



City Research Online

City, University of London Institutional Repository

Citation: Walker, S., Perilakalathil, P., Moore, J., Gibbs, C. L., Reavell, K. & Crozier, K. (2015). Standards for midwife Practitioners of external cephalic version: A Delphi study. *Midwifery*, 31(5), e79-e86. doi: 10.1016/j.midw.2015.01.004

This is the accepted version of the paper.

This version of the publication may differ from the final published version.

Permanent repository link: <https://openaccess.city.ac.uk/id/eprint/6066/>

Link to published version: <https://doi.org/10.1016/j.midw.2015.01.004>

Copyright: City Research Online aims to make research outputs of City, University of London available to a wider audience. Copyright and Moral Rights remain with the author(s) and/or copyright holders. URLs from City Research Online may be freely distributed and linked to.

Reuse: Copies of full items can be used for personal research or study, educational, or not-for-profit purposes without prior permission or charge. Provided that the authors, title and full bibliographic details are credited, a hyperlink and/or URL is given for the original metadata page and the content is not changed in any way.

Standards for Midwife Practitioners of External Cephalic Version: A Delphi Study

Shawn Walker^{a1} MA, BA, RM; Prasanth Perilakalathil^b DGO DNB (OBG) MNAMS MS;
Jenny Moore^c EdD, MSc, BSc (Hons), RN, RM; Claire L. Gibbs^d BS, RN; Karen Reavell^e;
Kenda Crozier^f PhD, MSc, BSc, RM, RN

^a Breech Specialist Midwife, James Paget University Hospitals NHS Foundation Trust,
Lowestoft Road, Gorleston, Gt Yarmouth, Norfolk, NR31 6LA; Shawn.Walker@uea.ac.uk

¹ (Present Address, for Correspondence) Lecturer in Midwifery, City University London,
Maternal and Child Health Research Centre, Northampton Square, London, EC1V 0HB;
Shawn.Walker.1@city.ac.uk; 011 44 7947819122

^b Specialist Registrar in Obstetrics and Gynaecology, James Paget University Hospitals;
Prasanth.Perilakalathil@jpaget.nhs.uk

^c Lecturer, School of Nursing Sciences, Edith Cavell Building, University of East Anglia,
Norwich, NR4 7TJ; J.F.Moore@uea.ac.uk

^d Senior Clinical Research Nurse, James Paget University Hospitals NHS Foundation Trust;
Claire.Gibbs2@jpaget.nhs.uk

^e Research & Development Manager, James Paget University Hospitals NHS Foundation
Trust; Karen.Reavell@jpaget.nhs.uk

^f Senior Lecturer in Midwifery, University of East Anglia; K.Crozier@uea.ac.uk

This research was supported by a grant from the Innovation in Nursing and Midwifery
Practice Programme, James Paget University Hospital and University of East Anglia.

Final Publication available at: <http://dx.doi.org/10.1016/j.midw.2015.01.004>

Abstract

Introduction: Expansion of advanced and specialist midwifery practitioner roles across professional boundaries requires an evidence-based framework to evaluate achievement and maintenance of competency. In order to develop the role of Breech Specialist Midwife to include the autonomous performance of external cephalic version within one hospital, guidance was required on standards of training and skill development, particularly in the use of ultrasound. **Methods:** A three-round Delphi survey was used to determine consensus among an expert panel, including highly experienced obstetric and midwife practitioners, as well as sonographers. The first round used mostly open-ended questions to gather data, from which statements were formed and returned to the panel for evaluation in subsequent rounds. **Results:** Standards for achieving and maintaining competence to perform ECV, and in the use of basic third trimester ultrasound as part of this practice, should be the same for midwives and doctors. The maintenance of proficiency requires regular practice. **Conclusions:** Midwives can appropriately expand their sphere of practice to include ECV and basic third trimester ultrasound, according to internal guidelines, following the completion of a competency-based training programme roughly equivalent to those used to guide obstetric training. Ideally, ECV services should be offered in organised clinics where individual practitioners in either profession are able to perform approximately 30 or more ECVs per year in order to maintain an appropriate level of skill.

Keywords: midwives, training, breech, cephalic version, ultrasound

Highlights

- Consensus achieved among 20 expert panellists on standards of midwife ECV training.
- Standards for ECV training should be the same for doctors and midwives.
- Training should include understanding techniques to improve success rates.
- Short, competency-based ultrasound training courses are adequate for ECV midwives.
- Practitioners should perform ECV regularly to maintain a high level of skill.

Introduction

Breech presentation at term has an incidence rate of 3-4% and is associated with an increased risk of caesarean section delivery (RCOG, 2006). External cephalic version (ECV), the practice of manually turning the fetus from head-up to head-down in the uterus, lowers this risk, especially where the option of vaginal breech birth is not supported (Hofmeyr and Kulier, 2012). In most hospitals in the United Kingdom (UK), ECV is performed by an obstetrician, but it may also be offered by a specially trained midwife (RCOG, 2006), a service delivery design which has been highly successful in some areas (Taylor and Robson, 2003).

This study aimed to determine an expert consensus on standards for competency, training and maintenance of skills for ECV practitioners, using the Delphi survey technique. The project arose while the main author was working in a moderate-sized (2200 births per annum) UK National Health Service (NHS) Hospital in England as the midwife facilitator of an innovative collaborative care pathway for women with breech-presenting babies. A basic skills set was identified, including sound knowledge of the evidence base concerning breech presentation, an understanding of the alternative options available, and an ability to communicate in a way that enables women to be a part of a decision making process that ensures informed choice is taking place. Additional clinical skills were targeted for development, including the assessment of presentation using ultrasound, external cephalic version and skills in facilitating vaginal breech birth.

