0.029).
Dollberg et al, 2006; Israel	Double-blind RCT	25 infants (14 frenotomy, 11 control). Age: 1-21 days Sex not specified.	LATCH 10-point VAS pain score.	Significant improvement in pain score post-frenulotomy compared to sham procedure (p=0.001). Improvement in latch not significant (p=0.06).
Geddes et al, 2008; Australia	Case series	24 infants. <28 days. 7 days post surgery.	LATCH. Ultrasound. Maternal pain score. HATLFF 'not fit for purpose'.	Milk intake, milk-transfer rate, LATCH score, and maternal pain scores improved significantly post frenulotomy (p=.035). Two different tongue movements: strong latch or bite type attachment vs poor latch with sore, misshapen nipple, and poor milk transfer.
Hogan et al, 2005; UK	Single-blind RCT	57 infants. 28 intervention, 29 control. 40 breastfed, 17 bottle-fed 3-70 days. Mean age: 20 days.	Subjective measurement from maternal reports.	27/28 (96%) intervention group, and 1/29 in control group (3.4%) improvement in feeding. (p=0.001). Intervention vs control group in improvement in both breastfed and bottlefed (p=0.001). 24 mothers breastfed for four months (24/40, 60%). Frenulotomy resulted in improved feeding in 54/57 (95%).
Hong et al, 2010; US	Retrospective case series	322 anterior frenulotomy, 19 posterior frenulotomy. Median age: 2.7 weeks. Boys:girls 2:1.	Subjective grading by examiner.	Revision of frenulotomy rates significantly higher for the posterior ankyloglossia group (3.7% anterior, 21.1% posterior, p=0.008).
Khoo et al, 2009; UK	Prospective case series	42 boys, 20 girls. Post-frenulotomy. Age: <90 days.	Standardised, structured symptom questionnaire.	At three months post-frenulotomy: feed length reduced (p<0.001), inter-feed interval increased (p<0.001), difficulty in feeding reduced (p<0.001). Mother-infant pairs with tongue-tie and breastfeeding difficulties due to nipple pain are most likely to benefit from frenulotomy (OR 5.8, CI 1.1-31.6).
Miranda and Milroy, 2010; UK	Prospective case series	51 neonates. Age range: 12-36 days.	Devised questionnaire.	No complications found. At two weeks, 90% had gained weight by centiles, 4% had dropped centiles. Overall gain 15 ± 1.2 centiles (41st-56th) p<0.001. Breastfeeding increased by 19% (3 ± 0.3 sessions/24h) and bottle top-ups decreased by 81% (7 ± 0.6 sessions/24h) p<0.001. Mothers reported fewer problems.
Ricke et al, 2005; US	Case control evaluation	49 babies with tongue-tie and 98 controls. Babies at one week and one month.	HATLFF found to be too lengthy and complex.	Tongue-tied babies three times more likely to be solely bottle-fed at one week when frenulotomy not performed (RR3.11, 95% CI 1.21, 8.03).
Ridgers et al, 2009; UK	Case study	220 cases of tongue tie. Median age = 10 days, 35 bottle-feeding, 22 due to feeding difficulties.	Subjective report post frenulotomy from mother.	67% felt the problems were fully resolved, 21% improved, 2% unchanged. Most mothers reported improved satisfaction.
Segal et al, 2007; Canada	Literature review	24 reports (six non-randomised, one randomised study).	Studies based mostly on subjective impression.	No well-validated clinical method for establishing diagnosis of ankyloglossia. Differing diagnostic criteria resulted in prevalence of ankyloglossia of 4% to 10%.
Srinivasan et al, 2006; Canada	Case series	18 boys, 9 girls. Mean age: 19 days, median: 10, range: 2-71.	LATCH. Nipple pain by Short Form McGill Pain Questionnaire (PRI & PPI). Telephone interview.	Improvement in mean LATCH score of 2.5 (p<0.0001, 95% CI 2.038, 2.925). Maternal pain scores decreased significantly on PRI subscale: mean improvement -11.4 (p<0.0001, 95% CI, -15.544, -7.345) and on PPI subscale: mean improvement -1.5 (p<0.0001, 95% CI, -1.952, -1.1011); 77.8% of subjects were still breastfeeding after three months. 92% pain free after three months.
Stehler et al, 2012; US	Retrospective cohort study	82 mothers. Age and sex of baby not specified, but in larger study mean age = 18 days.	Telephone follow-up survey: subjective experience of mothers.	80.4% strongly believed the procedure to have benefitted breastfeeding, 82.9% able to initiate or resume breastfeeding. Significant difference if procedure performed in the first week of life (86%) compared to later (74%) (p<0.003).
Wallace and Clarke, 2006; UK	Case series	8 boys, 2 girls. Age range at frenulotomy: 2-31 days, median: 10 days.	Follow up by telephone interview four months post procedure.	Improvement in breastfeeding was immediate in four cases, took up to 14 days in three cases, no improvement in three cases. No reported complications. 6/10 breastfed for four months.

(Hazelbaker, 1993) for a more objective measurement (Ricke et al, 2005; Amir et al, 2006; Buryk et al, 2011). The HATLFF tool was found to have moderate inter-rater reliability, and was found to be too difficult and complex for use in a busy clinic by Ricke et al (2005). Although Amir et al (2005) had previously used the HATLFF for assessment, Amir et al (2006) drew similar conclusions to Ricke et al, finding that HATLFF had increased reliability in assessing three functions of tongue mobility (extension, lateralisation and lift), but the four scores that related to sucking functions were not reliable (cupping, tongue spread, peristalsis, snap-back). Geddes et al (2008) also found HATLFF usage to be problematic. The findings suggest that there is still a need to develop a robust, simple-to-use, clinically practical, valid assessment tool.

LATCH (Jensen et al, 1994) is an instrument that relies upon observation and description of five characteristics of breastfeeding: latch, audible swallowing, type of nipple, comfort and hold (or positioning). There is evidence that increase in LATCH score correlates with increased maternal satisfaction with breastfeeding and with decrease in breastfeeding problems (Riordan et al, 2001). IBFAT, the Infant Breastfeeding Assessment Tool (Matthews, 1988), focuses on four elements of breastfeeding behaviour: readiness to feed, rooting, fixing and sucking. It also includes a measure of the mother's perception of feeding and satisfaction with this. Again, the score has been shown to correlate well with maternal satisfaction with breastfeeding (Lewallen, 2006).

### Outcomes

Eight studies provided subjective outcome measures of frenulotomy: (Hogan et al, 2005; Amir et al, 2006; Wallace et al, 2006; Khoo et al, 2009; Miranda and Milroy, 2010; Agiris et al, 2011; Berry et al, 2012; Steehler et al, 2012), and seven studies provided objective outcomes using validated tools (IBFAT or LATCH) (Srinivasan et al, 2006; Geddes et al, 2008; Khoo et al, 2009; Ridgers et al, 2009; Miranda and Milroy, 2010; Buryk et al, 2011; Dollberg et al, 2011). The LATCH score was used pre- and post-treatment in three studies (Geddes et al, 2008; Srinivasan et al, 2006; Dollberg et al, 2006) and Geddes et al (2008) and Srinivasan et al (2006) showed significant improvements in breastfeeding ( $p < 0.05$  and  $p < 0.0001$ , respectively). Furthermore, Geddes et al (2008) also used sub-mental ultrasonography to demonstrate reduced nipple compression following tongue-tie division which clearly is the cause of maternal pain and poor milk transfer.

Only one study compared pre- and post-division IBFAT scores (Buryk et al, 2011). The mean score improved from  $9.3 \pm 0.69$  to  $11.6 \pm 0.81$  following tongue-tie division, compared to subjects receiving a sham procedure where no improvement was noted ( $p < 0.029$ ). In the same study, while Short Form McGill Pain Questionnaire (SF-MPQ) pain scores improved significantly in both groups, scores reduced significantly more in the frenotomy group ( $p < 0.001$ ). Miranda and Milroy's (2010) prospective study of 51 neonates found that tongue-tie division improved

breastfeeding and also infant weight gain. Breastfeeding increased by 19% ( $3 \pm 0.3$  sessions/24h) and bottle top-ups decreased by 81% ( $7 \pm 0.6$  sessions/24h)  $p < 0.001$ . At two weeks post-treatment, 90% of infants had gained weight by centiles, 6% had remained unchanged, and 4% had fallen 7.5 centiles. Overall, there was a gain of  $15 \pm 1.2$  centiles from  $41 \pm 2.5$  to  $56 \pm 2.4$  ( $p < 0.001$ ).

Eight studies reported subjective outcomes for breastfeeding, with mothers stating whether there were any differences in their feeding. For example, Hogan et al (2005) reported that 24 mothers (85%) had experienced improved breastfeeding following frenulotomy, with only one mother in the non-treatment group reporting similar improvement ( $p < 0.001$ ). Berry et al (2012) saw a significant improvement in breastfeeding ( $n = 21$ , 78%) in the treatment group, whereas only 14 mothers (47%) in the control group reported similar improvements.

### Discussion

There remains a need to develop an objective, clinically simple, robust and reliable tool for lingual frenulum assessment. This is supported by previous reviews (Suter and Bornstein, 2009). Without this, studies of ankyloglossia seem set to continue being limited in the ability to provide clear indications of the need for frenulotomy, and practitioners will continue to struggle to present convincing business cases for further service development. The outcomes of frenulotomy performed for breastfeeding problems are largely projected from the subjective experiences of mothers. Very few studies have attempted to use standardised, objective measures during pre- and post-operative assessment phases.

The HATLFF tool was found to have only moderate reliability for function assessments of ankyloglossia, and clinicians experienced in assessing tongue function may feel that it equates only to their current subjective assessments. Assessment using the tool may be cumbersome in the clinical setting. However, if practitioners' assessments are not conducted robustly, they will not provide sufficiently for evidence-based decisions. Either alternative instruments are needed, or existing tools require further adaptation to be practical and rigorous.

The most important finding from the studies reviewed in this paper is that frenulotomy for neonates and mothers who are experiencing breastfeeding challenges provides significant improvements and supports continued breastfeeding. It improved maternal experience. Tongue-tie division appears to provide some long-term benefits, with more than 50% of the mothers still breastfeeding three months after the procedure.

Although not the focus of this review, it was clear that there was little high-quality evidence regarding the identification of clinically significant symptoms or the effect of tongue-tie on articulation of speech. Yet it has been postulated that when a frenulum extends to the tip of the tongue, it prevents tongue lift and is associated with difficulty in speech (Webb et al, 2013).

Limitations to the evidence base include the possibility

of selection bias as parental consent decisions may be affected by extraneous factors. In many cases, the mother had attended a breastfeeding clinic or been advised by a breastfeeding specialist prior to referral. There may be a preponderance in study samples of mothers who were already more motivated to breastfeed and who were optimistic that frenulotomy would be effective.

## Conclusion

There remains a paucity of evidence to underpin clinical decision-making on the assessment and outcomes of frenulotomy for infants and their families. If improvement in the initiation and continuation rates of breastfeeding in the UK are to be supported, well-evaluated, efficient and effective services need to be provided locally, where infants can have their tongue function assessed objectively and the frenulum divided, and where their mothers can access specialist support to continue to breastfeed.

There is also little evidence to support understanding of the impact of a tight frenulum on bottle-feeding infants. This warrants further investigation so that services are equitable for all mothers and babies. The experiences of parents feeding tongue-tied infants need to be accounted for as this may inevitably affect parents' building of early relationships with their offspring.

This review concludes that tongue-tie division is important in supporting both the initiation and continuation of breastfeeding, protecting the maternal nipple from trauma, ensuring effective transfer of breastmilk to the infant, and improve satisfaction in feeding for parents. Tongue-tie division has been reported to be a safe and simple procedure (NICE, 2005). More long-term studies are required to measure the short-, medium- and long-term effects of frenulotomy on breastfeeding and bottle-feeding, to investigate maternal satisfaction with feeding and to develop a robust and valid assessment tool.

## References

- Argiris K, Vasani S, Wong G, Stimpson P, Gunning E, Caulfield H. (2011) Audit of tongue-tie division in neonates with breastfeeding difficulties: how we do it. *Clinical Otolaryngology* 36(3): 256-60.
- Amir LH, James JP, Beatty J. (2005) Review of tongue-tie release at a tertiary maternity hospital. *Journal of Paediatrics and Child Health* 41(5-6): 243-5.
- Amir LH, James JP, Donath SM. (2006) Reliability of the Hazelbaker assessment tool for lingual frenulum function. *International Breastfeeding Journal* 1(1): 3.
- Aveyard H. (2008) *Doing a literature review in health and social care*. Open University Press: Berkshire.
- Ballard JL, Auer CE, Khoury JC. (2002) Ankyloglossia: assessment, incidence, and effect of frenuloplasty on the breastfeeding dyad. *Pediatrics* 110: e63.
- Berry J, Griffiths M, Westcott C. (2012) A double-blind randomised controlled trial of tongue-tie division and its immediate effect on breastfeeding. *Breastfeeding Medicine* 7(3): 189-93.
- Bolling K, Grant C, Hamlyn B, Thornton A. (2007) *Infant-feeding survey 2005*. The Information Centre: London.
- Brettell A, Grant MJ. (2004) *Finding the evidence for practice: a workbook for health professionals*. Churchill Livingstone: Edinburgh.
- Buryk M, Bloom D, Shope T. (2011) Efficacy of neonatal release of ankyloglossia: a randomised trial. *Pediatrics* 128(2): 280-8.
- Chantry CJ, Auinger P, Byrd RS. (2004) Lactation among adolescent mothers and subsequent bone mineral density. *Archives of Pediatrics and Adolescent Medicine* 158(7): 650-6.
- Critical Appraisal Skills Programme. (2004) *10 questions to help you make sense of quantitative research*. See: [casp-uk.net/wp-content/uploads/2011/11/CASP\\_Qualitative\\_Appraisal\\_Checklist\\_14oct10.pdf](http://casp-uk.net/wp-content/uploads/2011/11/CASP_Qualitative_Appraisal_Checklist_14oct10.pdf) (accessed 9 May 2013).
- Dollberg S, Botzer E, Grunis E, Mimouni FB. (2006) Immediate nipple pain relief after frenotomy in breast-fed infants with ankyloglossia: a randomized, prospective study. *Journal of Pediatric Surgery* 100(9): 1598-600.
- Dollberg S, Manor Y, Makai E, Botzer E. (2011) Evaluation of speech intelligibility in children with tongue-tie. *Acta Paediatrica* 100(9): e125-e7.
- Furberg H, Newman B, Moorman P, Millikan R. (1999) Lactation and breast cancer risk. *International Journal of Epidemiology* 28(3): 396-402.
- Geddes DT, Langton DB, Gollow I, Jacobs LA, Hartmann PE, Simmer K. (2008) Frenulotomy for breastfeeding infants with ankyloglossia: effect on milk removal and sucking mechanism as imaged by ultrasound. *Pediatrics* 122(1): e188-94.
- Gerhardt S. (2004) *Why love matters*. Routledge: London.
- Hazelbaker A. (2010) *Tongue-tie: morphogenesis, impact, assessment and treatment*. Aidan and Eva Press: Columbus.
- Hazelbaker AK. (1993) *The assessment tool for lingual frenulum function (ATLFF): use in a lactation consultant private practice [thesis]*. Pacific Oaks College: Pasadena.
- Higgins JPT, Green S. (Eds.). (2011) *Cochrane handbook for systematic reviews of interventions (version 5.1.0)*. The Cochrane Collaboration. See: [cochrane-handbook.org](http://cochrane-handbook.org) (accessed 9 May 2013).
- Hogan M, Westcott C, Griffiths M. (2005) Randomised controlled trial of division of tongue-tie in infants with feeding problems. *Journal of Paediatrics and Child Health* 41(5-6): 246-50.
- Hong P, Lago D, Seargeant J, Pellman L, Magit AE, Pransky SM. (2010) Defining ankyloglossia: a case series of anterior and posterior tongue ties. *International Journal of Pediatric Otorhinolaryngology* 74(9): 1003-1006.
- Horta BL, Bahl R, Martines JC, Victora CG. (2007) *Evidence on the long-term effects of breastfeeding: systematic reviews and meta-analyses*. World Health Organization: Geneva. See: [whqlibdoc.who.int/publications/2007/9789241595230\\_eng.pdf](http://whqlibdoc.who.int/publications/2007/9789241595230_eng.pdf) (accessed 9 May 2013).
- Jensen D, Wallace S, Kelsay P. (1994) LATCH: a breastfeeding charting system and documentation tool. *Journal of Obstetric, Gynaecologic and Neonatal Nursing* 23(1): 181-7.
- Khoo AAK, Dabbas N, Sudhakaran N, Ade-Ajayi N, Patel S. (2009) Nipple pain at presentation predicts success of tongue-tie division for breastfeeding problems. *European Journal of Pediatric Surgery* 19(6): 370-3.
- Lewallen LP. (2006) A review of instruments used to predict early

