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Breech presentation management: A critical review of leading clinical practice guidelines

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ABSTRACT

Problem: Clinical practice guidelines are designed to guide clinicians and consumers of maternity services in clinical decision making, but recommendations are often consensus based and differ greatly between leading organisations.

Background: Breech birth is a divisive clinical issue, however vaginal breech births continue to occur despite a globally high caesarean section rate for breech presenting fetuses. Inconsistencies are known to exist between clinical practice guidelines relating to the management of breech presentation.

Aim: The aim of this review was to critically evaluate and compare leading obstetric clinical practice guidelines related to the management of breech presenting fetuses.

Methods: Leading obstetric guidelines were purposively obtained for review. Analysis was conducted using the International Centre for Allied Health Evidence (iCAHE) Guideline Quality Checklist and reviewing the content of each guideline.

Findings: Antenatal care recommendations and indications for Caesarean Section were relatively consistent between clinical guidelines. However, several inconsistencies were found among the other recommendations in terms of birth mode counselling, intrapartum management and the basis for recommendations.

Discussion: Inconsistencies noted in the clinical practice guidelines have the potential to cause issues related to valid consent and create confusion among clinicians and maternity consumers.

Conclusion: Clinical practice guidelines, which focus on the risks of a Vaginal Breech Birth without also discussing the risks of a Caesarean Section when a breech presentation is diagnosed, has the potential to sway clinician attitudes and impact birth mode decision-making in maternity consumers. To respect pregnant women's autonomy and fulfil the legal requirements of consent, clinicians should provide balanced counselling.

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Statement of significance

Problem

Clinical guideline inconsistencies can create confusion and issues in practice for maternity consumers and clinicians.

What is already known

Several leading obstetric organisations have updated their clinical practice guidelines or recommendations in recent years with differing recommendations and outcome statistics.

What this paper adds

A summarisations and critical review of six leading clinical practice guidelines related to the management of breech presentation.

1. Background

The management of breech presentation continues to cause academic and clinical contention globally [1–3]. In recent years, research has shown that if certain criteria are met, and appropriately experienced and skilled clinicians are available, Vaginal Breech Birth (VBB) is a safe option [4–6]. However, with Caesarean Section (C/S) rates for breech presentation ranging from 69% to 100% [1], the opportunity for clinicians to develop and maintain VBB skills is limited in the majority of settings. The implementation of specialised breech teams or clinics have been suggested to address this deficit [7] and shown to reduce the rate of C/S for breech presentation through the increased uptake and success of External Cephalic Version (ECV) and supporting women who meet predetermined criteria in their attempt for a VBB [8,9].

Clinical practice guidelines should be evidence based, clearly written and easily accessible to the clinicians and consumers they

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are meant to guide [10]. Differences in recommendations between leading organisations such as the Royal Australian and New Zealand College of Obstetricians and Gynaecologists (RANZCOG) and the Royal College of Obstetrics and Gynaecology (RCOG) can create dilemmas for clinicians and consumers alike, especially if the topic of the guideline itself causes division such as breech presentation [10]. This paper aims to critically evaluate and compare leading clinical practice guidelines regarding breech presentation as part of a study aimed at generating data to guide the development of an Integrated Care Pathway (ICP) for breech presentation [9].

2. Methods

Clinical practice guidelines in the English language were purposively obtained from the following national and international organisations: Royal College of Obstetricians and Gynaecologists (RCOG), the Society of Obstetricians and Gynaecologists of Canada (SOGC), Royal Australian and New Zealand College of Obstetricians and Gynaecologists (RANZCOG), the French College of Gynaecologists and Obstetricians (CNGOF), Institute of Obstetrician and Gynaecologists, Royal College of Physicians of Ireland (IOGRCPI) and the American College of Obstetricians and Gynaecologists (ACOG). An intrapartum management guideline for breech presentation was found through the National Institute for Health and Care Excellence (NICE), however a search of the organisation's website yielded the RCOG guidelines, so these were included in the review instead. This method of sampling has been previously utilised for the review of Vaginal Birth After Caesarean Section (VBAC) clinical guidelines [10].

These organisations were chosen because they sample leading national authorities in relation to obstetric and maternity care across their respective territories, and whose recommendations are used widely to develop local clinical guidelines. These guidelines are readily available from databases such Scopus or PubMed and through basic internet searches. It was through these methods that copies of the respective guidelines were obtained.

Each guideline was analysed using the International Centre for Allied Health Evidence (iCAHE) Guideline Quality Checklist. This tool has been validated previously and was chosen for its ability to effectively and efficiently review the quality of clinical practice guidelines [11]. The iCAHE Guideline Quality Checklist has been shown to provide similar ranking (highest to lowest) of the quality

of assessed guidelines to the Appraisal of Guidelines for Research and Evaluation (AGREE) II instrument, with the benefit of being quick, easy and practical to implement [11]. Each guideline was reviewed in terms of its recommendations for antenatal care, selection and exclusion criteria for a VBB and intrapartum management.