Within this care pathway, a need for improvement of the ECV service was identified and prioritised. However, no obstetric lead was identified to support this initiative. Consequently, it was proposed that a role of Breech Specialist Midwife would be developed to incorporate the autonomous performance of ECV. Prior innovators have described the development of such a role for midwives and reported safety and success rates similar to

those for experienced obstetricians (Burr et al., 2001; Taylor and Robson, 2003; McCormick and Cairns, 2010). However, no precedent for such a role expansion existed in the host institution. Therefore, further specific guidance on training standards was required, particularly in relation to assessing presentation using ultrasound, in line with other models of midwifery role expansion (UK National Screening Committee, 2008; Marshall, 2010). After discussion with the obstetric leadership, it was felt that the expertise available within the hospital was not adequate to establish a training programme without additional input from more experienced practitioners. The Delphi survey technique was identified as an appropriate method to help guide the innovation. The research was funded by the Innovation in Nursing and Midwifery Practice Programme (INMPP) (Crozier et al., 2012), which allocates small research grants to support research and innovation among front-line clinical staff.

Purpose

The purpose of this study was to obtain a consensus among UK ECV experts on: 1) core competencies for practitioners of external cephalic version; 2) the type of training appropriate for non-sonographer practitioners using ultrasound to diagnose breech presentation; 3) the training and on-going requirements for practitioners to competently perform ECV and maintain proficiency in this procedure.

Methods

A three round Delphi e-survey design was used to obtain an expert panel's views on these topics. The Delphi survey method is a consensus-development technique, involving a quasi-anonymous panel of experts in a series of sequential questionnaires (known as 'rounds'), interspersed with controlled feedback. The methodology's key value rests on the

assumption that group opinion is more valid than individual opinion (Keeney et al., 2010). It has been applied in many areas of midwifery, medical and nursing practice, including identifying clinical research priorities, service planning, analysis of professional characteristics and competencies, developing education programmes, and exploring clinical skills (Powell, 2003, Michels et al, 2012). The methods deployed in each Delphi study are dependent on its aims, but a classical Delphi study begins with a round of open-ended questions designed to gather rich data (Hasson and Keeney, 2011). This initial data is analysed and used to formulate questions or statements, which are then put to the panel for evaluation in subsequent rounds (Tappen, 2011). The process continues until a pre-determined level of consensus is achieved.

Participants

Sampling is a fundamental methodological concern when using Delphi technique, as credibility depends on the perceived expertise of the panel (Green et al., 1999; Mead and Moseley, 2001; Cornick, 2006; Keeney et al., 2010). The panel's expertise was of fundamental importance to achieving the local aims of the research in supporting an innovative midwifery role expansion. Multi-professional panels are preferable in Delphi technique surveys, to ensure no one professional interest dominates (Hutchings and Raine, 2006). The criteria for inclusion on this study's panel of experts was: 1) For ECV practitioners: working or having worked in a breech clinic and/or taking referrals from colleagues to perform ECVs; 2) For sonographers: involvement in university-level teaching of obstetric sonography.

Data Collection and Analysis

The study took place between April 2013 and March 2014. FluidSurveys on-line software was used to administer the surveys. A secure link to the survey was sent directly

to each panellist's professional e-mail address, along with a participant information sheet containing a brief literature review. Answers were downloaded collectively on an Excel spread sheet containing only the participant's responses and identification code, while personal identities were kept in a separate file.

The first and second rounds of the survey were piloted within the sponsoring hospital by a multi professional team including members of similar specialities, familiar with the aims of the research and its intended use in practice innovation, but less experienced clinically than the actual panel members. The analysis of the first round data and the design of the second round survey was validated by a senior obstetric registrar within the hospital, and the research supervision team, who also reviewed the third round prior to deployment. At all points, the practical purpose of the research - the development of an appropriate training and maintenance programme for midwife practitioners of ECV - guided the survey design.

In line with classic Delphi method, the first round of the survey contained mostly open-ended questions. The exceptions were two questions regarding whether the standards for achieving and maintaining competence should be the same for doctors and midwives. The consensus response to this issue had implications for the way the rest of the survey would be designed, and how much of the existing obstetric training programmes should be considered relevant to midwifery ECV training. Content analysis of the open-ended questions was performed line-by-line, by hand. Responses from the first round were compiled and aggregated under two practice themes (ECV skills and ultrasound skills) and three professional standards categories (training, maintenance and updating).

Initial analysis indicated that almost all of the core competencies suggested for ECV and basic third trimester ultrasound mapped to those included in the Royal College of Obstetricians and Gynaecologists' Objective Structured Assessment of Technical Skill (OSATS) (RCOG, 2007; RCOG, 2009), represented in Table 1 [The RCOG Objective structured assessment of technical skill in External Cephalic Version]. This was a

reassuring correspondence (Hasson and Keeney, 2012). A few additional competencies were suggested which were not directly included in the RCOG OSATs. The second round then sought the group's opinion on whether the RCOG's model was appropriate to apply in the training of midwives, as well as testing the value of the additional areas of competence identified in the analysis.