## References continued

- breastfeeding attrition. *Journal of Perinatal Education* 15(1): 26-41.
- Marmot M, Wiseman M, Shuker DEG. (2007) *Food, nutrition, physical activity and the prevention of cancer: a global perspective*. See: [discovery.ucl.ac.uk/4841/1/4841.pdf](http://discovery.ucl.ac.uk/4841/1/4841.pdf) (accessed 9 May 2013).
- Matthews M. (1988) Developing an instrument to assess infant breastfeeding behaviour in the early neonatal period. *Midwifery* 4(4): 154-65.
- Messner AH, Lalakea ML, Aby J, MacMahon J, Blair E. (2000) Ankyloglossia: incidence and associated feeding difficulties. *Archives of Otolaryngology – Head and Neck Surgery* 126(1): 36-9.
- Miranda BH, Milroy CJ. (2010) A quick snip – a study of the impact of outpatient tongue tie release on neonatal growth and breastfeeding. *Journal of Plastic Reconstructive and Aesthetic Surgery* 63(9): e683-5.
- NICE. (2005) *Interventional procedures programme: interventional procedures overview of division of ankyloglossia (tongue-tie) in babies with difficulty breastfeeding*. NICE: London.
- Notestine GE. (1990) The importance of identification of ankyloglossia (short lingual frenulum) as a cause of breastfeeding problems. *Journal of Human Lactation* 6(3): 113-5.
- Renfrew M. (2012) *Infant-feeding survey 2010*. See: [hscic.gov.uk/catalogue/PUB08694](http://hscic.gov.uk/catalogue/PUB08694) (accessed 9 May 2013).
- Ricke LA, Baker NJ, Madlon-Kay DJ, DeFore TE. (2005) Newborn tongue-tie: prevalence and effect on breastfeeding. *Journal of the American Board of Family Medicine* 18(1): 1-7.
- Ridgers I, McCombe K, McCombe A. (2009) A tongue-tie clinic and service. *British Journal of Midwifery* 17(4): 230-3.
- Riordan J. (2005) *Breastfeeding and human lactation (third edition)*. Jones and Bartlett Publishers: Sudbury.
- Riordan J, Bibb D, Miller M, Rawlins T. (2001) Predicted breastfeeding duration using LATCH breastfeeding assessment tool. *Journal of Human Lactation* 17(1): 20-3.
- Segal LM, Stephenson R, Dawes M, Feldman P. (2007) Prevalence, diagnosis, and treatment of ankyloglossia: methodological review. *Canadian Family Physician* 53(6): 1027-33.
- Srinivasan A, Dobrich C, Mitnick H, Feldman P. (2006) Ankyloglossia in breastfeeding infants: the effect of frenectomy on maternal nipple pain and latch. *Breastfeeding Medicine* 1(4): 216-24.
- Steehler ME, Steehler MK, Harley EH. (2012) A retrospective review of frenotomy in neonates and infants with feeding difficulties. *International Journal of Pediatric Otorhinolaryngology* 76(9): 1236-40.
- Suter VGA, Bornstein MM. (2009) Ankyloglossia: facts and myths in diagnosis and treatment. *Journal of Periodontal Research* 80(8): 1204-19.
- UNICEF. (2012) *Preventing disease and saving resources*. See: [unicef.org.uk/BabyFriendly/Resources/General-resources/Preventing-disease-and-saving-resources](http://unicef.org.uk/BabyFriendly/Resources/General-resources/Preventing-disease-and-saving-resources) (accessed 9 May 2013).
- UNICEF. (2013) *Guide to the Baby Friendly Initiative standards*. UNICEF, London. See: [unicef.org.uk/babyfriendly](http://unicef.org.uk/babyfriendly) (accessed 9 May 2013).
- United Nations. (1989) *United Nations convention on the rights of the child*. United Nations: Geneva.
- United Kingdom National Case Control Study Group. (1993) Breastfeeding and risk of breast cancer in young women. *British Medical Journal* 307: 17-20.
- Wallace H, Clarke S. (2006) Tongue tie division in infants with breastfeeding difficulties. *International Journal of Paediatric Otorhinolaryngology* 70(7): 1257-61.
- Webb AN, Hao W, Hong P. (2013) The effect of tongue-tie division on breastfeeding and speech articulation: a systematic review. *International Journal of Pediatric Otorhinolaryngology* 77(5): 635-46.

# A survey to assess if guidelines for intrapartum fetal monitoring of women at low obstetric risk in Flanders, Belgium are evidence-based

Mirella Sarrechia<sup>1</sup> MSc, RM. Ann M Thomson<sup>2</sup> BA, MSc, RM, MTD. Bernard Spitz<sup>3</sup> PhD, MD. Walter Sermeus<sup>4</sup> PhD, RN.

<sup>1</sup> Regulatory and start-up assistant, Quintiles Belgium NV/SA, Medialaan 32 bus 2, 1800 Vilvoorde Belgium. Email: msarrechia@yahoo.com

<sup>2</sup> Professor of midwifery, University of Manchester, Oxford Road, Manchester M13 9PL England. Email: ann.thomson@manchester.ac.uk

<sup>3</sup> Professor of obstetrics and gynaecology, Catholic University of Leuven, Oude Markt 13, Bus 5005, 3000 Leuven Belgium. Email: bernard.spitz@uzleuven.be

<sup>4</sup> Professor of nursing, Catholic University of Leuven, Oude Markt 13, Bus 5005, 3000 Leuven Belgium. Email: walter.sermeus@med.kuleuven.be

The authors would like to thank Carol Hindley and Liesbeth van Kelst for their comments on an earlier draft of this paper.

---

## Abstract

**Objective.** To assess the quality of guidelines used by midwives in Flanders, Belgium to monitor the fetal heart in labour in women at low obstetric risk.

**Design.** Postal survey using the tool developed by Hinsliff et al (2004). Following a poor response rate, 20 maternity units were randomly selected and the head midwife telephoned. Those who reported that they had not returned a response to the original survey were asked for a description of their practice and/or their guideline and asked specific questions.

**Ethical approval.** Ethical approval for the study was obtained from the University Ethics Commission of Leuven.

**Participants.** A total of 68 maternity units were eligible to participate. Some 26 responded and 11 sent documentation, but only five of these could be assessed for quality.

**Data analysis.** Two practising midwives assessed the guidelines for quality using the tool designed by Hinsliff et al (2004).

**Findings.** The highest possible score that could be attained was 54 and the lowest 18. The highest awarded score was 21 and the lowest 19. All five received an overall quality measure of 'C', meaning that they were not recommended for practice. A total of 14 hospitals reported that they did not have a protocol and gave a description of their intrapartum fetal monitoring practice. One maternity unit declined to participate.

**Conclusion.** Protocols/guidelines about intrapartum monitoring in low obstetric risk women in spontaneous labour are not readily available in Flemish maternity units. A small number do have such instruments but they are of poor quality. This can affect the delivery of quality of care. As these protocols are not based on evidence, it is concluded that the midwives in these maternity units are not supported to implement the best available evidence into practice.

**Implications for practice.** There is a need for evidence-based guidelines on fetal monitoring in labour for women at low obstetric risk to be adapted for use in Flanders.

**Key words:** Electronic fetal monitoring, continuous monitoring, labour, guidelines/protocols, evidence-based midwifery

---

## Introduction

In the developed world today, monitoring of the fetal heart in labour is standard practice in midwifery and obstetrics in order to ensure fetal wellbeing. Historically, the Pinard stethoscope was the only device available to listen to the fetal heart and this can only be used intermittently. Currently, as well as the Pinard stethoscope, there is the hand-held Doppler, cardiotocograph (CTG) and STAN (ST analysis) monitor available for fetal monitoring in labour (Alfirevic et al, 2006). The Pinard and hand-held Doppler are used to listen intermittently and a CTG is used for both intermittent and continuous monitoring. Despite these innovations, and in particular routine continuous monitoring of the fetal heart (this is common in Belgium), there has never been any evidence that the outcome has been improved for the baby and there is evidence that the use of these technologies are disadvantageous to women at low obstetric risk (Alfirevic et al, 2006; Sarrechia and Thomson, 2009). While there is a higher neonatal seizure rate in those babies where intermittent auscultation was used in labour compared with those where continuous

electronic fetal monitoring (EFM) was used, there is no difference at one year post birth (Hinsliff et al, 2004; Alfirevic et al, 2006; Sarrechia and Thomson, 2009). There is a higher operative delivery rate, with the consequential morbidity, with continuous EFM when compared with intermittent auscultation (Alfirevic et al, 2006; Sarrechia and Thomson, 2009). These findings are relevant for all professionals who are involved in intrapartum care. They are required to use and implement this evidence in their practice. Clinical guidelines and protocols, which are based on the best available evidence, can be instrumental in directing professionals to good practice. In this matter, guidelines can provide advice for practitioners who use fetal monitoring in low-risk women. In the UK, intermittent fetal monitoring is recommended in labour for women at low obstetric risk (NICE, 2007).

Guidelines are defined as documents with advice, recommendations and instructions that can support the decision-making of professionals in care provision, relying on scientific research, aimed at elucidating efficient and effective midwifery practice (van Everdingen et al,

2004). They describe the 'what' and 'why' on the basis of scientific findings, expert opinions and patients' or clients' preferences. Protocols, on the other hand, are locally developed procedure instructions (van Everdingen et al, 2004). They have more effect on the organisational context and are, therefore, more stringent than guidelines. These instruments can only be called evidence-based guidelines if they are developed by means of the evidence-based, systematic method (van Everdingen et al, 2004). This does not mean that they should be entirely or exclusively based on evidence. Even if there is a lack of evidence, one can speak of evidence-based instruments, as long as there has been a thorough and systematic search for the current, available evidence (van Everdingen et al, 2004). In practice, the terms 'guideline' and 'protocol' are used interchangeably in the literature.

While a national guideline on the use of EFM was first produced in the UK in 2001, the first one in Belgium was only published in 2010 (KCE, 2010). Guidelines and protocols are developed by institutions or midwives and nurses in collaboration with doctors in Belgium.

According to the national guidelines for the UK (NICE, 2007), the use of the admission CTG is not recommended in women with a low-risk pregnancy in any birth setting, but intermittent auscultation, either by Pinard stethoscope or Doppler ultrasound, is recommended in labour. Changing from intermittent auscultation to continuous EFM, according to these guidelines, should only occur for the following reasons: significant meconium-stained liquor and this change should also be considered for light meconium-stained liquor, abnormal fetal heart rate detected by intermittent auscultation, maternal pyrexia (defined as 38.0°C once or 37.5°C on two occasions two hours apart), fresh bleeding developing in labour, oxytocin use for augmentation and the woman's request.

The purpose of this study was to undertake a replication of the study by Hinsliff et al (2004), assessing the quality of protocols/guidelines in use for fetal monitoring in women of low obstetric risk in all maternity units in Flanders, Belgium.

## Method

---

This was a quantitative study with the intention of mapping the quality of protocols/guidelines for intrapartum fetal monitoring in low obstetric risk women in spontaneous labour and the evidence-base for these instruments in Flemish maternity wards. A study undertaken in the north of England (Hinsliff et al, 2004) was replicated with the method and design of the original study also replicated. Hinsliff et al (2004) gained an appraisal of guidelines through a postal survey of all NHS trusts supplying maternity services in one region in the north of England, conducted over a six-week period. A total of 28 trusts were eligible to participate and 32 guidelines were returned from 24 trusts. The guidelines were appraised by two reviewers from a multidisciplinary panel. The appraisal resulted in two sets of data that were analysed independently of each other. Each was treated as a separate case. Inter-reviewer

agreement was summarised using descriptive categories. The Appraisal of Guidelines for Research and Evaluation instrument (The Agree Collaboration, 2001) had been found to be insufficiently sensitive and, therefore, a tool was specifically developed for the study (Hinsliff et al, 2004). In this tool, 18 items were developed and used to assess whether aspects of evidence-based practice and research recommendations regarding intrapartum fetal monitoring could be found in the protocols. The questions were developed to elicit evidence-based principles. The criteria were: 'clearly specified objectives', 'consideration of various management options', 'clear description of the target population', 'presence of an evaluation of quality of the evidence', 'recommendations linked to evidence', 'relevance to professional group', 'user-friendly/enhance knowledge', 'multidisciplinary involvement', 'consideration of consumer's view', 'complexities of the evidence shown', 'consideration of benefit versus harm ratio', 'facility for monitoring and evaluation'.

Each item was scored using a rating scale from one to three. One was the 'lowest possible quality', two 'medium quality' and three the 'highest possible quality'. Subsequently a summary measure was given: an 'A' to the protocols that were considered to be unreservedly recommended for clinical practice; 'B' for the ones that could be recommended 'with reservations' and 'C' for the ones that were 'definitely not recommended for practice'.

In this replication study, all of the hospitals in Flanders that provided maternity services were eligible and were surveyed over a six-week period, from the last week of December 2007 to the first week of February 2008. A total of 68 hospitals in Flanders were eligible, three of which were university hospitals and the others were general hospitals. In 2007, these hospitals conducted 65,274 deliveries. In this study we intended to use a panel of midwives to undertake the appraisals.

A letter inviting participation was addressed to the head of midwifery (HoM) of the delivery room or maternity ward. Each of the 68 envelopes that went out contained an explanatory letter, a questionnaire and a stamped return envelope. The letter contained a clarifying explanation of the study, a return date was given and also an address and telephone number in case of vagueness and ambiguities. Confidentiality was guaranteed. The HoMs were asked to return a copy of their protocol/guideline for intrapartum fetal monitoring, that was currently being used. It was clearly stated that the study concerned women at low obstetric risk in spontaneous labour. If they did not have protocols/guidelines, they were asked to describe their practice for fetal monitoring for low-risk women in spontaneous labour. Enough space was given for this description in the questionnaire. Four weeks later, all sites were reminded by post.

The authors obtained a response rate of 38% (26 responses) in this survey, which is low. Because of the low response rate, a random selection of 20 hospitals out of the 68 was made. The HoMs of these 20 were telephoned by MS and asked questions that were prepared in advance (see

**Box 1. Telephone questionnaire**

Did you receive a letter in December 2007 about this survey of the evidence base of EFM?
Did you also receive a reminder in the last week of January?
Were the letters both clear?
Did you participate?
Do you have protocol or guideline about intrapartum EFM in low-risk women in spontaneous, normal labour?

Box 1). Because anonymity had been guaranteed, it was not known which of the HoMs had previously responded.

**Ethical approval**

Research ethics approval for the study was given by the University Ethics Commission of Leuven.

**Appraisal**

The protocols were appraised using the criteria developed by Hinsliff et al (2004). Five protocols were received and only two midwives (independent of the study) appraised them. The midwife appraisers were selected because they had knowledge of evidence-based practice and possessed experience of caring for women at low obstetric risk. Firstly, the evaluations were accomplished individually. Secondly, the reviewers sat together to compare their findings. They were instructed to discuss those evaluations where there was a difference and thus when their findings differed they had to come to a consensus. When this was not possible, they were advised to contact MS, who would join them to come to an agreement. The descriptions of intrapartum fetal monitoring of women at low obstetric risk from hospitals that did not have a protocol or guideline were compared with the findings of the systematic review by Sarrechia and Thomson (2007).

**Findings**

The guidelines were appraised by two midwives who were experienced in caring for women of low obstetric risk. Where the midwives disagreed on appraisal criteria and were unable to reach a consensus, deferral to a third midwife occurred. As noted above, a total of 26 (38%) hospitals responded to the initial request and the reminder. One of them reported that they were not able to participate because they were already co-operating in other studies. Of the 25 hospitals that did participate, 11 sent a protocol, of which six were not protocols for intrapartum fetal monitoring for low-risk women. Either they were for women at high obstetric risk or were concerned with STAN monitoring. Hence only five protocols were suitable for analysis. The other 14 participants gave a description of fetal monitoring for women at low obstetric risk in labour

(see Figure 1). Reported here are the results of the appraisal of the five protocols received and the written and verbal descriptions (by telephone) of fetal monitoring practice.

**Protocols**

One of them was only relevant to STAN monitoring and described the application of this kind of monitoring in high-risk situations, prescribed by an obstetrician. Four of them were protocols for prenatal fetal heart assessment. These protocols are used in a maternal intensive care unit and not in the delivery ward and for that reason were excluded. Another protocol described the management of preparation for a caesarean section. According to the protocol, women should receive a CTG the evening and the morning before the intervention. Again, this did not concern low-risk women and was therefore excluded.

For each of the 18 questions, a score of one to three was allocated. According to this, a maximum score of 54 and a minimum score of 19 could be obtained. The lowest score obtained for one protocol was 19 and 21 the highest for two protocols. The others each gained a score of 20. All of them were classes as ‘definitely not recommended for practice’. Therefore, it can be concluded that all five protocols were of poor quality.

For most of the questions, a negative score (lowest possible quality) was obtained by all five. Only questions 1 (Is there a clear statement of purpose?); 5a (Is it easy to determine for whom the guidelines are intended?); and 11a (Is there an evident date showing when the guidelines were compiled?) gained higher scores.

Four gave a statement of purpose for the protocols. One protocol was specifically addressed to midwives, the others did not state the professional for whom the protocol was intended. The date of assembly of the protocols was clearly described in three of them, the other two did not show any date.