3. Results

The results are presented in relation to the following four areas: the results of the iCAHE assessment of each guideline and levels of evidence for antenatal care recommendations, labour selection and exclusion criteria for a vaginal breech birth and intrapartum management.

3.1. iCAHE Guideline Quality Checklist

The appraisal of each guideline based on the 14 questions of the iCAHE Quality Checklist showed a variety of scores (Table 1). The checklist has a strong focus on the reporting of the methods used to develop clinical guidelines including assessment of the evidence. Assessors provide a yes or no answer to the questions in the checklist and a quality assessment and the higher the score (%) the better the quality of the guideline [12]. Table 1 outlines the respective guidelines, the publisher, the geographical origins, basis for the guideline recommendations, the rank of the guideline according to the iCAHE scoring, the number of references included and whether the guideline is peer reviewed. The RCOG and SOGC guidelines received the highest iCAHE scores, however, due to the amount of information provided and the absence of a table of contents, these guidelines may pose difficulties to consumers, especially those from linguistically diverse backgrounds.

3.2. Level of evidence for the basis of recommendations

The included guidelines cited between 12–82 references. Four out of the six included guidelines [13–16] used rating or grading systems to assess quality of the evidence on which their recommendations are based, while two provided a general overview [17,18]. Of the guidelines which used a grading system, each used a different two-pronged systems of evaluation which classified the levels of the evidence in terms of quality and graded the recommendations based on the evidence provided. This article

Table 1
iCAHE ranking of the clinical practice guidelines.

| Guideline [date of publication] | Publisher | Origin | Assessment of evidence and grading of recommendations | Rank | iCAHE score (%) | No. of ref | Peer reviewed (Y/N) |
|---|--|---------------------------|---|------|-----------------|------------|---------------------|
| Management of breech presentation (Green-top Guideline No. 20b) [2017] | Royal College of Obstetricians & Gynaecologists (RCOG) | United Kingdom | RCOG classification of evidence level and grading of recommendations scheme | 1 | 12/14 (85.71) | 76 | Y |
| No. 384 – management of breech presentation at term [2019] | The Society of Obstetricians and Gynaecologists of Canada (SOGC) | Canada | GRADE methodology framework | 1 | 12/14 (85.7) | 82 | Y |
| National Clinical Guideline: the management of breech presentation [2017] | Institute of Obstetrician and Gynaecologists, Royal College of Physicians of Ireland (IOG) | Ireland | Literature review including professional guidelines | 2 | 11/14 (78.57) | 60 | Y |
| Management of breech presentation at term [2016] | Royal Australian and New Zealand College of Obstetricians and Gynaecologists (RANZCOG) | Australia and New Zealand | NHMRC Levels of evidence and grades of recommendations for developers | 3 | 10/14 (71.43) | 12 | N |
| Breech presentation: clinical practice guideline from the French College of Gynaecologists and Obstetricians [2020] | French College of Gynaecologists and Obstetricians (CNGOF) | France | HAS framework | 3 | 10/14 (71.43) | 12 | Y |
| Mode of term singleton breech delivery [2018] | The American College of Obstetricians and Gynaecologists (ACOG) | United States of America | Literature review including professional guidelines | 4 | 5/14 (35.71) | 16 | Y |

GRADE Grading of Recommendations, Assessment, Development and Evaluation, National Health and Medicine Research Council, HAS French Health Authority.

will focus on the level of evidence used to support the basis for the recommendations rather than the strength of the recommendation. To simplify the assessment of the evidence provided in each guideline, the Joanna Briggs Institute’s (JBI) Levels of Evidence Framework for Effectiveness (Fig. 1) were used to illustrate the level of evidence for each recommendation. These may be viewed in Tables 2–4. The most commonly referenced studies were the TBT [19] and the PREsentation et MODe d’Accouchement (PREMODA) trial [4].

The RANZCOG [16], CNGOF [14] and RCOG [13] guidelines provided both the level of evidence and the corresponding citations which simplified the process of determining the JBI Levels of Evidence for their recommendations. The SOGC [15] guidelines provided both the level of evidence and citations only in some instances, while the ACOG [18] and IOG [17] guidelines provided citations for only some of their statements. In these cases, the references lists were reviewed and individual papers examined to try and determine which references might have been used to support their recommendations and allocated a JBI level of evidence as deemed appropriate. If no appropriate reference could be found, the recommendation was compared to the other guidelines. If no common reference could be identified, the recommendation was deemed to be based on guideline author/panel consensus and provided with a JBI evidence level of 5b (expert consensus).