Table 1.
The RCOG Objective structured assessment of technical skill in External Cephalic Version (2007)
<p>Candidates should be able to perform the following independently:</p> <ul style="list-style-type: none"> • Ensuring appropriate selection of patient, including: <ul style="list-style-type: none"> - Assessment of fetal size - Absence of contraindications to the procedure • Appropriate place of procedure • Appropriate communication with team • Appropriate counselling and consent • Use of tocolysis, if appropriate • Appropriate preparation including pre-procedure CTG • Careful ultrasound assessment: <ul style="list-style-type: none"> - fetal and placental position - liquor - identification of body parts • Safe and systematic movement of fetus • Regular assessment of fetal wellbeing during procedure • Ensuring no excessive maternal discomfort • Checking appropriate follow up arrangements such as: <ul style="list-style-type: none"> - Check of rhesus status and give Anti-D as appropriate - Delivery plan

Further second round questions arose from the additional data concerning professional standards. Some participants in the first round suggested that competent performance of a minimum number of the tasks at hand was an appropriate standard to set. Therefore, some second round questions concerned quantifying, such as asking

participants to identify a minimum number of ECVs or basic third trimester ultrasound scans which much be performed competently in order to achieve competence to practice autonomously. These used a sliding scale, the limits of which were suggested by data in the first round [Figure 1, 'Sliding scale for quantifying minimum requirements'].

What is the minimum number of ECVs a practitioner should perform under supervision before they can be considered competent to practice independently?

E.g. a practitioner should not be signed off as competent before performing **at least** this number under supervision. However, the achievement of competence is an individual matter and more supervised practice may be required for some practitioners before it is achieved.



1 50

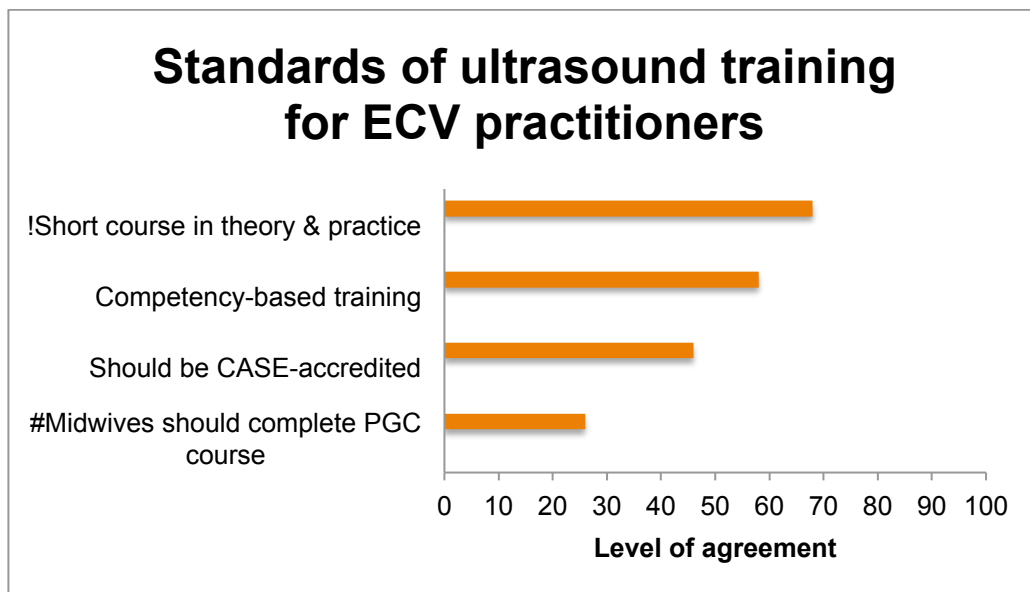
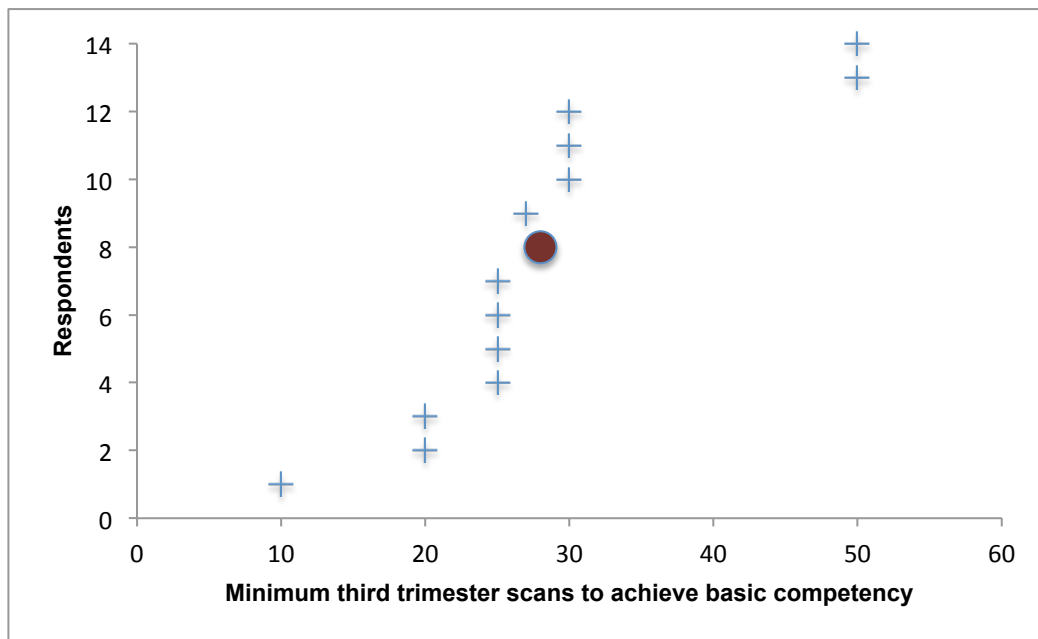
Other questions were compiled from descriptive answers to the first round questions. These questions asked participants to identify whether, for example, a certain aspect of training was considered 'essential,' 'ideal,' or 'not essential.' For these questions, a consensus was considered achieved if 70% or more of respondents answered 'essential' (consensus = 'essential') or a mixture of 'essential' and 'ideal' (consensus = 'ideal') [Figure 2, 'Multiple choice for evaluating training components'].