**Descriptions of intrapartum EFM practice**

As noted above, 14 hospitals sent descriptions of their practice because they did not have a protocol. Most of the hospitals started their description by outlining the use of continuous electronic monitoring for 20 to 30 minutes on a regular basis during labour and before interventions such as caesarean section, induction of

**Figure 1. Responses**

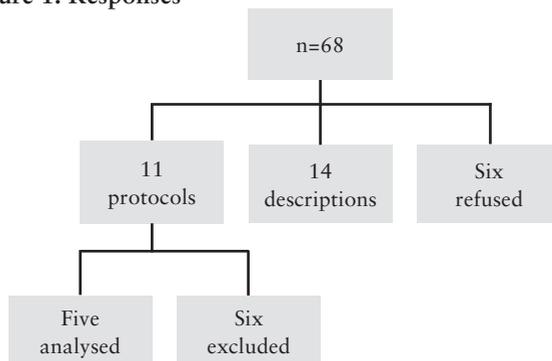
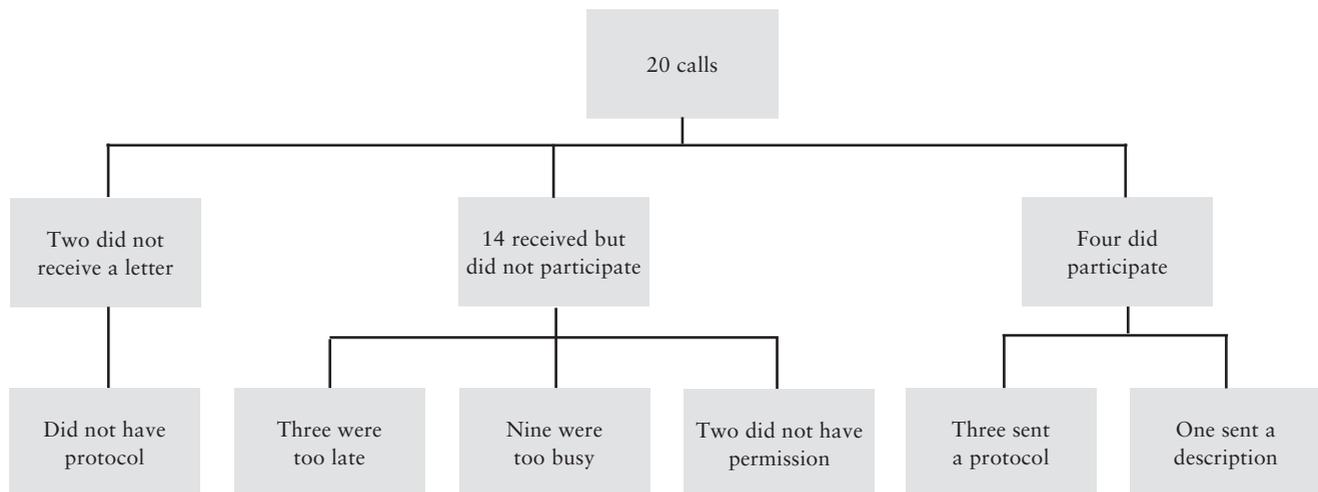


Figure 2. Telephone calls



labour, entering the bath and after administration of Prostin, rupture of membranes, epidural analgesia and on the recommendations of an obstetrician. This was described by six hospitals. Another hospital reported that they performed a CTG 'most of the time'. Only four of the 14 hospitals reported intermittent auscultation with hand-held Doppler every 10 to 15 minutes for at least one minute. One of these four used this kind of monitoring, especially when using a bath. Continuous monitoring, on the other hand, was performed by all of the 14 hospitals.

Indications were stimulation with oxytocin, abnormal fetal heart patterns, pre-history of caesarean section, meconium amniotic fluid, ARM, epidural analgesia, pre-eclampsia, bradycardia. STAN monitoring was indicated in problematic situations on the indication of an obstetrician. One of the 14 used continuous monitoring routinely during the second stage of labour. One hospital stated that all labouring women were monitored continuously.

#### Telephone calls

A total of 20 hospitals were randomly selected and contacted by telephone. This was undertaken to confirm that the questionnaire had been received and as a way to understand the reasons for participation or non-participation in the postal survey. Two of the 20 reported that they had not received an invitation to participate in a survey.

Neither had a protocol but they both gave a description of their practice. Some 14 had received a letter but did not participate for the following reasons: too busy, delay and forgetfulness and some HoMs were not allowed to participate by their superiors. Four hospitals reported that they had received an invitation and had participated, of whom three reported that they had sent a protocol and one of them had sent a description. All of those who had not participated were asked either to describe their protocol or to describe their practice if they did not have a protocol (see Figure 2).

The descriptions gained from the telephone calls matched with the descriptions that were received for

the postal survey. All of them used an admission CTG for half an hour and used continuous monitoring when epidural analgesia was administered and when there were abnormal CTG patterns. A total of 12 of them described the use of intermittent auscultation with CTG or hand-held Doppler for every 15 to 30 minutes when there was normal progress in labour. One of the hospitals mentioned that their practice also depended on the women's preferences. Some of the women wanted to have continuous monitoring for their peace of mind. Others were satisfied with intermittent auscultation with hand-held Doppler on a regular basis. When they were asked whether this use was practised in the same way by all of the midwives in that unit, they answered that it was a 'silent agreement' among midwives. They also reported that 'everyone knew' how a fetus should be monitored in labour and it was 'roughly' carried out in the same way. However, they also reported that it might differ slightly because it was also a matter of the midwives' experience and attitude. They reported that midwives with several years of experience were less likely to use a monitor or hand-held Doppler every 15 to 30 minutes than the midwives who were only just qualified or had been working for a couple of years. This, according to the HoMs, was due to the greater insight gained over the years. Two of the hospitals that were telephoned, referred to a protocol by Jacquemyn (2007).

Data obtained from these telephone calls, together with data from the questionnaires, provided information from a total of 35 hospitals (approximately half of the hospitals that had originally been invited to participate).

#### Discussion

This study was undertaken in order to determine whether protocols for the monitoring of the fetal heart in labour for women at the lower end of the obstetric risk continuum, utilised by midwives in one region of Belgium, Flanders, were based on best evidence.

The results suggest that choosing the most appropriate intrapartum fetal monitoring technique (according to

risk status) in Flanders is at odds with the internationally published evidence (Alfirevic et al, 2006). Given the highest possible quality score of the appraisal tool utilised in this study, it seems that the standard of clinical guideline is variable and this was reported by others who addressed the gap between best evidence and clinical practice with respect to maternity care (Villar et al, 2001). The guidelines received for this study are from a small sample (n=26 of 68) in only one region in Belgium and, as such, it is crucial to acknowledge that non-response may reflect a potential source of bias (Bowling, 2009), since those hospitals electing not to take part in the study might engage in considerably different clinical practice from those who provided guidelines. However, as the responses were anonymous, comment cannot be made on the type and mix of units that participated. It should also be noted that surveys which address one very defined area of clinical practice, such as fetal monitoring, may not offer a more holistic picture of maternity care than other studies reporting a comprehensive range of care packages (Simbar et al, 2009).

The low response rate in the study might have been improved by the use of strategies, which include: addressing all correspondence to the HoMs by name and providing information on the study and requesting participation by telephone (Creative Research Systems, 2011). However, the ethics commission vetoed the use of telephone calls, specifically for recruitment purposes, and stipulated the use of correspondence for invitations to participate in the study. In spite of requesting specific protocols on intrapartum fetal monitoring for women at low obstetric risk, six of the protocols received were excluded as these did not meet the criteria in this respect. Follow-up telephone calls were utilised by the researchers in an attempt to elicit reasons for the low response rates and these provided reasons such as: being too busy, a

lack of permission to participate and forgetting to return the surveys.

Others (Hinsliff et al, 2004) report that supplementing written invitations with telephone calls as reminders to potential participants can increase survey response rates. A strength of our study is that in attempting to replicate Hinsliff et al's (2004) study and the use of triangulation, conclusions might be reached with respect to the validity of the findings. However, the appraisal of the protocols included in the Flanders' study was undertaken by two midwives, rather than the multidisciplinary approach utilised by Hinsliff et al (2004). As noted in the methods section, these midwives were experienced in clinical practice and evidence-based care.

The mean overall quality score for the UK study (Hinsliff et al, 2004) was 26.8, with some receiving overall quality grading of A to C, whereas the mean overall quality score in the Flanders study was 20.6 and all five protocols received an overall quality measure of C, so not recommended for clinical practice. However, it must be remembered that the organisation of maternity care in the UK is different to Belgium and, specifically, that Belgian protocols are developed internally and vary from hospital to hospital. Furthermore, it is only relatively recently that national guidelines on fetal monitoring in labour have been developed in Belgium (KCE, 2010).

The authors recommend that further research should be undertaken to understand the 'silent agreement' that midwives have on fetal monitoring in labour of women at low obstetric risk. They also recommend that research should be undertaken on what it is that 'everyone knows' with regard to fetal monitoring. In this way it is possible that a consensus on evidence-based practice might be achieved. It is a sad reflection on the health service that midwives were refused permission by their superiors to participate in a study of midwifery practice.

## References

- Alfirevic Z, Devane D, Gyte GM. (2006) Continuous cardiotocography (CTG) as a form of electronic fetal monitoring (EFM) for fetal assessment during labour. *Cochrane Database Syst Rev* 3: CD006066.
- Appraisal of Guidelines for Research and Evaluation (AGREE). (2001) *AGREE instrument*. See: agreetrust.org (accessed 9 May 2013).
- Bowling A. (2009) *Research methods in health: investigating health and health services*. Open University Press: Maidenhead: 257-72.
- Creative Research Systems. (2011) *Survey design*. See: surveysystem.com/sdesign.htm (accessed 9 May 2013).
- Hinsliff SW, Hindley C, Thomson AM. (2004) A survey of regional guidelines for intrapartum electronic fetal monitoring in women at low obstetric risk. *Midwifery* 20(4): 345-57.
- Jacquemyn Y. (2007) *Procedureboek Verloskunde: Praktische richtlijnen bij verloskundige problemen*. Acco: Leuven.
- KCE. (2010) *Guideline relative to low-risk birth*. See: kce.fgov.be/publication/report/guideline-relative-to-low-risk-birth (accessed 17 May 2013).
- NICE. (2007) *Intrapartum care: care of healthy mothers and their babies during childbirth*. NICE clinical guideline 55. NICE: London.
- Polit DF, Beck CT. (2003) *Nursing research: principles and methods (seventh edition)*. Lippincott Williams and Wilkins: Philadelphia.
- Sarrechia M, Thomson AM. (2009) Continue electro-foetale monitoring tijdens de arbeid bij vrouwen met een laag obstetrisch risico: een systematische review. *VLOV vzw Tijdschrift voor vroedvrouwen* 15(2): 79-86.
- Simbar M, Ghafari F, Zahrani ST. (2009) Assessment of quality of midwifery care in labour and delivery wards of selected Kordestan Medical Science University Hospitals. *International Journal of Health Quality Assurance* 22(3): 266-77.
- van Everdingen JJE, Burgers JS, Assendelft WJJ, Swinkels JA, van Barneveld TA, van de Klundert JLM. (2004) *Evidence-based richtlijnontwikkeling. Een leidraad voor de praktijk*. Bohn Stafleu Van Loghum: Houten.
- Villar J, Carroli G, Gulmezoglu AM. (2001) The gap between evidence and practice in maternal healthcare. *International Journal of Gynaecology and Obstetrics* 75(supp 1): S47-54.

# What is a good midwife? Some historical considerations

*Sara E Borrelli MSc, BMid, RM.*

PhD student in health studies, The University of Nottingham, School of Nursing, Midwifery and Physiotherapy, Medical School, Nottingham NG7 2UH England.  
Email: ntxsebo@nottingham.ac.uk

The author would like to thank academic supervisors Dr Denis Walsh and Professor Helen Spiby for their support and for commenting on drafts of this paper. She would also like to thank Tania McIntosh for her contribution to the final version of the paper that was submitted.

---

## Abstract

*Aim.* This review takes into account some of the historical considerations around characteristics of a good midwife throughout the centuries in relation to historical and professional factors, tracing changing concepts from the definition of Soranus of Ephesus during the second century AD until the present day.

*Method.* A structured literature search was undertaken to obtain information about the concept of the good midwife. Sources searched included historical textbooks, databases (Medline, ASSIA, Maternity and Infant Care, CINAHL) and reference lists. Data from a variety of European countries were considered and a range of primary and secondary sources in English language have been included. With regards to the contemporary literature, a selection of papers was reviewed in order to focus on the specific definition of what a good midwife is. This paper focuses on the historical aspects.

*Findings.* The contemporary concept of a good midwife seems to be mainly related to the combination of the following areas complementing each other: theoretical knowledge; clinical and professional competencies; communication skills; personal qualities; moral and ethical attitude. A connection between the past and present is apparent regarding what constitutes a good midwife with a focus on the competencies and qualities required of a midwife. The idea of good midwife in the past sometimes appears to place greater emphasis on physical characteristics and moral appraisal over theoretical knowledge, professional skills and practical experience. The idea of a 'good midwife' inevitably evolved in parallel within the social, cultural, economic, political and historical contexts.

*Limitations.* This is not a systematic review and is subject to personal bias from interpretation.

*Conclusions and implications.* There is no consensus on what factors are key to determining the qualities of a good midwife and there is continuous tension between the way in which the values associated with personal qualities, academic achievement and professional competencies are weighted. Professionals are encouraged to reflect on future challenges in providing good-quality midwifery practice while working towards a more tangible identification of the fundamental characteristics of a good midwife.

*Key words:* Good midwife, history, historical considerations, evidence-based midwifery

---

## Introduction

The words of the historian Arthur Marwick (1970) seem to be still relevant half a century later. He argued that knowing the past does not automatically bring solutions to present tensions; but without understanding the past body of professional knowledge, it would be difficult even to consider addressing challenges. In the light of this reflection, it seems appropriate to consider what characteristics have been attributed to a good midwife over past centuries. Through the knowledge of the past, midwives might be more aware of who they are now and who they want to be in the future. It is not a static process, but could be better considered as a continuous development of debates in relation to changing contexts over time. This historical overview around the idea of a good midwife aims to stimulate reflections and debates related to daily midwifery practices and experiences, in the light of a shared midwifery professional background. A further rationale that informs this work is the need for midwives to be more conscious of their historical background in responding to challenges facing the midwifery profession.

---

## Method

This paper is a relatively small component of a larger literature review of doctoral work that aimed to investigate

childbearing women's expectations and experiences of a good midwife in the context of different planned places of birth. This review takes into account some historical considerations around characteristics of a good midwife throughout the centuries in relation to historical and professional factors, tracing changing concepts from the definition of Soranus of Ephesus during the second century AD until the present day. Historical textbooks, databases (Medline, ASSIA, Maternity and Infant Care, CINAHL), European literature and reference lists were searched to retrieve information about the concept of a good midwife. With regards to the contemporary literature, information focusing specifically on the definition of what a good midwife is has been included. The inclusion criterion for contemporary literature was the use of the terms 'good midwife' or 'good midwifery' in the title and/or in the aim of papers written in the last 20 years (from 1993 to 2013). The term 'expert' was not considered as synonym of good, as expertise might be considered only as a component of the more complex notion of being a good midwife. However, this work mainly looks at historical aspects. It must be acknowledged that the historical sources reviewed are only those readily accessible by midwives and this is not a chronological account from one setting. This is

not a systematic review but it is a descriptive historical paper and the sources that have been used are well-known among midwives. The main aim of this paper is to create discussion and debate by bringing together several sources which will stimulate interesting reflections on the concept of a good midwife. Table 1 includes the timeline of the selected key references in relation to the main themes identified. Other sources have been used throughout the paper to contextualise historical considerations.

#### *The good midwife today*

Regarding the contemporary literature of the last 20 years, four papers explicitly investigate what a good midwife means in European settings (Halldorsdottir and Karlsdottir, 2011; Nicholls et al, 2011; Byrom and Downe, 2010; Nicholls and Webb, 2006). Surprisingly, these theoretical (n=2) (Halldorsdottir and Karlsdottir, 2011; Nicholls and Webb, 2006) and empirical (n=2) (Nicholls et al, 2011; Byrom and Downe, 2010) papers have been published from 2006 onwards.

An integrative review of 33 methodologically diverse research papers was carried out by Nicholls and Webb (2006) and the authors reported the principal attribute of a good midwife was having good communication skills. Five years later, Nicholls et al (2011) investigated the perceptions of a good midwife through a Delphi study, including a sample of women, midwives and midwifery educators. The statements with the highest scores were lifelong learning, woman-centred care and, again, communication skills. Halldorsdottir and Karlsdottir (2011) introduced a theory on women's empowerment during childbirth, where the midwife's professionalism was agreed to be central. Byrom and Downe (2010) investigated the characteristics of a good midwife considering the standpoint of midwives. The data analysis underlined the two dimensions of skilled competence and emotional intelligence.

According to the overall findings of the studies, the contemporary concept of a good midwife seems to be mainly related to the combination of the following areas complementing each other: theoretical knowledge, clinical and professional competencies, communication skills, personal qualities and moral and ethical attitude. The studies also highlighted the importance of the relationship between the midwife and the woman.

However, there is no agreement on the definition of a good midwife today, as different interpretations might be related to different standpoints. Also, these opinions often overlap and it is difficult to make a clear distinction between them, as evidenced in the papers of Nicholls and Webb (2006) and Nicholls et al (2011). It is not clear if what women consider to be a good midwife corresponds to the midwives' perception of themselves as good professionals.

#### *The good midwife of the past*

Midwifery is one of the oldest occupations in the world, if considered simply as the presence of a woman accompanying another woman during her childbearing event. In reviewing the subject of midwifery from its

historical standpoint, the first recording occurs in the early chapters of the Bible and could be interpreted as a tribute to the midwives of that period. In fact, at that time, the Pharaoh's astrologers predicted that a Jewish male would have overtaken his throne. In the attempt of shortening the Jewish birth rate, he ordered all Jewish men to do hard labour as slaves. When the Jews continued to multiply, Pharaoh commanded the midwives Shifra and Puah to kill all newborn Jewish boys. Despite the danger, they decided to continue their 'holy calling', witnessing the miracle of life (Genesis; Exodus).

The first textbook of midwifery is widely acknowledged to be that written by Soranus of Ephesus during the second century AD. There were certain characteristics desired in a good midwife, as described by the physician in his work *gynecology*: '[A] suitable person, literate, with her wits about her, good memory, loving work, respectable, not unduly handicapped as regards her senses, sound of limb, robust, long slim fingers and short nails, soft hands, free from superstition.' Soranus also argued that the midwife should be of 'sympathetic disposition' (translated by Temkin, 1956: 1.1.3). Pliny, another physician of that time, valued nobility and a calm and unobtrusive disposition in a midwife (Mayes, 1930). These two ancient physicians appeared to consider that personal qualities, physical characteristics and moral values seem to overcome theoretical knowledge as it was not an option at that time. In fact, ancient Greek women probably did not have access to formal education at any level. Instead, midwifery knowledge was handed on from each generation to the next and from one midwife to another (Mayes, 1930).

#### *The good midwife as considered in the 16th and 17th centuries*

Extracts from Dr Aveling's book on English midwives show what was expected of them in the 16th century (Aveling, 1967). Qualifications of an ordinary midwife were mainly related to age (not to begin to practise too young or to continue it until too old), practical experience, moral appraisal (being of decent gravity and solidity, being considerate, endowed with resolution, presence of mind, being sagacious and prudent), physical characteristics (strength and vigour of body), sensitivity and recognition of limits through the immediate recourse to 'the ablest practise in the art or the submission of thoughts to the discerning faculty of the more learned and skilful' (Mayes, 1930: 163). It must be acknowledged that the author was writing in the 19th century before midwifery registration and was anxious to contrast poor, ignorant 19th century midwives with their more moral forebears. We can find a reference to the fictitious bad midwife in the 19th century: Mrs Sarah Gamp, a disreputable character from Charles Dickens' 1843 serialised novel *The life and adventures of Martin Chuzzlewit*. In the novel, she is an ignorant and drunken nurse-midwife of the lower classes of London, not infrequently defrauding people and certainly not caring for them as expected. Since Dickens' work became very popular, Sarah Gamp's caricature soon became representative of an uncaring nurse-midwifery practice.

Table 1. Timeline of the selected key references

	Source	Country	Themes – good midwife
Ancient history	<i>Bible</i> : Genesis chapters 35-38, Exodus chapters 1-16-21		Holy calling.
	Book: <i>Gynecology</i> (Soranus of Ephesus, second century AD)	Greece	Suitable person, literate, with her wits about her, good memory, loving work, respectable, not unduly handicapped as regards her senses, sound of limb, robust, long slim fingers and short nails, soft hands, free from superstition, sympathetic disposition.
	Secondary source: <i>Pliny – second century AD</i> (Mayes, 1930)	Greece	Nobility, calm, unobtrusive disposition.
1500	Book: <i>English midwives</i> (Aveling, 1967)	UK	Age (not to begin to practise too young or to continue it until too old), practical experience, moral appraisal (being of decent gravity and solidity, being considerate, endued with resolution, presence of mind, being sagacious and prudent), physical characteristics (strength and vigour of body), sensitivity, recognition of limits.
	Book: <i>De conceptu et generatione hominis – The expert midwife</i> (Rueff, 1637)	Switzerland	Wonderful knowledge of herbs, livestock and charms, practice faithfully and diligently, helping poor as well as rich women, not using any kind of incantation.
1700	Secondary source: <i>Dr Harvey – 1700</i> (Mayes, 1930)	UK	Good reputation, professional success, knowledge, charity, patience, tender compassion, manifestation of their worth among women, giving women cause to love, honour and esteem them, nature's servants.
	Book: <i>History of childbirth. Fertility, pregnancy and birth in early modern Europe</i> (Gélis, 1991)	UK	Skilful, punctilious, availability, right gestures, words of comfort and encouragement for labouring women, physical build (strong, sturdy, nimble, graceful, no bodily defects, long supple hands), spiritual or moral side (virtuous, discreet, prudent, good conduct, regular habits, zealous, mild and charitable).
	Book: <i>Midwives and medical men</i> (Donnison, 1988)	UK	Doing only the 'easy' work of midwifery, leaving the hard stuff to the doctors.
	Chapter: <i>Midwifery, 1700-1800: The man-midwife as competitor</i> (King, 2012)	UK	Recognition of limitations.
1800	Secondary source: <i>The London Obstetrical Society examination – 1872</i> (Mayes, 1930)	UK	Certification of moral character, age not under 21 or over 30, proof of having attended no fewer than 25 cases under supervision satisfactory to the board of examiners, proof of having attended a course of approved lectures, written and oral examination.
	Chapter: <i>Midwifery, 1800-1920: the journey to registration</i> (Nuttall, 2012)	UK	Regulated and trained professionals.
	Notes: <i>Notes on lying-in institutions and a scheme for training midwives</i> (Nightingale, 1871)	UK	A midwife is a woman who has received such training, scientific and practical, in order to undertake all cases of parturition, intelligent, educated, trained, skilful, proficient in all aspects of obstetrics, who would consult with physicians only when necessary.
1900	Chapter: <i>Midwifery, 1800-1920: the journey to registration</i> (Nuttall, 2012)	UK	Good character, academic knowledge.
	Midwifery Act (1902)	England, Wales	Good character, equipment, clothing, standards of hygiene, continued education during professional practice.  Responsible for cleanliness and hygiene of the place of childbirth, securing the comfort of the woman, proper nutrition for the mother and child, cheerfulness, sympathy, empathy, high moral qualities, woman's satisfaction, effect upon the health of the nation, non-midwifery duties (domestic cleaning, sluicing of soiled linen, clerical work), technological midwife of the 1970s (assistant of the doctor, machine minder, technological handmaiden).
	Book: <i>Midwives in history and society</i> (Towler and Bramall, 1986)	UK	

**Table 1. Timeline of the selected key references (continued)**

Source	Country	Themes – good midwife
Book: <i>The midwife's tale. An oral history from handywoman to professional midwife</i> (Leap and Hunter, 1993)	UK	Pillar of society, autonomy, professionalism, good clinical and practical skills, ability to cope with emergencies, hard workers, accessible at all times (no off-duty time), affection, passion, totally dedicated to her vocation.
Report: <i>The Working Party on Midwives</i> (1948)	UK	Time, skill, attitude of mind.
Report: <i>The Central Midwives Board report</i> (1955)	UK	Academic knowledge, psychological aspects, good and friendly midwife-woman relationship.
Book: <i>Delivered at home</i> (Allison, 1996)	UK	Dedicated to her calling, sense of her own worth, individual practitioners, duty to the public, accountable, sense of high professional status, high visibility in the community, respectable, informed choice, individualised midwifery care, woman-centred care, support, continuity of care, responsibilities and limits, independence, holistic midwife, flexibility, practical experience, professional identity, importance of research.
Book: <i>Mayes' handbook for midwives and maternity nurses</i> (Thomas, 1959)	UK	Autonomy in conducting normal labour and in recognising abnormalities or complications of labour, showing loyalty to the medical profession, their co-workers and public bodies.
Paper: <i>The future role of the midwife</i> (Department of Health and Social Security, 1976)	UK	Extension of the midwife's role, emotional and psychological support in addition to physical care, team-working.
Paper: <i>Ethnography of technological competence in clinical midwifery practice</i> (Crozier et al, 2007)	Northern Ireland	Skills in using the machines, decision-making and traditional midwifery skills.
Paper: <i>Practice: a battlefield where the natural versus the technological</i> (Sinclair, 2009)	Northern Ireland	Specialist skills in technology and natural birth.
2006-2013 Paper: <i>What makes a good midwife? An integrative review of methodologically-diverse research</i> (Nicholls and Webb, 2006)	UK	Communication skills, individualised midwife-woman relationship, theoretical knowledge, practical skills, professional competencies.
Paper: <i>'She sort of shines': midwives' accounts of 'good' midwifery and 'good' leadership</i> (Byrom and Downe, 2010)	UK	Skilled competence, emotional intelligence, support, midwife-woman relationship, theoretical knowledge, practical skills, personal qualities, professional competencies, moral values.
Paper: <i>Establishing perceptions of a good midwife: a Delphi study</i> (Nicholls et al, 2011)	UK	Lifelong learning, woman-centred care, communication skills, clinical skills, professional competencies, personal qualities, moral values.
Paper: <i>The primacy of the good midwife in midwifery services: an evolving theory of professionalism in midwifery</i> (Halldorsdottir and Karlsdottir, 2011)	Ireland	Professionalism, individualised midwife-woman relationship, support, theoretical knowledge, practical skills, communication skills, personal qualities, professional competencies, moral values.

*The midwife of the 18th century: midwifery practice, superstition and male obstetricians*

The 18th century was a central period in the history of midwifery, during which scientific ideas brought into being new ways of seeing. However, superstition continued to play an important role. Referring to the good midwife of that period, King (2012: 118) recognises the importance of knowing her limitations and refers to Chapman's words: 'The best midwives commonly send for advice upon the appearance of danger.' Furthermore, Dr Harvey identified the following characteristics of a midwife: good reputation, professional success, knowledge, charity, patience, tender compassion, manifestation of their worth among women, giving women cause to love, honour and esteem them (Mayes, 1930). Conversely, experience was not seen as a guarantee of a midwife's competence (King, 2012).

The Swiss neonatologist Rueff wrote a practical handbook on midwifery in 1554, *De conceptu et generatione hominis*, that became the required reading for the midwives of Zurich. In 1637, an English translation was published with the title *The expert midwife*. This book is recognised as a record of superstition and magic associated with childbearing events of the period. However, since it was in Latin, it appears more likely to have been written for learned men of the period, rather than female midwives. The midwife was regarded as a wise woman (in France, the midwife was considered a 'sage femme' in the same period) and she was supposed to have a wonderful knowledge of herbs, livestock and charms, as much of her time was spent in preparing pills and potions with which to assist the labouring woman. In addition to this, she received many privileges, to give an example, she had free access to gardens, fields and livestock (Mayes, 1930). The belief that midwives were commonly persecuted as witches is widespread in the history of witchcraft and the history of medicine (Harley, 1990). At that time, some clergymen exercised a tight control upon midwifery practice, giving their approval to midwives that were licensed to practise by bishops. Midwives had to swear to practise faithfully and diligently, helping poor as well as rich women and to not use any kind of incantation. Midwives were also allowed to practise baptism in case of imminent death (Rueff, 1637).

Gélis (1991) stated that the French midwife of the 18th century was expected to be skilful and very punctilious in her affairs, coming without delay when she was called. The midwife must have no other commitments and preferably no young children that would have reduced her availability. The author presented the image of the good midwife as an old mother of a large family who had become a poor woman living on public charity. The confidence inspired by the midwife was vital and a good midwife was reassuring and put people in their ease. She knew how to make the right gestures and she said words of comfort and encouragement which labouring women found helpful. The midwife was expected to have the physical build necessary for the work: she had to be 'strong, sturdy, nimble, graceful, with no bodily defects and with long supple hands'. The spiritual or moral side was no less important: she should be 'virtuous, discreet, prudent, of good conduct and regular habits, zealous, mild

and charitable' (Gélis, 1991: 105).

By the end of the 18th century, the superiority of the male specialist was accepted everywhere in Europe. After that period, the midwife was often pictured as careless, meddlesome, dirty and stupid (Kloosterman, 1984). Dr Harvey, a medical man of that period, argued that midwives were nature's servants, denouncing the meddlesome midwifery of his time: 'A midwife's duty in a natural birth is no more but to attend and wait on nature, giving woman and child necessary conveniences, having gentle proceedings with moderate warm keeping and having their endeavours dulcified with sweet words will best ease and relieve and soonest deliver their labouring women' (Mayes, 1930: 164). Paraphrasing the obstetrician's words, midwives are invited to do only the 'easy' work of midwifery, leaving the hard stuff to the doctors. However, it might also be interpreted more positively as describing the midwifery skills of 'masterful inactivity'. The rise of male obstetricians caused some tensions, both in terms of how practice occurred and who was the best between midwives and obstetricians. Midwives were heavily criticised by many medical men who had their professional project to pursue (Donnison, 1988).

*The good midwife of the 19th century: complementarity of scientific knowledge and practical skills*

The London Obstetrical Society, a body of medical men interested in obstetrics founded in 1858, introduced an examination with the issuing of a diploma for midwives, with the explicit aim of improving their professional status. The first examination was held in 1872 but the diploma, although conferring a distinction, gave no legal title to practise and was in no way officially recognised. The qualifications for the examination were as follows: 'Certification of moral character, age not under 21 or over 30, proof of having attended no fewer than 25 cases under supervision satisfactory to the board of examiners, proof of having attended a course of approved lectures, written and oral examination' (Mayes, 1930: 166). This was the first recognition of the importance of theoretical and practical training and the dropping of superstition of previous centuries. The reflection that might arise is whether introducing a midwifery examination could be considered as a way to regulate and control dubious practitioners and the quality of midwifery practice, instead of improving midwives' conditions. In 1869 the London Obstetrical Society undertook a survey among doctors about midwives and their practice in the UK. A very variable picture was outlined by respondents: 'Among the poor population of villages a large proportion, varying from 30% to 90%, is attended by midwives.' Regarding training, few doctors believed their local midwives had had any instruction, referring to their ignorance and incompetence. Furthermore, some respondents argue about an inequality between midwives and obstetricians in coping with emergencies (Nuttall, 2012).

Despite the possibility of training, most midwives of the period still had no professional education and no diploma. Most old and untrained midwives continued to work as they

had always done (Mayes, 1930). Van Lieburg and Marland (2004) argue that, in the Netherlands as elsewhere, some women practised midwifery unsupervised and without any formal education throughout the 19th century, but not necessarily without informal preparation or inexperience. The low social status of midwives often isolated them from the possibility of being officially trained (van Lieburg and Marland, 2004).

Florence Nightingale (1871) emphasised the complementarity of scientific knowledge and practical skills. However, she had a particular point of view, not necessarily widely shared. She was anxious to raise the standard of the midwife and her practice, writing her definition of midwife in *Notes on lying-in institutions and a scheme for training midwives* (1871): 'A midwife is a woman who has received such training, scientific and practical, in order to undertake all cases of parturition.' Florence Nightingale envisaged midwifery practice as continuing in the hands of 'intelligent, educated, trained and skilful women, proficient in all aspects of obstetrics, who would consult with physicians only when necessary' (Towler and Bramall, 1986: 158).

Scientific knowledge and importance of training for being considered a good midwife were later encouraged and supported by the Midwives Institute (UK), founded in 1881 with the aim of improving the status of the midwife and proposing her legal recognition. The work of the Institute included lectures for midwives and various social activities, watching over the interests and progress of midwives. It possessed a good library and a rest-room with plenty of periodicals and also issued *The nursing notes and midwives chronicle*, a monthly journal with articles of interest and importance (Mayes, 1930), providing the means for professional communication throughout the country. Rosalind Paget was part of the small group of well-educated, middle-class women who provided the driving force behind the development of the institute. Her role was extremely important both at a professional level and regarding political strategies because of her determination in supporting the development and training of midwives (Hannam, 1997). However, it might be argued that the institute served a minority of middle-class career midwives who were not representative of most midwives. The push for professional legitimacy seems to be aligned with acquiring scientific knowledge and technical skills, with the consequent apparent marginalisation of interpersonal or character attributes.

The end of the 19th century signposted the 'transition from local community-based women, who mainly learnt their craft via apprenticeship and whose skills were of variable quality, to regulated and trained professionals, whose practice was tightly defined and monitored' (Nuttall, 2012: 143).

#### *The legal recognition and regulation of midwifery*

It might be argued that the midwife of the 19th century was seen as a pillar of society, having an effect upon the health of the nation (Leap and Hunter, 1993). However, the legal recognition and regulation of midwifery can be observed only from the beginning of the 20th century in the greatest

part of industrialised countries, with the aim to secure the better training of midwives and to regulate their practice.

The Midwives Act will be taken in consideration as an example of professional regulation, although most midwives up until Second World War might have little idea of themselves as professionals. With the emanation of the Midwives Act (1902) in England and Wales, great attention was given to education and training, registration and certification, supervision and control of midwifery practice. Certain women that already possessed a recognised qualification in midwifery were automatically admitted to the 'roll of qualified midwives' under the Act; also, women of good character who had already practised as a midwife for at least one year could apply for admission (bona fides midwives) (Nuttall, 2012). Legislation laid down several aspects of midwifery practice and rules concerning equipment, clothing and standards of hygiene considered essential for midwifery practice.

Towler and Bramall (1986) affirmed that the midwife of the 20th century should be responsible for cleanliness and hygiene of the place of childbirth and for giving full directions in securing the comfort of the woman. In addition to this, proper nutrition for the mother and child should be addressed by the caregiver. The question is whether the regulation of midwifery practice has truly recognised midwives' characteristics of responsibility and autonomy, or has it been a strategic expedient to keep the profession under control? It might be argued that there has always been a tension between professional regulation and boundary setting.

#### *Being a good midwife in the UK prior to the NHS*

After state recognition of the midwife at the beginning of the 20th century, the purpose of training was primarily to improve basic knowledge and practical skills, requiring that midwives should be intelligent and thoroughly trained. From time immemorial, however, it has been acknowledged that the importance of the midwife to such a major life event as birth far transcended the mere fundamental physical task of performing a safe delivery. Towler and Bramall (1986) argued that the midwife has always been required to possess attributes of cheerfulness, sympathy, and empathy in addition to high moral qualities. Such qualities might potentially make a significant contribution to the women's satisfaction of their childbearing experience, with both the short- and long-term future of mothers and their babies, which in turn would have its effect upon the health of the nation. During the Second World War midwifery was seen as a form of national service and midwifery-led homes were set up in rural areas, far away from bombarded cities. Despite the challenge of working during wartime, midwives described 'enjoying many aspects of their work in this period, particularly their increased autonomy' (Hunter, 2012: 156).

In the pre-NHS UK of the first half of the 20th century, the midwife was considered a practitioner in her own right who demonstrated the art of midwifery, exemplified by her professionalism, good clinical and practical skills with the ability to cope with emergencies (Allison, 1996; Gélis, 1991;

Leap and Hunter, 1993). In oral history accounts, midwives describe they had no off-duty time, were hard workers and had to be accessible at all times: midwives were called to a birth by a knock at their door and, in the daytime when they were out for postnatal visits, they would leave information on a slate outside the front door. Usual form of transport was either by bicycle or foot until the 1950s and, although the work was demanding and not easy to organise in the days before cars and telephones, midwives describe it with affection, humour and passion. Some midwives formed close relationships with other midwives with whom they lived and shared their working and domestic lives. It was an era in which midwives were expected to be totally dedicated to their vocation as a pillar of society (Leap and Hunter, 1993). In addition, many non-midwifery duties were undertaken by midwives, such as domestic cleaning, sluicing of soiled linen and clerical work (Towler and Bramall, 1986). In the Midwives Act of 1936 the first post-basic education for midwives was provided, demonstrating the importance of continued education during professional practice.