Should the following components be included in core ECV training?

	Essential	Ideal	Not essential
Theoretical training	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Practice on an abdominal model	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Supervised practical training	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Standardised, evidenced assessments (eg. OSATs)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Logbook reviews	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

As trends and opinions emerged, in order to confirm consensus, participants were asked to rate their level of agreement with summary statements on a sliding numeric scale (0-100) and informed that 70% was considered the measure of consensus. Quantified results were graphically presented to enable participants to visualise the spread of

responses [Figure 3, 'Visually displaying all answers and the mean' & Figure 4 'Visually displaying the strength of support for various options'].

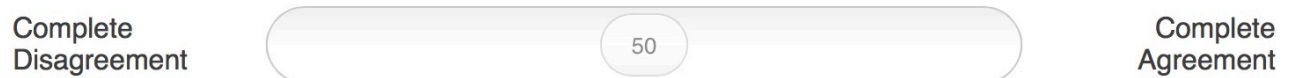


Within each section of each survey, participants were invited to comment on why they had agreed or disagreed, and these comments were continually analysed and reflectively compared with the quantitative data. This process enhanced the interpretation of the quantitative data, contributed to refinement of some questions to enable the achievement of consensus in a subsequent round, and functioned as a form of member

checking as the research progressed. The final round contained ten summary statements [Figure 5, 'Sliding scale for consensus'].

Please rate your level of agreement with the following statement: "There should be no minimum requirement of numbers of ECVs required to evidence achievement of basic competence in the procedure. This is an entirely individual matter to be decided between the practitioner and his/her mentor."

Consensus measurement = 70% or more



Consensus

The definition of consensus is a contentious issue in Delphi research. Both the measure of consensus and the type of data to be measured remain controversial. Levels of consensus reported in Delphi studies range from 50-100% (Keeney et al., 2010). The level of consensus in this study was set at 70%. When comparing options within the three initial categories (training, maintenance and updating), semantic differentiation scales were used. A consensus was considered achieved if, for example, 70% or more of respondents answered 'essential' (consensus = 'essential') or a mixture of 'essential' and 'ideal' (consensus = 'ideal') [Figure 2, 'Multiple choice for evaluating training components'].

As tendencies and opinions emerged, in order to confirm consensus, participants were asked to rate their level of agreement with summary statements on a sliding scale (0-100) and informed that a mean of 70% was considered the measure of consensus. Some Delphi researchers have expressed concern that opposing opinions can be masked by statistical analysis (Keeney et al., 2010; p27-8). Therefore, in this research the mean rather than the median was chosen so that significant resistance to consensus would be maximally apparent among this small panel of experts. The final round contained ten summary statements [Figure 1, 'Sliding scale for consensus']. Once the 70% level was

achieved, items were considered to have reached a consensus, whether this occurred in the first, second or the third round (Salmond, 1994). In order to be as transparent as possible, exact levels of consensus achieved have been reported.

Ethical issues

This research sought views of health professionals related to a specific role and therefore did not require NHS Research Ethics Committee approval. The expert panel consented to take part in the study. The NHS hospital where the research originated granted research governance approval.

Results

Sample Achieved

Ten potential panellists were identified initially from a review of recent literature. Snowball (also known as network) sampling (Lobiondo-Wood and Haber, 2006) was used to take advantage of professional networks that form between people who are working in specialised areas of practice. The Royal College of Midwives forum for consultant midwives was used to identify midwife practitioners and obstetricians who led on ECV, along with direct phone calls to tertiary referral units in Northern Ireland, Scotland and Wales. Each panellist was asked to nominate persons in their professional network appropriate to include in the research, and everyone identified through this process was invited to participate. This strategy ensured each ECV practitioner who participated in the panel was perceived as 'experienced' by both themselves and at least one other professional. In addition to a literature review, potential sonographer participants were identified through the regional deaneries providing obstetric ultrasound training.

This resulted in a panel of 20 (71% overall response rate), with representatives from each of the four countries in the United Kingdom. In the initial round, five midwives were identified and three participated (60% response rate). Anecdotal evidence indicated there may be more midwife ECV practitioners in England (as of June 2013), but despite following up leads to specific hospitals, they were not identified and could not be invited to participate. Several senior sources reported no midwife ECV practitioners in Scotland, Wales and Northern Ireland. In the initial round, nine consultant obstetrician practitioners of ECV (82% response rate) and eight sonographers participated (two maternal fetal medicine consultants, two midwife sonographers and four sonographers; 67% response rate). Some participants overlapped categories, e.g. midwife sonographers and maternal fetal medicine specialists who also practise ECV.

In this kind of expert Delphi research, the experience level of the panel is crucial (Hasson and Keeney, 2011). The midwives reported having performed >100 to 700 ECVs (average >460). All had authored peer-reviewed publications concerning ECV practice. The obstetric practitioners reported having performed 120 to >1000 ECVs (average >400), and worked in hospitals of various sizes. Six had published peer-reviewed articles concerning ECV practice and outcomes, or breech presentation in general. Of the eight sonographer participants, three were consultant sonographers, and two were Deanery regional co-ordinators for obstetric ultrasound training. Their years of experience ranged from 8-26 (average 18).

The second round of the survey received responses from 65% of the panellists (13/20), and the third round received responses from 70% of the entire initial panel (14/20). Participants who did not participate in the second round were not excluded from the third round. Panellists received a description of the panel's qualifications, although the identities of fellow panellists remained anonymous.

Consensus Achieved

The items achieving a consensus-level agreement are outlined in Table 2 [ECV-related ultrasound training], Table 3 [ECV training and practice] and 4 [Maintenance of skills and professional updating], along with the levels of agreement achieved. The panel supported the principle that standards for achieving and maintaining competence in ECV and ECV-related use of ultrasound should be the same for doctors and midwives. This was confirmed by the panel's consensus opinion that the short, competency-based ultrasound courses containing both theory and practice, now common in obstetric training, are also appropriate for midwives who use ultrasound solely for ECV practice. The panel also confirmed by consensus that the RCOG OSATs outline an appropriate set of competencies for all ECV practitioners, including midwives. The panel also returned several consensus opinions about who should supervise trainees and what should be included in training programmes. These are itemised in Table 2 and 3.

The most significant consensus opinion emerging from this research is the recommendation that ideally, ECV services should be offered in organised clinics where individual practitioners are able to perform 30 or more attempts per year, in order to maintain an appropriate level of skills. Recently published research suggests an association between higher numbers of ECVs performed and higher success rates (Bogner et al., 2013). As the mean experience level of the midwives participating in this study exceeded that of the obstetricians, it may be that where midwives are practising, services have already been organised around this principle. However, this may not be achievable in smaller hospitals, and local services will need to consider how best to achieve this goal, while ensuring that the nationally recommended choice of an ECV remains easily accessible to women (RCOG 2006, NICE 2011).

Table 2.
ECV-related ultrasound training
<ul style="list-style-type: none"> • The standards for achieving and maintaining competence to use basic third trimester ultrasound should be the same for doctors and midwives (89%). • For midwives using basic third trimester ultrasound solely for the purposes of ECV practice, an adequate form of training is the completion of a competency-based training programme equivalent to that included in the RCOG core competencies, complemented by a short course which meets the RCOG requirements, containing theory and practice. (78%) • Competence-based training in basic third trimester ultrasound for ECV practitioners should ideally be supervised by a practitioner fully accredited in obstetric ultrasound (100%). Any practitioner competent in third trimester ultrasound (70%) and a CASE-accredited practitioner (70%) were also considered appropriate supervisors, but the panel did not support supervision by an obstetric consultant without the qualifications noted above (80% not enough/not necessary).

Table 3.

ECV training and practice

- The standards for achieving and maintaining competence to practise ECV should be the same for doctors and midwives (100% agreement).
- The RCOG OSATS for ECV (RCOG 2007) outlines an appropriate set of competencies for all practitioners of ECV, including midwives (70%).
- Ideally, formal training programmes should include the following elements:
 - taking formal, written consent (78%)
 - recognising and managing possible complications (89%)
 - understanding techniques to improve success rates (100%)
 - awareness of the different methods of ECV (89%)
 - theoretical knowledge of the management of breech (89%)
- Practice on an abdominal model was considered 'not essential' (78%).
- Essential components of ECV training include:
 - supervised practical training (89%)
 - standardised, evidenced assessments (e.g. OSATs) (78%)
- Ideal components of ECV training include:
 - theoretical training (72%)
 - logbook reviews (89%)
- The panel indicated the most support for ECV training supervision provided by an ECV practitioner with an evidenced high level of skill (88%). Supervision by any competent practitioner (71%) and the lead obstetrician for ECV (78%) were also supported, but the suggestion that supervisors should be trained trainers was not supported.
- It is appropriate for recognised midwife ECV practitioners practising in a hospital setting to administer tocolytic drugs autonomously on a Patient Group Directive, following adequate training and according to internal guidelines (90%). Training programmes should reflect this.

Table 4.
Maintenance of skills and professional updating
<ul style="list-style-type: none"> • Ideally, ECV services should be offered in organised clinics where individual practitioners are able to perform approximately 30 or more ECVs per year in order to maintain an appropriate level of skill (76%). • Appropriate forms of professional updating for ECV practitioners include: <ul style="list-style-type: none"> - working with another ECV practitioner (78%) - keeping up to date with current literature / national guidelines (75%) • Practitioners who use basic third trimester ultrasound in their ECV practice should participate in some form of periodic professional updating in order to share as well as develop practice. This need not be an annual requirement, but may occur following changes to guidelines, periods of prolonged absence, etc. (77%). • Appropriate forms of professional updating in basic third trimester ultrasound are a brief assessment with a senior, experienced sonographer (92%) and regular peer review, such as audit of images (72%).

Divergence of opinions

Although most Delphi studies focus mainly on items having achieved consensus, interpretation of a lack of consensus can also be significant (Raine et al., 2004; Perdok et al., 2014). For example, data from the first round indicated that achievement of competence might be demonstrated by the performance of a certain number of ECV attempts. However,

in subsequent rounds, no consensus was achieved regarding what an appropriate number might be.

Panellists were subsequently asked the question, “What is the minimum number of ECVs a practitioner should perform under supervision before they can be considered competent to practice independently?” [Figure 3] Answers were provided on a sliding scale, and the mean returned was 18 (median=20, range 6-30). This is roughly in line with other published literature (Teoh, 1997; Burr et al., 2001; Taylor and Robson 2003) suggesting 20 as an appropriate number. However, in the third round, the panel did not return a consensus that 18 was an appropriate minimum number, due to strong opinions from a number of panellists that training should be entirely competency-based. The panel remained divided and also did not entirely support the proposal that there should be no minimum number required to evidence achievement of basic competence.

Overall, the strong tendency from the panel was to support individualised, competency-based training, supervised and evaluated by a confident and experienced ECV practitioner. Although no minimum required number was agreed, given the correspondence of the group’s collective answer to previously published research, one could reasonably expect competence to be achieved after the supervised performance of 18-20 ECV attempts. This interpretation was reached through consideration of the data, but was also proposed by one of the participants. A similar process occurred around the minimum number of basic third trimester ultrasounds to be performed under supervision, where the mean was 28 (median=25, range 10-50), but a final number was not agreed by consensus [Figure 4].