Leap and Hunter (1993: 143) argue that 'in both home and hospital settings, birth was essentially natural' and the use of painkillers or medical intervention was avoided. However, the natural birth of pre-NHS days was far from the actual idea of natural childbirth. There is very little evidence of childbearing women's experiences of those times. Leap and Hunter (1993) collected some women's voices in their book, arguing that birth was often seen as a tremendously painful event. Furthermore, there were no expectations about having an emotionally fulfilling experience. A woman remembers giving birth to her first baby in Belfast in 1918: 'You weren't allowed to walk around. I was walking around and the doctor came like and "Oh, get into bed, get into bed." You weren't allowed to have a baby like you'd want to have it. [...] they made you lie on the old iron bed. They bossed you around' (Leap and Hunter, 1993: 144). This demonstrates how the childbearing event was often 'very much managed by midwives and obstetricians and the woman was delivered of her baby by the birth attendant, whose job was to organise everything and tell the woman exactly what to do' (Leap and Hunter, 1993: 143).

#### *Midwives of UK's NHS*

UK's NHS came into being in 1948. In those years the Working Party on Midwives (1948) stated that the midwife's three assets of time, skill and attitude of mind were of immense value to the woman, recognising the unique service given by domiciliary midwives. The Central Midwives Board (CMB) defined the academic knowledge required for midwifery practice (Nuttall, 2012). The CMB report (1955) affirmed that the psychological aspects of the midwife's function were as important as the provision of physical care, stating that the importance of a good and friendly relationship between the mother and the midwife was vital to the subsequent and long-term relationship between the mother and her child. This foretells later research related to the influence that the midwife-woman relationship might have on labour outcomes and woman's satisfaction (Berg

et al, 1996; Guilliland and Pairman, 1995; Hildingsson and Häggström, 1999; Tinkler and Quinney, 1998; Tumblin and Simkin, 2001).

Furthermore, the CMB (1955) emphasised the significance of the midwives' presence in the foundation of a good maternity service.

Allison (1996) investigated activities and characteristics of district midwives in the UK during the 24 years following the implementation of the UK's NHS. In that period, midwives mostly still made their visits on a bicycle and wore distinctive uniforms imposed by local authorities. District midwives were usually single and childless, dedicated to their calling, sacrificing their own chance of family life for caring for mothers and babies.

Nevertheless, Allison (1996) observed that married women were always a substantial part of the district midwifery workforce, arguing that it may be that the greater number of unmarried midwives in the early part of the study had more to do with the death of young men in the war than the self-sacrifice of women to midwifery as a vocation deemed incompatible with family life. From interviews with 10 retired district midwives, it is clear that they had a sense of their own worth; they saw themselves as individual practitioners, recognising that they had a duty to the public and were accountable to their supervisor. They gave examples of why they had this sense of high professional status. This was related to their high visibility in the community, the welcome they received in family homes, the kindness shown towards them by families, the fact that they were asked to be godparents many times, were recognised by families as 'our midwife' and the respect that obstetricians showed towards them (Allison, 1996). In a midwifery textbook of the time, Thomas (1959) recorded that midwives were entirely autonomous in conducting normal labour and in recognising abnormalities or complications of labour, showing loyalty to the medical profession, their co-workers and public bodies (Thomas, 1959).

The particular organisation of maternal services of the 1950s highlights the importance for a good midwife of having both personal qualities and professional skills, an idea that can be found also in contemporary literature (Halldorsdottir and Karlsdottir, 2011; Nicholls et al, 2011; Byrom and Downe, 2010; Nicholls and Webb, 2006).

#### *Technological midwives of the 1970s and re-assessment of the midwife's role*

The role of the midwife in the 1970s must be seen against a background of technological advances and increasing medical intervention. The childbirth revolution that took place in those years profoundly changed the clinical role of the midwife. Births in the UK began to take place in hospitals, at the expense of home births. Despite significant improvements in maternal and infant mortality, childbirth was increasingly seen as 'a risky process requiring scientific control and management by obstetricians' (Hunter, 2012: 152). A midwife who trained during this period was conditioned to see her role as that of an assistant of the doctor, a machine minder or a technological handmaiden

(Towler and Bramall, 1986). Sinclair (2009: 39) argues that 'the role of the midwife in the modern labour ward demands specialist skills in technology. Midwives need to be highly competent in the use of induction technologies required to support women in natural childbirth. These skills need to be clearly identified and appropriately addressed through curriculum development'. Crozier et al (2007) undertook an ethnographic observation on the use of birth technologies. They suggest that confusion surrounding the use of technology should be addressed in both clinical practice and midwifery education. Furthermore, midwives should be educated to value traditional midwifery skills alongside those of machine skills. They argue that the development of a model about the appropriate use of technology is needed in midwifery.

In the 1970s the Department of Health and Social Security produced a paper about the changing role of the midwife, entitled *The future role of the midwife* (1976). It highlighted certain aspects of care and viewed them as an extension of the midwife's role within the following duties: pregnancy testing, contraceptive devices, advice and counselling in family planning, abortion and sex education. Emotional and psychological support, increasingly needed during technological childbirth, was emphasised in addition to physical care. Health education and parentcraft teaching were to become a specific part of the midwife's role. The hospital midwife was described as part of the obstetric team and the community midwife became part of the primary healthcare team.

This political document revealed the difference between the hospital-based midwife, subject to obstetric authority, and the traditional community midwife, who was an autonomous professional practitioner trained to be able to provide antenatal, intrapartum and postnatal care on her own responsibility in normal cases.

The following ideas, linked to the concept of providing good midwifery practice, gained ground in the 1980s: informed choice, individualised midwifery care, woman-centred care, support, continuity of care, responsibilities and limits, independence, holistic midwife, flexibility, practical experience, professional identity, importance of research (Allison, 1996). The 1980s probably slowly set down the basis for the new direction for midwifery care that found fuller expression in the 1990s with the reform of the maternity services in the UK (Department of Health, 1993) and the related re-organisation of maternal facilities.

## Discussion

The idea of a good midwife changed from the ancient midwife of second century AD to the 16th century's midwife; from the midwives practising at the time of the first Midwives Act to those at the institution of the NHS. The concept of being a good midwife evolved from the importance of possessing physical attributes, nobility of character and knowledge of herbs, to more contemporary notions including: importance of training, use of technology, woman-centred care, continuity of care, informed choice, holistic practice and midwifery autonomy. It might be argued that the idea of

a good midwife inevitably evolved in parallel within the social, cultural, economic, political and historical contexts. However, this historical overview of the concept of a good midwife reveals common themes that have recurred over time. A connection between the past and present is apparent regarding what constitutes a good midwife in the ongoing focus on competencies and qualities required of a midwife.

The idea of the good midwife in the past sometimes appears to place greater emphasis on personal characteristics over theoretical knowledge, professional skills and practical experience (Leap and Hunter, 1993; Gélis, 1991; Aveling, 1967; Mayes, 1930). Concepts found in contemporary literature (for example, communication skills and emotional intelligence) to some extent mirror these (Nicholls et al, 2011; Byrom and Downe, 2010; Nicholls and Webb, 2006). Other original requirements for midwives of the past are linked to the spiritual side that can be found until pre-NHS period: the good midwife should be virtuous, discreet, prudent, of good conduct and regular habits, zealous, mild and charitable, with religious convictions (Gélis, 1991; Leap and Hunter, 1993). It can be easily noted how the spirituality of a midwife in the past was strictly linked to religious convictions. In recent years, Hall (2001) reconsidered the notion of spirituality in a new light: the modern concept is related to ideas of listening skills, enabling midwifery, connecting relationships, understanding, self-development, intuition and caring approach.

The importance of theoretical knowledge and professional skills came later in the history of midwifery practice, from the beginning of the 19th century (King, 2012; Nuttall, 2012). From the 20th century onwards, authors acknowledge that a good midwife should give importance to communication skills and personal qualities in combination with these professional competencies. The question is whether the midwife-woman relationship has always been one of the cornerstones of good midwifery care. According to the first books on midwifery practice of second century AD, the answer seems to be affirmative. In fact, Soranus of Ephesus highlighted the importance of being a 'suitable person' and with a 'sympathetic disposition' in the relationship with the woman (translated by Temkin, 1956: 1.1.3).

## Conclusion

This paper outlines some historical considerations of a good midwife, which reveal common themes that have reoccurred over time. A connection between the past and present is apparent regarding what constitutes a good midwife in the ongoing focus on competencies and qualities required of a midwife. It is fascinating to observe how competing priorities of a good midwife are still relevant today. An example is the constant tension between personal qualities and professional competencies of midwives. Is there any 'bridge' that could link these characteristics? And what is the central thread of midwifery practice? The answers to these questions are open to debate. Professionals are encouraged to reflect on future challenges in providing good-quality midwifery practice through the recognition of the fundamental characteristics of a good midwife.

## References

- Allison J. (1996) *Delivered at home*. Chapman and Hall: London.
- Aveling JH. (1967) *English midwives: their history and prospects*. Hugh K Elliot: London.
- Berg M, Lundgren I, Hermansson E, Wahlberg V. (1996) Women's experience of the encounter with the midwife during childbirth. *Midwifery* 12: 11-5.
- Byrom S, Downe S. (2010) 'She sort of shines': midwives' accounts of 'good' midwifery and 'good' leadership. *Midwifery* 26: 126-37.
- Central Midwives Board. (1955) *Suggestions and instructions regarding the conduct of the course of training of pupil-midwives*. Central Midwives Board: London.
- Crozier KE, Sinclair M, Kernohan G, Porter J. (2007) Ethnography of technological competence in clinical midwifery practice. *Evidence Based Midwifery* 5(2): 59-65.
- Department of Health and Social Security. (1976) *The future role of the midwife*. HMSO: London.
- Donnison J. (1988) *Midwives and medical men: a history of the struggle for the control of childbirth*. Historical publications: London.
- Gélis J. (1991) *History of childbirth: fertility, pregnancy and birth in early modern Europe*. Polity Press: Oxford.
- Guilliland K, Pairman S. (1995) The midwifery partnership: a model for practice. *New Zealand College of Midwives Journal* 16: 5-9.
- Hall J. (2001) *Midwifery, mind and spirit*. Books for Midwives: Oxford.
- Halldorsdottir S, Karlsdottir SI. (2011) The primacy of the good midwife in midwifery services: an evolving theory of professionalism in midwifery. *Scandinavian Journal of Caring Sciences* 25(4): 806-17.
- Hannam J. (1997) *Rosalind Paget. The midwife, the women's movement and reform before 1914*: In: Marland H, Rafferty AM. *Midwives, society and childbirth. debates and controversies in the modern period*. Routledge: London.
- Harley D. (1990) Historians as demonologists: the myth of the midwife-witch. *Social History of Medicine* 3(1): 1-26.
- Hildingsson I, Häggström T. (1999) Midwives' lived experiences of being supportive to prospective mothers/parents during pregnancy. *Midwifery* 15(2): 82-91.
- Hunter B. (2012) *Midwifery, 1920-2000*: In: Borsay A, Hunter B. *Nursing and midwifery in Britain*. Palgrave Macmillan: Basingstoke.
- King H. (2012) *Midwifery, 1700-1800: The man-midwife as competitor*: In: Borsay A, Hunter B. *Nursing and midwifery in Britain*. Palgrave Macmillan: Basingstoke.
- Kloosterman MD. (1984) Why midwifery? *Birth Gazette* 2(2).
- Leap N, Hunter B. (1993) *The midwife's tale. An oral history from handywoman to professional midwife*. Scarlett Press: London.
- Marwick A. (1970) *The new nature of history*. Palgrave Macmillan: Basingstoke.
- Mayes M. (1930) *An introduction to midwifery. Elementary anatomy, physiology and antenatal hygiene*. Faber and Faber: London.
- Nicholls L, Skirton H, Webb C. (2011) Establishing perceptions of a good midwife: a Delphi study. *British Journal of Midwifery* 19(4): 230-6.
- Nicholls L, Webb C. (2006) What makes a good midwife? An integrative review of methodologically-diverse research. *Journal of Advanced Nursing* 56(4): 414-29.
- Nightingale F. (1871) *Introductory notes on lying-in institutions together with a proposal for organizing an institution for training midwives and midwifery nurses*. Longmans: London.
- Nuttall A. (2012) *Midwifery, 1800-1920: the journey to registration*: In: Borsay A, Hunter B. *Nursing and midwifery in Britain*. Palgrave Macmillan: Basingstoke.
- Parliament. (1902) *The midwives act 1902*. HMSO: London.
- Rueff J. (1637) *The expert midwife*. Burton: London.
- Sinclair M. (2009) Practice: a battlefield where the natural versus the technological. *Evidence Based Midwifery* 7(2): 39.
- Tempkin O. (1956) *Soranus' gynaecology*. The John Hopkins Press: Baltimore.
- Thomas FD. (1959) *Mayes' handbook for midwives and maternity nurses*. Bailliere, Tindall and Cox: London.
- Tinkler A, Quinney D. (1998) Team midwifery: the influence of the midwife-woman relationship on women's experiences and perceptions of maternity care. *Journal of Advanced Nursing* 28(1): 30-5.
- Towler J, Bramall J. (1986) *Midwives in history and society*. Croom Helm: Beckenham.
- Tumblin A, Simkin P. (2001) Pregnant women's perceptions of their nurse's role during labour and delivery. *Birth* 28(1): 52-6.
- van Lieburg MJ, Marland H. (2004) *Midwifery regulation, education and practice in the Netherlands during the 19th century*: In: van Teijlingen E, Lewis G, McCaffery P, Porter M. (Eds.). *Midwifery and the medicalisation of childbirth: comparative perspectives*. Nova Science Publishers: New York.
- The Working Party on Midwives. (1948) The Working Party on Midwives. *Public Health* 62: 113-4.

# The physical effect of exercise in pregnancy on pre-eclampsia, gestational diabetes, birthweight and type of delivery: a structured review of the literature

Andrée Dignon<sup>1</sup> PhD, M.Phil, BSc. Amanda Reddington<sup>2</sup> RN.

1 Senior lecturer, Department of Nursing and Health Studies, Faculty of Health and Life Sciences, Coventry University, Coventry CV1 5FB UK England. Email: hsx155@coventry.ac.uk

2 Community development health team leader, Nuneaton and Bedworth Healthy Living Network, St Nicholas Park Clinic, Nuneaton CV11 6HH England. Email: amanda.reddington@warwickshire.nhs.uk

---

## Abstract

**Background.** Previous research suggests that the risk of developing some of the more common complications in pregnancy, such as hypertension, gestational diabetes, low birthweight and complicated labour, may be lowered by regular physical activity. This review examined research into the effects of physical activity on health in pregnancy, with particular reference to these areas.

**Aims.** The aim of this literature review was to investigate the association between physical exercise in pregnancy and the development of hypertensive disorders, gestational diabetes, birthweight and types of delivery. This review hypothesised that modifiable behaviour – physical activity – may reduce the risk of these conditions.

**Method.** The method deployed in this paper was that of a structured review of the literature, selected through a systematic search of the Medline, CINAHL and SPORTDiscus databases.

**Findings.** The findings indicate that physical activity in pregnancy may be associated with lower risk of pre-eclampsia, gestational diabetes, very low birthweight and caesarean birth.

**Implications.** Physical activity has positive effects on physical health in pregnancy. Inactive women should be encouraged to take up exercise, while women who exercised in pre-pregnancy should be encouraged to continue.

**Key words:** Pregnancy, health, physical activity, exercise, evidence-based midwifery

## Introduction

Pre-eclampsia and gestational hypertension are high blood pressure conditions presenting from the 20th week of gestation during pregnancy (NICE, 2010a). Hypertensive disorders in pregnancy are prime causes of maternal and perinatal morbidity and mortality across the world, caused by the defect in the formation or arrangement of the placenta in early pregnancy (Khan et al, 2006). Pre-eclampsia describes hypertension where there is a concentration of protein in the urine greater than 300mg (Saftlas et al, 2004).

These conditions are potential complications that can occur in pregnancy. A further potential complication is gestational diabetes. A total of 7% of American women are affected by gestational diabetes each year and have a 30% to 84% chance of developing the condition in future pregnancies (Dabelea et al, 2005). Also, children born to mothers with gestational diabetes may be at greater risk of obesity and diabetes themselves (Pettitt et al, 1993).

At the moment of birth certain outcomes are preferred to others: natural vaginal births are preferred to caesarean sections (CS), as they lower the risk of bowel dysfunction; infection; excess blood loss; longer recovery time; and extended hospital stay (Villar et al, 2006). As well as avoiding the necessity of a CS, it is also highly preferable to avoid pre-term delivery (Olesen et al, 2003). Leiferman and Evenson (2003) identified that 17% of birth outcomes were pre-term births (less than 37 weeks' gestation), which may result in lower birthweight babies.

Research suggests that exercise during pregnancy may be

beneficial in the above four areas (Hegaard et al, 2007; Hu and Manson, 2003; Artal and Sherman, 1999; Sternfeld et al, 1995; Mittlemark et al, 1991). Clearly there are other areas in which exercise can also be beneficial (Siega-Riz et al 2006), but these four areas form the focus of this review.

## Background

### *Patterns of physical exercise*

Patterns of physical exercise indicate that most pregnant women (Evensen et al, 2004) fail to take exercise according to recommended guidelines (for example: ACSM, 2012; ACOG, 2011; RCOG, 2006). These women frequently report barriers to taking exercise, such as tiredness, sickness, work, lack of time and facilities (Weir et al, 2010; Halksworth, 1993; Wells, 1991). Physical activity thus appears to decline – or even cease – during pregnancy (Borodulin et al, 2009), but NICE guidelines (2008) recommend that women who exercised regularly before pregnancy should be encouraged to continue for as long as they feel comfortable and for as long as the type of exercise is suitable.

### *Guidelines and safety issues*

Established guidelines suggest a mixture of moderate-intensity aerobic and muscle-strengthening activity during pregnancy (NICE, 2010b). Women should also be clearly informed that physical activity and moderate exercise is safe (ACSM, 2012). From the 16th week of pregnancy, however, it is not advisable to exercise while lying on one's back as the vena cava can become compressed by the baby

causing light-headedness and possible fainting (RCOG, 2004). In addition the hormone relaxin increases during pregnancy causing increased laxity of ligaments, which can lead to tissue and skeletal injury (Dumas and Reid, 1997; Kramer, 2000). However Clapp's aerobic study (2000) showed no evidence of any increased injury due to increased susceptibility at this time. Nevertheless, contact sports where there is a likelihood of being hit, a risk of injury to the abdomen or a potential fall, are not advisable (NICE, 2008).