When asked the minimum number of ECVs a practitioner should perform on a yearly basis to maintain an appropriate level of skill, the panel returned an average of 31 (median=30, range 10-50), a number significantly larger than the number associated with achieving basic competence. In the final round, they did not return a consensus agreement

with the proposal for a requirement that individual practitioners perform 30 or more ECVs per year, citing difficulties in achieving such a figure in smaller hospitals, and acknowledging a skill plateau which occurs for highly experienced practitioners. But the strong tendency was in recognition of the need for frequent and extensive practice to maintain a high level of skill.

Similarly, the panel did not return a consensus on the need for an action plan to be initiated when minimum success rates were not achieved, despite significant support for this idea. This was partially due to concern that such a focus would discourage some practitioners from attempting more difficult ECVs, unless success rates were measured as a percentage of all eligible cases rather than a percentage of attempts made. Nonetheless, the panel tended toward recognition that success was strongly associated with high levels of experience and frequent practice. Recent research suggests that practitioners' self-efficacy (perceived skill) influences their willingness to facilitate external cephalic version for all eligible women (Rosman et al., 2014). The relationship of success rates to organisational models of care and individual experience levels warrants further research.

Finally, data from the first round survey suggested the desirability of three additional third trimester ultrasound skills, not included in the RCOG's basic competency: fetal biometry and estimation of fetal weight, umbilical artery Doppler assessment, and identification of umbilical cord location. Opinions in the second round were divided enough that the survey was unlikely to return a consensus. Many panellists indicated that the first two assessments could be performed by sonographers prior to the ECV, though it may be desirable for them to be performed by the ECV practitioner for organisational reasons, or to minimise the number of separate appointments women need to attend. Although this research did not reflect a consensus opinion that these should be considered core competencies, they may be important competencies in some clinical or organisational

contexts. The clinical value of identifying umbilical cord location requires further investigation.

Some studies use a final qualitative round (or focus group) to explore issues which remain unclear or unresolved in the consensus process, and this may have resulted in a neater, more satisfying list of conclusions. However, hosting such a group with expert participants from across the UK would have been impractical within the limits of the small research budget available for this study. In addition, one of the strengths of the Delphi method is those participants with stronger charisma or reputation are not able to dominate the discussion, as has been observed in other consensus methodologies, due to the controlled feedback process (Green et al., 1999). Consensus proved elusive most often on topics which may be greatly impacted by local practice situations, such as the minimum number of ECVs a practitioner should perform to achieve competence, or the minimum number a practitioner should perform on an annual basis. While ideals were easy to recognise, several participants noted that they may be difficult to achieve in practice, especially in smaller hospitals. Allowing these ambiguities to stand strikes a balance between providing guidance and imposing impractical controls, leaving it up to local experts to decide which organisational arrangements will best meet local needs.

Discussion

This study achieved its pragmatic purpose in exploring the opinion of a group of experts in ECV about appropriate standards for the training and practice of autonomous midwife ECV practitioners. Local factors may affect whether all standards outlined are appropriate or not. In particular, the recommendation that care be organised in clinics where individual practitioners are able to perform 30 or more ECVs per year may not be achievable in smaller units, some of which do not perform this many in any single year.

However, the essence of the recommendation, that those practising ECV should be performing the procedure frequently, in order to achieve a high rate of success, can be applied universally. This is clinically important, as the ECV procedure involves a small risk (1:200) of causing complications such as placental abruption or fetal bradycardia (RCOG, 2006), requiring immediate caesarean delivery. The need for ECV to be performed as effectively as possible is also economically relevant, as the cost-effectiveness of the procedure is directly related to its success rate (James et al., 2001).

The high degree of support from the panel for midwives performing ECV is significant, given that similar recent research has found it difficult to establish consensus for the expansion of midwifery roles to include the care of 'moderate risk' women (Perdok et al., 2014). The finding that RCOG competencies can be appropriately applied to the training of midwives is neither surprising nor necessarily obvious. Where midwives have expanded their spheres of practice to include skills traditionally considered within the remit of medical practitioners (eg. newborn paediatric examination), separate but related standards have been developed (UK National Screening Committee, 2008). Panellists pointed out that midwives and doctors receive different training, and obstetric specialists will have more opportunity to use ultrasound in particular. The RCOG is increasingly requiring each obstetrician to receive formal training in basic obstetric ultrasound, providing a model for similar training of midwives, making the practice of ECV achievable without the need to pursue a formal qualification in sonography. Although the RCOG standards provide a basis for assessing the competence of midwife practitioners to perform ECV, if more midwives begin to train, a critical mass of midwife practitioners may influence the practice of ECV in ways that cannot be predicted. Additional competencies and practice developments may be identified through research and practice led by midwives, which can be incorporated into future training programmes.

Delphi research reflects a consensus process with one particular panel, but does not necessarily provide the 'right' answer (Keeney et al., 2006). Although good reliability has been demonstrated with consensus techniques using groups with similar professional compositions, variations could produce different results (Hutchings et al., 2006). For example, Delphi studies conducted with 'expert' practitioners increasingly include service user representatives on the panel (Mead and Moseley 2001; Baker et al., 2006), but this study did not. While not experts in the technique itself, service users potentially bring a unique perspective on the types of skills required to be an excellent practitioner. Notably, knowledge of and administration of appropriate pain relief were not identified as core competencies in this study, despite fear of pain being a documented central concern for women considering ECV (Rosman et al., 2013, Say et al., 2013). The RCOG OSATS includes, 'Ensuring no excessive maternal discomfort,' but the inclusion of service users, or even obstetric anaesthetists (George et al., 2014), on the panel may have resulted in a different emphasis. Future Delphi research of this type should consider the benefits of involving service users and others in the wider multi-professional team as members of expert panels.

Similarly, different methods of analysis could produce different results. Some Delphi studies use medians and interquartile ranges (IQR) to determine central tendency in the evaluation of consensus, producing results less influenced by outliers (Keeney et al., 2010). In this study, 70% agreement as determined by the mean of all responses was selected at the outset of the study and maintained throughout the three rounds. The rationale was that outliers may indicate valid disagreements, which needed to be balanced by strong agreement from the majority to achieve consensus. In the second round, the mean was roughly equivalent to the median in the results, and use of medians and IQRs to evaluate consensus would not have significantly altered the results. However, as the study approached conclusion in the third round, extreme outliers appeared more often, resulting

in a lack of consensus for some items in which the central tendency was otherwise strongly towards agreement. Use of medians and IQRs may have resulted in additional areas of consensus, but it may also have suppressed some meaningful objections. Additionally, use of medians and IQRs may enable panels to include service users when addressing technical issues, as extreme outliers are eliminated through the statistical analysis, thus reducing the risk that a lack of technical expertise could inappropriately influence the results.

This study's panel was relatively small, although some Delphi research has been done with a panel of as few as seven (Baker et al., 2006). Other Delphi research uses much larger panels, and questions are put to the panel over multiple rounds, enabling statistical analysis of levels of consensus and the way they have or have not changed within the Delphi process. Such strategy is most appropriate where a large panel is more representative of a larger group, and little is known about the topic under consideration. However, in this research, the unique expertise of the panel was of more importance than their general representativeness, and therefore a smaller panel was appropriate. Furthermore, the research was required to offer guidance (in the form of an expert panel's opinion), mostly on some specific practical concerns in an area of practice otherwise well-represented in the literature. Therefore, carrying similar questions through multiple rounds was considered less important than enabling panelist's feedback in each round to influence final summary statements, and transparently representing the debates where consensus was not achieved.

Finally, as previously discussed, this research was funded by an innovative programme designed to promote front-line clinical staff to undertake research in their own clinical areas (Crozier et al., 2012), and as such was insider research. The management of breech presentation at term is a niche clinical speciality, about which a limited number of practitioners are engaged in teaching, writing and research. Due to the author's own

involvement in these activities, several of the panel members were personally known to her, a familiarity which could potentially compromise the integrity of the work (Kennedy, 2004). Delphi research is necessarily quasi-anonymous (Keeney et al., 2006), which further complicates a situation in which prior familiarity exists, although all data was anonymised and separated from person-identifying information prior to analysis. Furthermore, to balance the potential for bias arising from possible vested interest in certain results being achieved, data analysis was reviewed and validated by others on the multi-professional research team (Keeney et al., 2010). The inherent limitations of insider research are balanced by the insider's familiarity with the practical issues needing to be addressed in order to progress with practice innovation in local and wider professional contexts (Costley et al., 2010), a dynamic which pragmatically focused this project at all stages.

Conclusion

This research provides insight to guide appropriate training programmes for midwife ECV practitioners, as well as standards and contexts for maintaining high-level skills. In general, the Delphi process reflected an opinion that training should be similar for doctors and midwives, and that services should be organised in a way that enabled individual practitioners to perform a significant number of ECVs per year. Ideally, the Royal College of Midwives should work with the Royal College of Obstetricians and Gynaecologists and the Nursing and Midwifery Council to issue guidance to support midwives extending their sphere of practice to include ECV, and address the concerns of local hospital governance arrangements by providing an appropriate framework for evaluating the achievement and maintenance of competency. The use of this research to underpin midwifery training programmes will enable additional research around the effectiveness of midwife practitioners and clinic models, including success rates (both in acceptance of the procedure and success in performing it) and women's experiences. Service user

representatives should be involved in the development of training programmes and the research agenda, to ensure that women's interests contribute to services which are as safe and satisfying as possible.

Acknowledgements

This research was funded by a grant from the Innovation in Nursing and Midwifery Practice Programme (INMPP). INMPP was developed out of recognition that nursing and midwifery staff within one hospital had ideas about changing practice but lacked skills and a supportive infrastructure to carry action through. The overall aim of INMPP was to develop sustainable resources within the hospital in order to encourage, support and develop research activity and innovation among nurses and midwives. Funding provided by East of England Strategic Health authority enabled the partnership between university of East Anglia and James Paget University Hospital to initiate and sustain this project between 2008 and 2014 enabling thirteen high quality nursing and midwifery innovations to be developed, implemented and evaluated.

References

- Baker, J., Lovell, K., Harris, N., 2006. How expert are the experts? An exploration of the concept of "expert" within Delphi panel techniques. *Nurse Researcher* 14, 59–70.
- Bogner, G., Xu, F., Simbrunner, C., Bacherer, A., et al. 2012. Single-institute experience, management, success rate, and outcome after external cephalic version at term. *International Journal of Gynecology and Obstetrics*. 116 (2), 134–137.