### *Benefits*

Exercise can improve common pregnancy symptoms. Vaughan (1951), for example, identified that sedentary women prolonged their confinement after giving birth, in comparison to active pregnant women, due to experiencing difficult childbirths. Numerous other studies, including Rice and Forte (1991), have shown aerobic exercise to be beneficial to pregnant women without compromising fetal growth or development or hindering the progression of pregnancy, labour or delivery outcomes.

### *Rationale for the review*

Our review investigates whether exercise reduces the risk of: pre-eclampsia; gestational diabetes; CS; and low birthweight. The rationale for this review was to identify whether exercise was beneficial in each of these areas in light of some previous conflicting findings, particularly with reference to pre-eclampsia (Vollebregt, 2010; Sorensen et al, 2003). The authors established the effectiveness of exercise by referring to studies with the largest samples, and, where conflicting findings were present, by referring to several studies to establish the 'majority verdict'.

### **Method**

---

#### *Aims and objectives*

A search strategy was carried out to identify primary research articles relevant to the question posed (Gash, 1989). From this initial retrieval, sub-headings such as 'labour' and 'physiological complications' were selected to identify specific articles including those subject words. The method adopted was that of a systematic search of three databases: CINAHL, Medline and SPORTDiscus. The first two databases were accessed as they contain the largest pool of articles related to midwifery, nursing and medicine. The database SPORTDiscus was also accessed as it contains references to studies in the area of sport and sports medicine, in particular studies which describe the benefits of exercise. The search terms entered into the above databases included 'pregnancy', 'pregnant women', 'female', 'physical exercise', 'physical activity', 'fitness', 'labour' and 'physiological complications'. These terms were combined using the Boolean operator 'AND' to ensure any articles retrieved would contain the above terms. The following inclusion criteria were specified: studies of women aged 16 to 49; studies in the English language; studies conducted between the years 2000 to 2012.

This search was performed on two occasions, firstly

by AR, then six months later by AD (to achieve search triangulation). In addition, the reference lists of the articles retrieved were read to identify further papers. AR's search using the above strategy uncovered 24 articles. These articles were read and those with comparatively small sample sizes (as well as studies making no mention of ethical approval, or of the four conditions which formed the focus of this review) were discarded. This left four articles of relevance to the study. The subsequent search (by AD) retrieved a further two articles of relevance, making six articles in total.

### *The process of the review*

The review took the form of identifying papers from a series of studies retrieved that addressed the four areas in which we were interested. We specifically selected studies with large sample sizes (see Table 1). The review consisted of appraising the methodology in each study and assessing whether these studies demonstrated that exercise in pregnancy was beneficial.

### **Analysis**

---

All of the studies retrieved were cohort studies. In a cohort study, outcomes for one group of patients 'exposed' to a condition – for example a group of pregnant women 'exposed' to physical activity – are compared to a similar group not exposed – those not undertaking physical activity. We analysed six cohort studies by consulting the Critical Appraisal Skills Programme (CASP) framework (2011). CASP suggests applying a range of questions when appraising cohort studies, including the questions:

- Did the authors use an appropriate method to answer their question?
- Was the exposure accurately measured to minimise bias?
- Have the authors identified all of the important confounding factors?

Six articles were analysed (by asking the above questions) in order to present critical findings from each study. Benefits of physical exercise were analysed in terms of hypertension in late pregnancy, gestational diabetes, type of delivery and birthweight.

### *Findings*

All six investigations reviewed were prospective cohort studies and used quantitative methods. The studies were of survey design, using a pre-validated questionnaire. The first study, conducted by Vollebregt et al (2010), aimed to analyse the association between leisure time physical activities in early pregnancy and the effect this had on hypertension later on in pregnancy. Postal questionnaires were sent to a large sample of nulliparous women from diverse backgrounds. Data were captured through a self-reporting questionnaire, while medical and birth data were obtained through an obstetric register.

Two groups were identified from the sample, one being a non-exercising group of women (n=1956) and the other being the exercising group (n=1645). The authors defined exercise as including: walking, cycling and playing sports, and classified the women's participation in these

**Table 1. Papers selected for the review**

Author	Year	Title of paper	Publication	Country	Design	Sample	Outcome
Vollebregt et al	2010	Does physical activity in leisure time early in pregnancy reduce the incidence of pre-eclampsia or gestational hypertension	<i>Acta Obstetrica et Gynecologica</i> 89(2): 261-7	Holland	Cohort study	3679	Physical activity does not reduce the risk of pre-eclampsia
Liu Et al	2008	Does physical activity during pregnancy reduce the risk of gestational diabetes among previously inactive women?	<i>Birth</i> 35(3): 188-95	US	Cohort study	4813	Physically active women had a 57% lower risk of gestational diabetes
Saftlas et al	2004	Work, leisure time physical activity and risk of pre-eclampsia and gestational hypertension	<i>AM J Epidemiol</i> 160(8): 758-65	US	Cohort study	2538	Physical activity may reduce pre-eclampsia risk
Leiferman, Evenson	2003	The effect of regular leisure physical activity on birth outcomes	<i>Maternal and Child Health Journal</i> 7(1): 59-64	US	Cohort study	9089	Inactive women more likely to give birth to a low birthweight baby
Sorensen et al	2003	Recreational physical activity during pregnancy and risk of pre-eclampsia	<i>Hypertension</i> 41: 1273-80	US	Cohort study	584	35% reduced risk of pre-eclampsia among physically active women
Bungum et al	2000	Exercise during pregnancy and type of delivery in nulliparae	<i>Journal of Obstetric, Gynaecologic and Neonatal Nursing</i> 29(3): 258-64.	US	Cohort study	137	Sedentary women 2.05 times more likely than active women to deliver via caesarean

activities as either ‘low’, ‘moderate’ or ‘high’. Women in the exercising group undertook one or more of these activities at a moderate or a high level. Both groups had their medical records accessed to eliminate any pre-existing medical conditions, such as diabetes. Levels of exercise duration, intensity and frequency were measured through self-reporting. Vollebregt et al’s findings showed that leisure-time physical activity (LTPA) in early pregnancy did not reduce gestational hypertension (based on duration or intensity of exercise).

While Vollebregt et al (2010) found no association between physical activity and gestational hypertension, an earlier study by Saftlas et al (2004) produced different results. Saftlas et al’s investigation is the second study appraised in this review. These scholars assessed the effect of physical activity on gestational hypertension and pre-eclampsia. ‘Few studies of pre-eclampsia’, they say, ‘have assessed physical activity level yet recent evidence suggests that the pathologic mechanisms in pre-eclampsia are similar to those in cardiovascular disease in which physical activity is shown to be protective’ (2004: 758). In view of this, Saftlas et al investigated the effects of physical activity in leisure time among nulliparous and multiparous women, (44 with pre-eclampsia and 172 with gestational hypertension). The sample was recruited (from 2967 referrals to obstetric practices), and each participant was administered a one-hour face-to-face interview before

the 16th week of pregnancy, where information on LTPA and on elevated blood pressure was recorded. Further information on pregnancy-related high blood pressure was obtained from medical notes. Maternal age at delivery, cigarette smoking, body mass index and years of education were also recorded as confounding variables. Participants were asked whether they performed any physical exercise or sport – along with type and frequency of exercise – at least once a week in the year before their pregnancy.

While the study found no association between physical activity and hypertension, it observed a marked effect of physical activity in relation to pre-eclampsia. The study found that those participants who were active before pregnancy and engaged in weekly exercise during pregnancy had a 41% reduced risk of pre-eclampsia. However, this was not statistically significant.

The third study appraised in this review was conducted by Sorenson et al in 2003. Like Saftlas et al, this study examined recreational physical activity and its association with pre-eclampsia risk. A total of 201 women with pre-eclampsia were recruited as the study group along with 383 normal controls. The study administered a structured questionnaire investigating leisure time physical activity both during and before the woman’s pregnancy. These activities included light activities such as gardening and golf, at one end of the scale, and, at the other end, intense activities such as swimming laps and aerobic dancing.

Women supplied data concerning 'the type, intensity, frequency and duration of physical activity' during the first 20 weeks of pregnancy and during the year before.

A systematic method encompassing the calorific energy expenditure associated with the activity was used to classify the exercise taken and to divide women into active and non-active groups. The social demographic profiles of participants, along with their medical history, were also examined (as potential confounding variables). The study found that women who took part in any recreational physical activity in their first 20 weeks of pregnancy were at a 34% reduced risk for pre-eclampsia, compared to women who did not (OR 0.66 95% CI 0.47 to 0.94). Even when confounding variables, such as age and smoking, were taken into account, this difference remained constant.

Although there were limitations in Sorensen et al's study, for example, the response rate among controls was higher than that for the pre-eclampsia group – 80% versus 50%, their findings, nevertheless, provide a useful indication of the possible benefits of exercise in reducing pre-eclampsia risk. Also, one of the study's limitations, that of relying on self-reports of physical activity, was minimised through the use of standardised questions and a highly skilled interviewer.

In relation to hypertensive disorders, such as pre-eclampsia, therefore, it appears that physical activity may help reduce risk. This review, however, also examines the effect of exercise on other pregnancy complications, such as gestational diabetes. The fourth study appraised in this review was conducted by Liu et al (2008). This study examined whether physical activity during pregnancy reduced the risk of gestational diabetes among previously inactive women. National Maternal and Infant Health Survey data (Sanderson et al, 1988) and postal and telephone surveys were used, which recruited a large sample of 9953 sedentary women (nulliparous and multiparous). The overall results of Liu et al's study implied that women who started exercise during pregnancy had a 57% lower risk of developing gestational diabetes, compared with non-active women. Those who exercised at a higher level than the average had an even lower risk (67%).

As well as investigating the effect of physical activity on gestational diabetes, this review also examines the effect of such activity on type of delivery (vaginal versus CS). The fifth study appraised in this review was conducted by Bungum et al (2000) to identify the association of aerobic exercise during the first two trimesters of pregnancy with type of delivery in nulliparous women.

The sample (n=137) was recruited from antenatal education classes. While participation in such classes may have influenced participants' behaviour, and thus created bias, such error was minimal since the researchers were not involved with the classes and attended only one to recruit participants. Group allocation was identified by self-reporting the number of times women engaged in at least 20 minutes of exercise each week, while a checklist was used to note the type of exercise they engaged in. The active

group was comprised of women who had exercised for at least 20 minutes a session, in excess of twice a week, while women who did not meet this criterion were identified as the inactive group.

A written survey was mailed two weeks prior to delivery. A total of 28% of the non-active women had CS births compared to 16% of the active group. As the authors explain: 'The unadjusted odds ratio indicated that the risk of CS delivery was 2.05 times greater among sedentary than among active women' (Bungum et al, 2000: 261). After applying logistic regression (using the data from the surveys), the study found inactive women were four and a half times more at risk of CS deliveries. However, there were no significant differences between the groups regarding length of labour, birthweight or maternal weight gain. There were also no significant differences regarding labour intervention, such as forceps. The data thus indicated that non-active women were twice at risk of CS births than those women who were active: 'The odds of a CS delivery were 4.48 (95% CI=1.2-16.2; p=.023) times greater among sedentary mothers than among active mothers' (Bungum et al, 2000: 261).

The final study reviewed in our report was conducted by Leiferman and Evenson in 2003. As well as examining the effect of physical activity on type of delivery, the authors also examined its effect on birth outcomes in relation to birthweight. Leiferman and Evenson investigated birth outcomes among 9089 women (74% response rate from 13,417 women mailed a questionnaire – all but live singleton births excluded). Medical data were captured through systematic sampling of the national maternal and infant survey and post-birth self-response questionnaires, both of which had achieved an exceptional response rate (74%). Four 'exposure groups' were formulated, depending on how physically fit the women were. Each group had the same measurement methods applied, consisting of two questions: 'Did you exercise or play sports at least three times a week before you found you were pregnant?' and 'Did you exercise or play sports at least three times a week after you found you were pregnant?'. Women answering 'yes' to both questions were identified as 'conditioned exercisers', while those affirming only the first were deemed 'conditioned non-exercisers'. Significantly, the results showed 'unfit' women, who were sedentary prior to pregnancy, and fit non-exercising groups, women who exercised pre-pregnancy but stopped during pregnancy, gave birth to very low birthweight babies (16.7% and 18.1%, respectively, compared to 10.6% for fit exercisers and 11.1% for unfit exercisers).

Notably, women who exercised prior to pregnancy and stopped during pregnancy doubled their risk of giving birth to babies of low weight (with an odds ratio of 2.05, 95% CI 1.69-2.48). In conclusion, women who did not exercise in pregnancy were at a higher risk of giving birth to very low birthweight or low birthweight babies. Physical exercise in pre-pregnancy and during pregnancy should therefore be actively promoted to benefit birth outcomes.

## Discussion

The overall findings in this review indicate that the risk of developing certain conditions in pregnancy among previously sedentary women can be reduced by exercising. For example, women who exercise during their first two trimesters have a greater likelihood of giving birth naturally and in relation to pre-eclampsia, time appears to be of benefit. In addition, such women appear to be more likely to avoid gestational diabetes. Therefore women who continually exercise prior to pregnancy through to delivery have the greatest health benefit. If the promotion of physical exercise could reduce the incidence of pre-eclampsia, then the first half of pregnancy is likely to be the most effective period, especially for first-time mothers. A further cohort study may help to assess the potential effectiveness of such a programme.

Our study extends the findings of previous studies (in relation to pre-eclampsia) by identifying controversy and comparing conflicting findings. Vollebregt et al (2010), for example, found no relation between pre-eclampsia and physical activity, but other studies such as Saftlas et al (2004) and Sorensen et al (2003) do observe such an association. The majority of research in this area would thus appear to show that physical activity lowers the risk of pre-eclampsia and this concurs with findings (Marcoux et al, 1989) from early research. Further research in this area, using an RCT design, is clearly needed, but for now we contend that exercise may be beneficial in reducing pre-eclampsia risk.

Similarly, exercise during pregnancy has also been shown to reduce the risk of gestational diabetes among previously inactive women. This can be further enhanced if exercise continues longer than the first trimester while leading an inactive lifestyle during pregnancy can raise the risk of gestational diabetes (Liu et al, 2008). A limitation of Liu et al's study was that the study analysed survey data from 20 years previously when the prevalence of gestational diabetes was half its current level. However, Liu et al confirm that there is no biological evidence to suggest that the association between gestational diabetes and physical activity in the present population is any different to previous ones. Liu et al also suggest that women starting to exercise during pregnancy were at significantly lower risk (57%) of developing gestational diabetes. These findings correlate with Alcazar et al's theory (2007) that exercising muscles on a regular basis replenishes glycogen stores and increases glucose protein in muscles, which assists the reduction of insulin secretion by the pancreas and decreases the liver's glucose production. It would appear from Liu et al's study that taking up exercise in pregnancy does seem to reduce the risk of developing gestational diabetes and the risk may be lowered further if exercise continues after the first trimester. Conversely, leading a sedentary lifestyle during pregnancy raises the risk gestational diabetes (Dempsey et al, 2004).

As well as in the area of gestational diabetes, physical activity may also be beneficial to the type of delivery. Our review has highlighted that women who exercise for 20 minutes a day, three times a week during the first two trimesters of pregnancy are more likely to have a natural

vaginal birth (Bungum et al, 2000). In support of Bungum et al's study, numerous other prospective studies, including that of Hall and Kaufmann (1987), have observed that more women who exercised in pregnancy had vaginal birth outcomes compared with less active women. Also, exercise may have an effect in relation to birthweight. The relationship between physical exercise and birthweight observed by Leiferman and Evenson (2003) seems to suggest that women who do not exercise during pregnancy are more at risk of giving birth to low birthweight babies, while exercise does not have any negative effect on the timeliness of delivery. These findings suggest exercise in pregnancy enables mothers to better manage the rigours of childbirth and confirms that women who exercised prior to pregnancy should be encouraged to continue, while those inactive could be motivated to begin exercising through the promotion of the importance of exercising to achieve positive labour and birth outcomes (subject to medical or obstetric complications).

Solely providing information, however, may not be enough to persuade women to take exercise as barriers, such as financial and time constraints, lack of facilities and transport, may exist. This may be especially so for lower income women, given the additional financial, housing, occupational and psychological pressures that many such women face (Graham, 1984). These pressures may prevent them from taking control of their lives and organising a programme of exercise, making health promotion advice in this area hard to follow. Nevertheless, the provision of such advice is a starting point and promoting the benefits of exercise would be valuable to pregnant women. However, if the professional's knowledge is limited as to whether exercise is beneficial during pregnancy, then a significant health promotion opportunity with regard to the wellbeing of pregnant women may be lost.

The results from this review suggest that physical exercise can improve physical health outcomes in pregnancy. The common theme in this review is that exercise needs to start during the first trimester – if not pre-pregnancy – to gain the greatest benefit. Promoting physical exercise during the first half of pregnancy appears to be highly beneficial, especially to first time-mothers.

### *Strengths and weaknesses*

The strengths of the papers in this review are that they showed validity with significant response rates in each study generating large sample sizes. Also the studies created 'exposure groups' to highlight comparable findings. In addition, studies used valid measures and subjects were followed up through their pregnancy until after the birth of their child. Areas where the papers showed weaknesses were in the limited recording of the intensity, duration and, in some cases, the frequency of physical activity, which may have influenced the robustness of the review. In addition, the main method used in these studies was self-reporting and this can distort the findings. However, one study reviewed (Vollebregt et al, 2010) captured information in early pregnancy to minimise such errors, while another

(Sorensen et al, 2003) addressed this bias by using a trained interviewer to administer study questions.