- Burr, R., Helyer, P., Robson, S.C., 2001. A training model for external cephalic version. *European Journal of Obstetrics & Gynecology Reproductive Biology* 99, 199–200.
- Cornick, P., 2006. Nitric oxide education survey – Use of a Delphi survey to produce guidelines for training neonatal nurses to work with inhaled nitric oxide. *Journal of Neonatal Nursing* 12, 62–8.
- Costley, C., Elliott, G., Gibbs, P., 2010. *Doing Work Based Research: Approaches to Enquiry for Insider-Researchers*. SAGE Publications Ltd.: London.
- Crozier, K., Moore, J., Kite, K., 2012. Innovations and action research to develop research skills for nursing and midwifery practice. The INMPP Study. *Journal of Clinical Nursing* 21, 1716-1725.
- George, R.T., Singh, N., Yentis, S.M., 2014. External cephalic version – the bad, the good and the what now? *International Journal of Obstetric Anesthesia* 23, 4-7.
- Green, B., Jones, M., Hughes, D., Williams, A., 1999. Applying the Delphi technique in a study of GPs' information requirements. *Health and Social Care in the Community* 7, 198–205.
- Hasson, F., Keeney, S., 2011. Enhancing rigour in the Delphi technique research. *Technological Forecasting and Social Change* 78, 1695–704.
- Hofmeyr, G.J. & Kulier, R. (2012) External cephalic version for breech presentation at term. *Cochrane Database of Systematic Reviews*, 10.
- Hutchings, A., Raine, R., 2006. A systematic review of factors affecting the judgments produced by formal consensus development methods in health care. *Journal of Health Services Research & Policy* 11, 172–9.

- Hutchings, A., Raine, R., Sanderson, C., Black, N., 2006. A comparison of formal consensus methods used for developing clinical guidelines. *Journal of Health Services Research & Policy* 11, 218–24.
- James, M., Hunt, K., Burr, R., Johanson, R., 2001. A decision analytical cost analysis of offering ECV in a UK district general hospital. *BMC Health Services Research* 1, 6.
- Keeney, S., Hasson, F., McKenna, H., 2006. Consulting the oracle: ten lessons from using the Delphi technique in nursing research. *Journal of Advanced Nursing* 53, 205–12.
- Keeney, S., Hasson, F., McKenna, H., 2010. *The Delphi Technique in Nursing and Health Research*. Blackwell, Chichester.
- Kennedy, H.P., 2004. Enhancing Delphi research: methods and results. *Journal of Advanced Nursing* 45, 504–11.
- Lobiondo-Wood, G., Haber, J., 2006. *Nursing Research: Methods and Critical Appraisal for Evidence-based Practice*. 6th ed. Mosby, St. Louis, MO.
- Marshall, J.E., 2010. The midwife's professional responsibilities in developing competence in new skills. In: Marshall, J.E., Raynor, M.D. (Eds.), *Advancing Skills in Midwifery Practice*. Churchill Livingstone, Edinburgh. pp. 7–18.
- McCormick, C., Cairns, A., 2010. Reducing unnecessary caesarean section by external cephalic version. In: Marshall, J.E., Raynor, M.D. (Eds.) *Advancing Skills in Midwifery Practice*. Churchill Livingstone, Edinburgh. pp. 47–55.
- Mead, D., Moseley, L., 2001. The use of the Delphi as a research approach. *Nurse Researcher* 8, 4–23.

Michels, M.E., Evans, D.E., Blok, G.A. 2012 What is a clinical skill? Searching for order in chaos through a modified Delphi process. *Medical Teacher*. 34, e573–81.

National Collaborating Centre for Women's and Children's Health, 2011. NICE Clinical Guideline on Caesarean Section. Royal College of Obstetricians and Gynaecologists.

Perdok, H., Mekkink, L., van Dillen, J., et al., 2014. Opinions of Maternity Care Professionals About Integration of Care During Labor for “Moderate Risk” Indications: A Delphi Study in The Netherlands. *Birth*. 41, 195–205.

Powell, C., 2003. The Delphi technique: myths and realities. *Journal of Advanced Nursing* 41, 376–82.

Raine, R., Sanderson, C., Hutchings, A., Carter, S., Larkin, K., Black, N., 2004. An experimental study of determinants of group judgments in clinical guideline development. *Lancet* 364, 429–37.

Rosman, A.N., Vlemmix, F., Fleuren, M.A.H., et al., 2013. Patients' and professionals' barriers and facilitators to external cephalic version for breech presentation at term, a qualitative analysis in the Netherlands. *Midwifery* 30, 324–330.

Royal College of Obstetricians and Gynaecologists (RCOG), 2006. External cephalic version and reducing the incidence of breech presentation. Green-top Guideline No. 20b. RCOG, London.

Royal College of Obstetricians and Gynaecologists (RCOG), 2007. Objective structured assessment of technical skill: External Cephalic Version. RCOG, London.

- Royal College of Obstetricians and Gynaecologists (RCOG), 2009. Basic ultrasound assessment of fetal size, liquor and the placenta. The RCOG Curriculum. RCOG, London.
- Salmond, S.W., 1994. Orthopaedic nursing research priorities: a Delphi study. *Orthopaedic nursing / National Association of Orthopaedic Nurses*. 13 (2), 31–45.
- Say, R., Thomson, R., Robson, S., Exley, C., 2013. A qualitative interview study exploring pregnant women's and health professionals' attitudes to external cephalic version. *BMC Pregnancy and Childbirth* 13, 4.
- Tappen, R., 2011. *Advanced nursing research from theory to practice*. Jones and Bartlett Learning, Sudbury, MA.
- Taylor, P., Robson, S., 2003. External cephalic version -- a new midwifery role. *British Journal of Midwifery* 11(4): 207–10.
- Teoh, T.G., 1997. Effect of learning curve on the outcome of external cephalic version. *Singapore Medical Journal* 38(8): 323–5.
- UK National Screening Committee. *Newborn and infant physical examination: standards and competencies*. [Online.] London: NHS Antenatal and Newborn Screening Programmes; 2008. Available from: <http://newbornphysical.screening.nhs.uk/publications#fileid10639> [Accessed 10th April 2014].