The authors acknowledge the major limitation of this review was that no meta-analysis was performed of the statistics in each individual study. In a future review it would be desirable to address this limitation. Regardless of its limitations, the current paper has significant strengths. It identifies very important findings, in particular that women who exercised prior to pregnancy should be encouraged to continue, while those inactive could be motivated to start. By undertaking physical activity, such women may be able to limit the onset of gestational diabetes and pre-eclampsia, give birth to healthy weight babies and increase their chances of a natural birth. Therefore, women who exercise prior to pregnancy through to delivery have the greatest health benefit.

## Conclusion

This paper set out to identify the association between physical activity and four of the more common complications

in pregnancy: pre-eclampsia, gestational diabetes, type of delivery and low birthweight. On reviewing pre-eclampsia, gestational diabetes, type of delivery and birthweight, all have been shown to improve when exercise is taken. Physical exercise has thus been shown to have positive effects on physical health in pregnancy. Women already exercising should be encouraged to remain active at the same level for as long as it is comfortable. Nonetheless, all pregnant women should take individual medical advice to offset any possible adverse complications.

Informing women of the benefits of physical exercise could facilitate informed decision-making regarding exercise in pregnancy. Such information provision alone may not be enough to change behaviour as many barriers to taking exercise, such as lack of time, money, facilities and transport, may remain, especially for lower income women. Although information provision is not always sufficient to change behaviour, it is a step in the right direction and providing such information, while attempting to address other barriers to physical activity, must remain a priority.

## References

- Alcazar O, Ho RC, Goodyear LJ. (2007) *Physical activity, fitness, and diabetes mellitus*: In: Bouchard C, Blair SN, Haskell WL. (Eds.). *Physical activity and health*. Human Kinetics: Champaign, Illinois: 191-204.
- American College of Sports Medicine. (2012) *Exercise during pregnancy: current comment*. See: [acsm.org/docs/current-comments/exerciseduringpregnancy.pdf](http://acsm.org/docs/current-comments/exerciseduringpregnancy.pdf) (accessed 15 May 2013).
- American Congress of Obstetricians and Gynaecologists. (2011) *Exercise during pregnancy*. American Congress of Obstetricians and Gynaecologists: Washington.
- Artal R, Sherman C. (1999) Exercise during pregnancy: safe and beneficial for most. *The Physician and Sports Medicine* 27(8): 51-75.
- Borodulin K, Evenson KR, Herring AH. (2009) Physical activity patterns during pregnancy through postpartum. *BMC Women's Health* 9: 32.
- Bungum TJ, Ches PH, Peasless DL, Jackson AW, Perez MA. (2000) Exercise during pregnancy and type of delivery in nulliparae. *Journal of Obstetric, Gynaecologic and Neonatal Nursing* 29(3): 258-64.
- Clapp JF. (2000) Exercise during pregnancy: a clinical update. *Clinics in Sports Medicine* 19(2): 273-86.
- Critical Appraisal Skills Programme. (2011) *12 questions to help you make sense of cohort study*. See: [casp-uk.net/wp-content/uploads/2011/11/CASP\\_Cohort\\_Appraisal\\_Checklist\\_14oct10.pdf](http://casp-uk.net/wp-content/uploads/2011/11/CASP_Cohort_Appraisal_Checklist_14oct10.pdf) (accessed 15 May 2013).
- Dabelea D, Snell-Bergeon JK, Hartsfield CL, Bischoff KJ, Hamman RF, McDuffie RS, Kaiser Permanente of Colorado GDM Screening Program. (2005) Increasing prevalence of gestational diabetes mellitus (GDM) over time and by birth cohort: Kaiser Permanente of Colorado GDM Screening Program. *Diabetes Care* 28(3): 579-84.
- Dempsey JC, Sorensen TK, Williams MA, Lee IM, Miller RS, Dashow EE, Luthy DA. (2004) Prospective study of gestational diabetes mellitus risk in relation to maternal recreational physical activity before and during pregnancy. *American Journal of Epidemiology* 159(7): 663-70.
- Dumas GA, Reid JG. (1997) Laxity of knee cruciate ligaments during pregnancy. *Journal of Orthopaedic and Sports Physical Therapy* 26(1): 2-6.
- Evenson KR, Savitz DA, Huston SL. (2004) Leisure-time physical activity among pregnant women in the US. *Paediatric and perinatal epidemiology*, 18(6): 400-407.
- Gash S. (1989) *Effective literature searching for research*. Gower: Aldershot.
- Gilmartin A, Ural SH, Repke JT. (2008) Gestational diabetes mellitus. *Reviews in Obstetrics and Gynecology* 1(3): 129-34.
- Graham H. (1984) *Women, health and the family*. Wheatsheaf: Brighton.
- Halksworth G. (1993) *Exercise in pregnancy*: In: Alexander J, Levy V, Roch S. (Eds.). *Midwifery practice: a research-based approach*. Macmillan Press: Oxford: 3.
- Hall DC, Kaufmann DA. (1987) Effects of aerobic and strength conditioning on pregnancy outcomes. *American Journal of Obstetrics and Gynaecology* 157(5): 1199-203.
- Hegaard H, Pedersen BK, Nielsen BB, Damm P. (2007) Leisure time physical activity during pregnancy and impact on gestational diabetes mellitus, pre-eclampsia, preterm delivery and birthweight: a review. *Acta Obstetrica et Gynecologica Scandinavica* 86(11): 1290-6.
- Hu FB, Manson JE. (2003) Walking: the best medicine for diabetes? *Archives of Internal Medicine* 163(12): 1397-8.
- Khan KS, Wojdyla D, Say L, Gülmezoglu AM, van Look PF. (2006) WHO analysis of causes of maternal death: a systematic review. *Lancet* 367(9516): 1066-74.
- Kramer MS. (2000) Regular aerobic exercise during pregnancy. *Cochrane Database Syst Rev* 2: CD000180.
- Leiferman JA, Evenson KR. (2003) The effect of regular leisure physical activity on birth outcomes. *Maternal and Child Health Journal* 7(1): 59-64.
- Liu J, James N, Laditka DA, Mayer-Davis EJ, Pate RR. (2008) Does physical activity during pregnancy reduce the risk of gestational diabetes among previously inactive women? *Birth* 35(3): 188-95.
- Marcoux S, Brisson J, Fabia J. (1989) The effect of leisure time physical activity on the risk of pre-eclampsia and gestational hypertension. *Journal of Epidemiology and Community Health* 43(2): 147-52.
- Meher S, Duley L. (2006) Exercise or other physical activity for preventing

## References continued

- pre-eclampsia and its complications. *Cochrane Database Syst Rev* 2: CD005942.
- Mittlemark RA, Wiswell RA, Drinkwater BL. (1991) *Exercise in pregnancy (second edition)*. Williams and Wilkins: Baltimore.
- NICE. (2010a) *Hypertension in pregnancy: the management of hypertensive disorders during pregnancy*. See: nice.org.uk/nicemedia/live/13098/50418/50418.pdf (accessed 15 May 2013).
- NICE. (2010b) *Weight management before, during and after pregnancy*. See: nice.org.uk/nicemedia/live/13056/49926/49926.pdf (accessed 15 May 2013).
- NICE. (2008) *Antenatal care: routine care for the healthy pregnant woman*. See: nice.org.uk/nicemedia/pdf/CG062NICEguideline.pdf (accessed 15 May 2013).
- Olesen AW, Westergaard JG, Olsen J. (2003) Perinatal and maternal complications related to post-term delivery: a national register-based study 1978-1993. *American Journal of Obstetrics and Gynecology* 189(1): 222-7.
- Pettitt DJ, Nelson RG, Saad MF. (1993) Diabetes and obesity in the offspring of Pima Indian women with diabetes during pregnancy. *Diabetes Care* 16(1): 310-4.
- Rice PL, Fort IL. (1991) The relationship of maternal exercise on labour, delivery and health of the newborn. *Journal of Sports Medicine and Physical Fitness* 31(1): 95-9.
- RCOG. (2006) *Exercise in pregnancy (RCOG statement 4)*. See: rcog.org.uk/womens-health/clinical-guidance/exercise-pregnancy (accessed 15 May 2013).
- Saftlas AF, Logsdon-Sackett N, Wang W. (2004) Work, leisure time physical activity and risk of pre-eclampsia and gestational hypertension. *American Journal of Epidemiology* 160(8): 758-65.
- Sanderson M, Scott C, Gonzalez JF. (1988) *National maternal and infant health survey: methods and response characteristics*. National Center for Health Statistics: Maryland.
- Sibai BM. (1998) Prevention of pre-eclampsia: a big disappointment. *American Journal of Obstetrics and Gynecology* 178(5): 1275-8.
- Siega-Riz AM, Siega-Riz AM, Laraia B. (2006) The implications of maternal overweight and obesity on the course of pregnancy and birth outcomes. *Maternal and Child Health Journal* 10(Suppl 1): 153-6.
- Sorensen TK, Williams MA, Lee IM, Dashow EE, Thompson ML, Luthy DA. (2003) Recreational physical activity during pregnancy and risk of pre-eclampsia. *Hypertension* 41: 1273-80.
- Sternfeld B, Quesenberry CP Jr, Eskenazi B, Newman LA. (1995) Exercise during pregnancy and pregnancy outcome. *Medicine and Science in Sports and Exercise* 27(5): 634-40.
- Vaughan K. (1951) *Exercise before childbirth*. Faber and Faber: London.
- Villar J, Valladares E, Wojdyla D, Zavaleta N, Carroli G, Velazco A, Shah A, Campodónico L, Bataglia V, Faundes A, Langer A, Narváez A, Donner A, Romero M, Reynoso S, de Pádua KS, Giordano D, Kublickas M, Acosta A, WHO 2005 global survey on maternal and perinatal health research group. (2006) Caesarean delivery rates and pregnancy outcomes: the 2005 WHO global survey on maternal and perinatal health in Latin America. *Lancet* 367(9525): 1819-29.
- Vollebregt KC, Wolf H, Boer K, van der Wal MF, Vrijkotte TG, Bonsel GJ. (2010) Does physical activity in leisure time early in pregnancy reduce the incidence of pre-eclampsia or gestational hypertension? *Acta Obstetrica et Gynecologica* 89(2): 261-7.
- Weir Z, Bush J, Robson SC, McParlin C, Rankin J, Bell R. (2010) Physical activity in pregnancy: a qualitative study of the beliefs of overweight and obese pregnant women. *BMC Pregnancy and Childbirth* 10: 18.
- Wells CL. (1991) *Women, sport and performance: a physiological perspective (second edition)*. Human Kinetics: Champaign, Illinois.

# Dignity in maternity care

Sharon Morad<sup>1</sup> BA, MBCbB, MRCOG. William Parry-Smith<sup>2</sup> MBBS, BSc. Wilf McSherry<sup>3</sup> PhD, MPhil, BSc, PGCE (FE), PGCRM, RGN, NT, FHEA, FRCN.

1 Specialist registrar obstetrics and gynaecology, Postgraduate School of Obstetrics and Gynaecology, Birmingham Women's Hospital, Edgbaston, Birmingham B15 2TG England. Email: smorad@doctors.org.uk

2 Specialist registrar obstetrics and gynaecology, Postgraduate School of Obstetrics and Gynaecology, Birmingham Women's Hospital, Edgbaston, Birmingham B15 2TG England. Email: wps@doctors.org.uk

3 Professor in dignity of care for older people, School of Nursing and Midwifery, Faculty of Health Sciences, Staffordshire University, Blackheath Lane, Stafford, ST18 0AD England. Email: wilf.mcsherry@staffs.ac.uk

The authors would like to thank Joy Oxenham, patient experience midwife, who collected complaints and carried out detailed analysis into complaints about 'communication', Steven Yates, librarian, who performed the literature search and J Richie and C Price, Foundation Year 1 doctors in gynaecology, who helped review the literature.

## Abstract

**Background.** Dignity in care is an area of huge public interest, however, little work has been undertaken in UK maternity care. **Method.** The authors analysed two years of complaints in their department (n= 170). Complaints were mapped against the dignity domains in use in the trust's 'Care with Dignity Indicator Tool'. Results were compared with themes identified through a literature review.

**Findings.** The following threats to dignity were identified: fear, pain, intimate examinations, over-medicalisation, form-filling and shift changes. Dignity was maintained when women are treated as individuals and allowed their desired level of control.

**Implications.** Maintenance of dignity required women to have a relationship based on trust in their healthcare provider and was strongly associated with honouring requests for pain relief.

**Key words:** Dignity, care, respect, gynaecology, obstetric, 'dignity tool', maternity, evidence-based midwifery

## Introduction

In recent years, there has been a major Department of Health initiative to promote dignity of care within the NHS. All people have objective dignity in that simply by virtue of being human they are worthy of honour or respect. In this paper the focus is on subjective dignity, how individuals regard themselves and how they are regarded by others (Clark, 2010). Seeing someone as an individual and as a 'whole person' is a means of conferring dignity (Magill-Cuerden, 2007). Other key elements of dignity include having equal worth, inclusion, control and autonomy, acknowledgement of competencies, and being given physical, emotional and spiritual comfort (RCN, 2008). Ultimately, maintaining dignity is about relationships between people. It is 'not a science, but relies on understanding, empathy and compassion' (Clark, 2010). To date, much of the research around dignity in care has focused on the elderly, and though dignity and respect are often referred to within commentaries in midwifery and obstetrics, relatively few studies have been carried out within maternity settings.

## Methodology

In response to this national concern, the authors' NHS trust began to strongly emphasise issues around dignity including the development of tools to assist each department in auditing their own performance. This trust serves a largely rural population encompassing two large towns. Maternity services consist of a large consultant-led delivery suite for high-risk pregnancies and seven satellite midwifery-led birth centres, which care for approximately 5000 births per year. Two obstetric specialty registrars worked with the professor in dignity of care for older people and the midwifery lead responsible for responding to concerns about client satisfaction to examine complaints submitted to Women's

Services at the NHS trust for the years 2009 to 2010. A total of 170 complaints were submitted in that time period (85 in each year). These complaints were mapped against the dignity domains in use in the trust's 'Care with Dignity Indicator Tool'. The tool was developed by the Care with Dignity Steering Group after a review of existing dignity measures (Department of Health, 2009; Social Care Institute for Excellence, 2006) and the domains were adapted from the work of Magee et al (2008). The results of the analysis were compared with themes identified in a literature review.

BNI, CINAHL, Medline, TRIP Database, Cochrane Library, Scirus, and Google were searched for the years 2001 to 2011 using the terms: 'dignity', 'care', 'respect', 'gynaecology', 'obstetric' and their derivatives. Additional papers were identified if already known to one of the authors, or if cited in another paper. There is a body of literature relating to maternity care and childbirth and to women's positive experiences of care, particularly in midwifery journals, which could certainly complement this investigation into dignity, however, for the purpose of this paper, the focus is only on literature where dignity was a key theme. Four independent reviewers critically analysed each paper and identified key themes. A total of 30 relevant papers were identified, of which three were qualitative research studies (Lyberg and Severinsson, 2010; Matthews and Callister, 2004; Widang et al, 2008). The remainder were editorials, commentary, and critical reflection by service providers or users. Almost all dealt exclusively with obstetrics.

## Results

As seen in Table 1, the highest levels of complaints in the involved communication and pain. Surprisingly few reflected a violation of autonomy. Autonomy and communication are interrelated in that a person cannot act autonomously

**Table 1. Complaints mapped to dignity domains**

Privacy and dignity domain and subgroup	Number of complaints		
	2009	2010	Total
<b>Autonomy</b>			
Involvement in decision-making	0	0	0
Freedom to complain	0	0	0
Personal property	1	0	1
<b>Communication</b>			
Listening	8	3	11
Courtesy	12	19	31
Address	0	0	0
Sensitivity	2	10	12
<b>Further analysis of complaints relating to communication</b>	Doctor	Midwife/ Nurse	Other
Failure to consider or listen to patient's view	8	15	1
Lack of responsiveness to the need for physical help and support	0	10	2
Lack of compassion, empathy and emotional support	3	12	2
Intimidation, abusive or rude language or behaviour	3	8	2
Total	14	45	7
<b>Pain</b>			
Appropriate and timely relief	6	5	11
Staff acknowledging pain	0	1	1
Avoidance of practices that may cause pain	0	2	2
<b>Personal hygiene</b>			
Timely and sensitive assistance	1	0	1
Choice with type and level of support	0	0	0
Clean and suitable facilities	1	0	1
<b>Privacy</b>			
Afforded privacy when using wash/toilet facilities	0	1	1
Privacy maintained when examined, treated or discussing needs	0	0	0
Permission sought for another person to be present	0	0	0
<b>Safety</b>			
Hand-washing	0	0	0
Tidiness	0	0	0
Noise	0	1	1
Environment	0	0	0
<b>Eating and drinking</b>			
	0	0	0
<b>Social inclusion</b>			
	0	0	0
<b>End of life care</b>			
	0	0	0

if they do not have the relevant information for their self-regulation. The fact that a lack of autonomy is not detected in the complaints registered implies that there is a need to measure women's autonomy in a more effective way. Complaints very often involved more than one member of staff and multiple aspects of communication. Due to the strong clustering of complaints around communication, these complaints were analysed in greater detail using sub-divisions currently in use only within the Women's Services department and were also grouped by type of staff member. The greatest numbers of complaints involved members of the midwifery and nursing staff, though this may reflect the significantly larger numbers of these staff and the greater number of interactions with women.

The second highest category of complaints was in the area of pain management, particularly appropriate and timely pain relief. One possible reason for this is that at that time the consultant-led delivery suite shared their anaesthetist with the intensive care unit (ICU). If the anaesthetist was busy in the ICU, this could lead to delays in siting of epidurals. These results certainly suggest that a more detailed review of the provision of pain relief would be helpful for the department.

When compared with the literature, the complaints did not reveal any previously unrecognised themes, however, it was found that many of the themes discussed in the literature were not flagged up in the complaints. A summary of important themes from the literature is given in the discussion below.

**Discussion**

*Why is dignity at risk in maternity settings?*

In many cultures, pregnant women are undervalued because of their age and gender (Zeidenstein, 2007), and it is assumed that the women themselves are somehow to blame if there are complications (Pelling, 2009). Traditional practices and values around childbirth are often treated with contempt or simply ignored (Pelling, 2009). Technical interventions alone do not improve outcomes since if women are not treated with respect, many will not access services (Zeidenstein, 2007; Hart, 1999).

Even where discrimination against women is lower and maternity outcomes are generally good, fear is a common experience in pregnancy and labour. This may include fear of pain, fear for the unborn child or a sense of 'being trapped' with no alternatives. This fear can be exacerbated by traumatic memories, concerns about professional competence, or lack of inclusion in decision-making (Lyberg and Severinsson, 2010).

Intimate examinations invade privacy and cause mental distress in addition to physical pain. Many vaginal examinations are unnecessary and they are often performed in a manner that demonstrates the power of the caregiver over the woman (Warren, 1999). Professionals who deal with a large number of emotionally charged situations will employ a variety of psychological defences in order to preserve their own identity (Meyer, 2010). Due to the 'constant tension between recognising the other and asserting the self' (Aranda and Jones, 2010), professionals distance themselves from clients in a variety of different ways. Over-medicalising labours, excessive use of technology (Weston, 2005; Gaskin, 2004), failure to involve women directly in decision-making (Lyberg

and Severinsson, 2010), and neglecting to make and maintain eye contact during conversation or examination (Warren, 1999) may all be employed as self-protection when faced with difficult decisions or a woman distressed and in pain. The end result diminishes a woman's individuality, thereby compromising her dignity. The use of guidelines, which are designed to help disseminate best practice, can potentially compromise dignity, as women may easily be treated simply as a member of a category to whom a set of recommendations apply, rather than as an individual.

#### *How can dignity be maintained in maternity settings?*

**By the woman:** The woman herself has great influence in preserving her own dignity. Maintaining a sense of self includes having control of the private sphere and setting appropriate boundaries. Retaining ownership of pregnancy, childbirth and postnatal care are also means of maintaining dignity (Widang et al, 2008). Women who are treated with respect and dignity in most areas of their life may find it easier to preserve their dignity in the alien hospital environment. However, women who routinely face disrespect and discrimination may require greater support in maintaining their dignity (RCOG, 2011).

**Woman in relationship with the healthcare team:** Maintenance of dignity requires a woman to have a relationship of trust with her healthcare team. Her value and worth are reaffirmed by recognising the special nature of her birth experience and importance of a woman's role within it (Matthews and Callister, 2004). In qualitative studies of birth experiences, women describe several key themes which they perceive as enhancing their dignity.

**Maintaining identity:** Women feel most valued and respected when they are treated as an individual, a person and not an object (Widang et al, 2008). One woman described her relationship with her doctor in the following manner: 'I always felt that he cared for me as an individual and not just a patient, like the millions of other patients that he sees every day' (Matthews and Callister, 2004). Many women emphasise the importance of human contact (for example, being spoken to face-to-face) (Weston, 2005) and not being exposed – physically (for example, maintaining modesty) or emotionally (such as protecting privacy of thoughts and emotions) (Widang et al, 2008).

**Decision-making:** A commonly expressed concern was the level of involvement and control experienced by women during their pregnancies and labours. Professionals who were helpful in maintaining dignity were described as providing 'guidance' and 'supervision' (Lyberg and Severinsson, 2010) in a process of 'shared decision-making' (Matthews and Callister, 2004). Women varied widely in the level of control in which they wanted to exert, but all wished to be invited to participate in decisions (Matthews and Callister, 2004). Good preparation, particularly better understanding of the 'body in labour', was associated with a better ability to interact with professionals with dignity (Warren, 1999). With shared decision-making, the caregiver and the woman will not always have identical views of the most appropriate choice. However, these differences do not have to result in

loss of dignity. Even choices, which appear illogical to the caregiver may be respected when a clinician respects 'the right to choose, but not necessarily the actual choice which we may deplore' (Friend, 1995).

**Confidence:** Professionals who treat women with politeness and consideration are quicker to establish relationships of trust (RCN, 2008). The competence of midwives and nurses is further enhanced in the eyes of women by honouring requests for pain medication, working to achieve physical comfort for women in labour, encouraging words and attitudes (Doran, 2010). Women are more likely to feel respected when they trust the knowledge and skills of their caregivers, and when they see that information is kept confidential. As discussed above, women maintain boundaries when interacting with others in order to preserve the integrity of their own personhood. These boundaries are moved, depending on the needs of the woman and the nature of the relationships she has formed. When others cross these boundaries, women may feel that their dignity has been violated. When a professional is trusted, it is possible for women to change the boundaries of integrity as required without losing dignity (Widang et al, 2008).

#### *Woman within 'the system'*

'Social injustice results from withholding some form of recognition or valuing, be it cultural or material' (Aranda and Jones, 2010) and many aspects of our healthcare structures do not demonstrate value for individual women or caregivers (Doran, 2010). In many NHS trusts 'dignity in care runs counter-culture to current practices' (Meyer, 2010).

**Physical environment:** Clearly, many aspects of the physical environment impact on a woman's experience, which are not discussed in detail here. The ward and outpatient environment should be designed in such a way that conversations and caring procedures can take place in privacy (Widang et al, 2008). Dignity is only enhanced through relationships of respect, but these relationships are weakened by a strong emphasis on form-filling (Meyer et al, 2010) and, more recently, on computerised forms where the caregiver may be faced away from the woman as attention is directed toward the monitor instead of toward the woman. Creative ways of using forms and computers need to be devised in order to enhance participation and make even these routine tasks a shared experience where women feel that they are valued as individuals.

**Interpersonal relationships within the team:** Women find it easier to maintain dignity in an environment where people around them treat one another with respect (Matthews and Callister, 2004). Respectful communication is 'safe, balanced and non-intimidating' (Veltman and Larison, 2010) and in such an environment women have more freedom to participate without fear. Effective communication between team members in making plans or seeking advice demonstrates that each individual woman is worthy of attention and care (Matthews and Callister, 2004) and empowers the staff to provide better care. It is unreasonable to 'expect staff to give compassionate care if they do not feel respected and supported by the organisations in which they work' (Meyer, 2010).

**Training:** This emphasis on dignity should be taught from early on in training and continued through a professional's career (Aranda and Jones, 2010). Different examples of enhancing awareness of dignity have been explored – for example, peer pelvic exams (Zeidenstein, 2007) have been used to teach midwifery students ways in which these intimate examinations can objectify women. Critical reflective practices can help professionals facing women of widely differing cultures and personalities not to disregard traditions, but try to integrate them with modern practice (Branagan, 2006) thus demonstrating respect for these women.

**Management and organisational structures:** The *Changing Childbirth* report (Department of Health, 1993) focused on increasing women's choice; however, it mostly referred to affluent, educated able-bodied women (Hart, 1999). Informed and articulate women are better placed to interact with healthcare professionals to obtain the care they want and need. However, women who do not fit these criteria may well be excluded (RCOG, 2011). All women are entitled to be treated with dignity, even if they are unaware of the concept (Clark, 2010). The greatest challenge in maternity services is upholding the dignity of women who may be treated with little respect in most areas of their life (Hart, 1999). Organisational culture and structure often inhibits this work (Aranda and Jones, 2010). When women do not perceive services to be responsive to their needs or wishes, they may resort to a variety of techniques to get what they want, including avoidance and confrontation (Weston, 2005).

## Conclusion

It is clear that dignity recognises inter-dependency (Aranda and Jones, 2010) and is contingent upon respectful, trusting relationships between women and their caregivers (Lyberg and Severinsson, 2010). Many complaints result from a breakdown in this relationship (RCN, 2008) and most departments that wish to improve the dignity of care already look at feedback they have received in the form of complaints. The authors would advocate mapping complaints against fundamental aspects of dignity in order to look for clusters that could represent problem areas within the department and enable a targeted response. The Care with Dignity Indicator Tool in use within the trust reflects the emphasis on dignity in care, which focuses largely on the needs of elderly clients. There is clearly a lack of qualitative studies exploring issues of dignity within obstetrics and gynaecology, and further research in this area would be most welcome. However, using the themes identified above, the trust Care with Dignity Indicator Tool can clearly be modified to better reflect the threats to dignity that are unique to the authors' department. Lack of complaints does not always mean good quality, and reliance on complaints alone will potentially miss many important areas where dignity is at threat. Preservation of dignity requires a multidisciplinary approach and involvement of all members of staff. There is a challenge awaiting midwives and obstetricians to create a maternity-specific dignity indicator tool. Such a tool will be a useful means of soliciting user feedback, thus enabling regular service assessment resulting in positive changes in practice.

## References

- Aranda K, Jones A. (2010) Dignity in health care: a critical exploration using feminism and theories of recognition. *Nursing Inquiry* 17(3): 248-56.
- Branagan L. (2006) Birthing with dignity: a tool for working with traditional Indian Dais. *Midwifery Today* 78: 62-3.
- Clark J. (2010) Defining the concept of dignity and developing a model to promote its use in practice. *Nursing Times* 106: 16-9.
- Department of Health. (2009) *Dignity map*. See: [dignityincare.org.uk/Resources/Useful\\_resources\\_for\\_Dignity\\_Champions/Dignity\\_Map/](http://dignityincare.org.uk/Resources/Useful_resources_for_Dignity_Champions/Dignity_Map/) (accessed 3 May 2013).
- Department of Health. (1993) *Changing childbirth: the report of the Expert Maternity Group*. HMSO: London.
- Doran L. (2010) It's a question of respect. *World of Irish Nursing & Midwifery* 18(4): 5.
- Friend J. (1995) Respect for women's choice. *Maternal & Child Health* 20: 202-6.
- Gaskin IM. (2004) Teaching respect for hands-on care. *Midwifery Today* 70: 9-10.
- Hart A. (1999) The RESPECT project: what do midwives need to learn about inequalities in health? *MIDIRS Midwifery Digest* 9(2): 246-8.
- Lyberg A, Severinsson E. (2010) Fear of childbirth: mothers' experiences of team midwifery care: a follow-up study. *J Nursing Management* 18(4): 383-90.
- Magee H, Parsons S, Askham J. (2008) *Measuring dignity in care for older people*. Picker Institute Europe for Help the Aged: London.
- Magill-Cuerden J. (2007) Showing respect for women: another skill for midwives. *British Journal of Midwifery* 15(3): 126.
- Matthews R, Callister L. (2004) Childbearing women's perceptions of nursing care that promotes dignity. *Journal of Obstetric, Gynecologic and Neonatal Nursing* 33(4): 498-507.
- Meyer J. (2010) Promoting dignity, respect and compassionate care. *J Research in Nursing* 15(1): 69-73.
- Pelling J. (2009) Lessons in respect. *Midwives* 12: 32-3.
- RCN. (2008) *Defending dignity – challenges and opportunities for nursing*. See: [rcn.org.uk/\\_data/assets/pdf\\_file/0011/166655/003257.pdf](http://rcn.org.uk/_data/assets/pdf_file/0011/166655/003257.pdf) (accessed 3 May 2013).
- RCOG. (2011) *High quality women's health care: a proposal for change*. RCOG Press: London.
- Social Care Institute For Excellence. (2006) *Guide 15: Dignity in care*. See: [scie.org.uk/publications/guides/guide15/index.asp](http://scie.org.uk/publications/guides/guide15/index.asp) (accessed 3 May 2013).
- Veltman L, Larison K. (2010) P.U.R.E. (purposeful, unambiguous, respectful, and effective) Conversations and electronic fetal monitoring: gaining consensus and collaboration. *American Journal of Obstetrics & Gynecology* 203(5): 440.e1-4.
- Warren C. (1999) Invaders of privacy. *Midwifery Matters* 81: 8-9.
- Weston R. (2005) Liberating childbirth. *AIMS Journal* 17(3): 6-9
- Widang I, Fridlund B, Martensson J. (2008) Women patients' conceptions of integrity within health care: a phenomenographic study. *J Advanced Nursing* 61: 540-8.
- Zeidenstein L. (2007) Midwifery and gender equality. *J Midwifery & Women's Health* 52: 1-2.

## Information for authors

*Evidence Based Midwifery* is published quarterly and aims to promote the dissemination, implementation and evaluation of midwifery evidence at local, national and international levels. Papers on qualitative research, quantitative research, philosophical research, action research, systematic reviews and meta-analyses of qualitative or quantitative data are welcome. Papers of no longer than 5000 words in length, including references, should be sent to: rob@midwives.co.uk in MS Word, and receipt will be acknowledged. Suitable papers are subject to double-blinded peer review of academic rigour, quality and relevance. Subject area and/or methodology experts provide structured critical reviews that are forwarded to authors with editorial comments. Expert opinion on matters such as statistical accuracy, professional relevance or legal ramifications may also be sought. Major changes are agreed with authors, but editors reserve the right to make modifications in accordance with house style and demands for space and layout. Authors should refer to further guidance (RCM, 2007; Sinclair and Ratnaik, 2007). Authorship must be attributed fully and fairly, along with funding sources, commercial affiliations and due acknowledgements. Papers that are not original or that have been submitted elsewhere cannot be considered. Authors transfer copyright of their paper to the RCM, effective on acceptance for publication and covering exclusive and unlimited rights to reproduce and distribute it in any form. Papers should be preceded by a structured abstract and key words. Figures and tables must be cited in the text, and authors must obtain approval for and credit reproduction or modification of others' material. Artwork on paper is submitted at the owner's risk and the publisher accepts no liability for loss or damage while in possession of the material. All work referred to in the manuscript should be fully cited using the Harvard system of referencing. All sources must be published or publicly accessible.

### References

- RCM. (2007) Guidelines for authors. *Evidence Based Midwifery* 5(1): 35.  
Sinclair M, Ratnaik D. (2007) Writing for *Evidence Based Midwifery*.  
*Evidence Based Midwifery* 5(2): 66-70.

## News and resources

### RCM Annual Conference

Bookings have opened for this year's RCM Annual Conference, which will take place at the Telford International Centre. More than 1000 midwives and student midwives will attend to discuss topics and research that are crucial to the profession. Speakers are set to include senior politicians, international and UK midwifery and maternity experts and leading thinkers in health policy. For more information, visit: [rcmconference.org.uk](http://rcmconference.org.uk)

### Evidence-based charity awards open

A charity dedicated to promoting evidence-based medicine is offering prizes to students. HealthWatch will award these as part of a competition to evaluate clinical research protocols. Midwifery students and students of allied health professions will compete for a first prize of £500 and five £100 runner-up prizes. The competition involves ranking four protocols for hypothetical clinical trials according to which are most likely to yield useful results. The closing date is 30 June. For information, visit: [healthwatch-uk.org](http://healthwatch-uk.org)

### ICM Congress update

The Prague 2014 Congress looks set to have one of the largest country representations, with 1360 abstracts submitted from midwives in 85 countries. A record number of 340 poster abstracts have been received with the largest number in the research category. This means there are over 1000 abstracts for oral, symposium and workshop presentation. The congress takes place in Prague on 1 to 5 June 2014, and discounted ticket prices are available. For more information, visit: [midwives2014.org](http://midwives2014.org)

### First meeting for DMRS branch

The first meeting of the Scottish branch of the Doctoral Midwifery Research Society (DMRS) has been held. It took place on 17 May at the University of West Scotland. It included presentations on funding opportunities in Scotland and the importance of collaborative working. For more information, visit: [doctoralmidwiferysociety.org](http://doctoralmidwiferysociety.org)

## *Evidence Based Midwifery* editorial panel members

### UK editorial panel

Professor Soo Downe, University of Central Lancashire, England

Professor Billie Hunter, Cardiff School of Nursing and Midwifery Studies, Wales

Dr Julia Magill-Cuerden, University of West London, England

Dr Margaret McGuire, NHS Tayside, Scotland

Dr Marianne Mead, University of Hertfordshire, England

Professor Jane Sandall, King's College London, England

Chair: Louise Silvertown, RCM director for midwifery

Professor Marlene Sinclair (editor), University of Ulster, Northern Ireland

Dr Hora Soltani, Sheffield Hallam University, England

Dr Janine Stockdale, RCM research fellow

Dr Andrew Symon, University of Dundee, Scotland

Emma Godfrey-Edwards (editor), Redactive Media Group

### International editorial panel

Professor Cecily Begley, Trinity College Dublin, Ireland

Dr Catherine Carr, University of Washington, US

Dr Heather Hancock, University of South Australia, Australia

Professor Edith Hillan, University of Toronto, Canada

Dr Amy Levi, University of California San Francisco, US

Dr Address Malata, University of Malawi, Malawi

### Editorial advisory panel

Joseph B Cunningham, University of Ulster, Northern Ireland

Dr Rhona McInnes, The Queen Mother's Hospital, Scotland

Helen Spiby, University of York, England

Professor Cathy Warwick CBE, RCM CEO

Jason Grant, Redactive Media Group

# CONTENTS

- Editorial: A rapid synopsis of the Caldicott 2013 information review. 39  
*Marlene Sinclair*
- The effectiveness of frenulotomy on infant-feeding outcomes: a systematic literature review. 40  
*Valerie Finigan and Tony Long*
- A survey to assess if guidelines for intrapartum fetal monitoring of women at low obstetric risk in Flanders, Belgium are evidence-based. 46  
*Mirella Sarrechia, Ann M Thomson, Bernard Spitz and Walter Sermeus*
- What is a good midwife? Some historical considerations. 51  
*Sara E Borrelli*
- The physical effect of exercise in pregnancy on pre-eclampsia, gestational diabetes, birthweight and type of delivery: a structured review of the literature. 60  
*Andrée Dignon and Amanda Reddington*
- Dignity in maternity care. 67  
*Sharon Morad, William Parry-Smith and Wilf McSherry*
- Information for authors, news and resources. 71