3.3. Antenatal care

The recommended pathway of care for women experiencing a breech presenting fetus during the antenatal period varied in terms of content. Each guideline was reviewed, and key elements of antenatal care were extracted and displayed in Table 2. The following aspects of antenatal care were assessed: birth mode counselling, the risk of perinatal mortality (VBB versus C/S), ultrasound (USS), ECV, referral to another service or practitioner for on-going care or a second opinion and the reported success rate of VBB or the incidence of emergency caesarean section in planned VBB. Varying levels of evidence were provided for each recommendation across the guidelines. Several of these

recommendations were based on RCT protocols and small non-experimental studies.

Birth mode counselling recommendations were primarily based on expert consensus (5b). The RCOG [13] guidelines provides a comprehensive outline regarding the information to provide to women – with some important discussion points listed in the Table 3. These discussion points are based on data from systematic reviews of Randomised Controlled Trials (RCTs) and other study designs (1b), quasi-experimental prospectively controlled studies (2c), cohort studies with a control group (3c), cross-sectional studies (4b), and expert consensus (5b).

Five of the included guidelines cited specific perinatal mortality statistics for VBB and C/S and success rates VBB or rates of C/S for breech (elective and non-elective). Only RCOG [13] provided a comparison to cephalic vaginal births. These statistics were based on the TBT, PREMODA trial, a Cochrane systematic review on VBB versus C/S outcomes [20] and several smaller studies.

The use of USS is either recommended or the use is implied for women with a breech presentation in order to evaluate women’s suitability for VBB or rule out fetal anomalies which are supported by evidence from both experimental and non-experimental studies.

Every guideline recommended or supported the offering of ECV to women with a breech presenting fetus in the absence of contraindications. A review of the contraindications for ECV has been conducted previously [21], so this aspect of breech guidelines was not included in this review. These recommendations were supported by systematic reviews of RCTs (1a), systematic review of RCTs and other study designs (1b), RCTs (1c), cross-sectional studies (4b) and expert consensus (5b).

The only recommendation based solely on expert consensus (5b) for antenatal care was the referral of pregnant women to other maternity services (those that provide regular VBB services), if there was uncertainty about supporting women in a VBB or if there is a lack of access to experienced clinical personnel.

3.4. Selection and exclusion criteria

Labour selection and exclusion criteria were relatively consistent between the guidelines in terms of attitude of the

| | |
|--|--|
| JBI Levels of Evidence for Effectiveness | Level 1 Experimental Designs |
| | 1a – Systematic review of RCTs |
| | 1b – Systematic review of RCTs and other study designs |
| | 1c – RCT |
| | 1d – Pseudo-RCTs |
| | Level 2 Quasi-experimental Designs |
| | 2a - Systematic review of quasi-experimental designs |
| | 2b - Systematic review of quasi-experimental designs and other lower study designs |
| | 2c – Quasi-experimental prospectively controlled study |
| | 2d – Pre-test – Post-test or historic/retrospective control group study |
| | Level 3 Observational - Analytical Designs |
| | 3a- Systematic review of comparable cohort studies |
| | 3b – systematic review of comparable cohort studies and other lower study designs |
| | 3c – cohort study with control group |
| | 3d – case controlled study |
| | 3e – observational study without a control group |
| | Level 4 Observational Descriptive studies |
| | 4a – Systematic review of descriptive studies |
| | 4b – Cross-sectional study |
| | 4c – Case series |
| | 4d – Case study |
| | Level 5 Expert opinion and Bench Research |
| | 5a – Systematic review of expert opinion |
| | 5b – Expert consensus |
| | 5c – Bench research/single expert opinion |

Fig. 1. JBI levels of evidence for effectiveness.

Table 2
Antenatal care.

| Organisation | RCOG | SOGC | IOG | RANZCOG | CNGOF | ACOG |
|---|---|---|--|--|---|---|
| Birth mode counselling | <p>Counselling should consist of short/long term risks and benefits of planned VBB versus planned C/S for mother and fetus in an unbiased way (5b).</p> <p>Outlines specific important points include: No difference in long term neonatal outcomes regardless of birth mode (3c). Selection of appropriate pregnancies and skilled intrapartum care may allow for a planned VBB to be almost as safe as a planned cephalic birth (2c). Maternal complications are least with VBB, higher risk with planned C/S and the highest risk is with emergency C/S (1b). Risk of C/S to future pregnancies – vaginal birth after caesarean risk, increased risks with repeat C/S and risk of abnormally invasive placenta (1b, 2c, 4b).</p> | <p>Counselling should consist of short/long term risks and benefit of planned VBB versus planned C/S to both mother and fetus (5b).</p> | <p>Should be completed by senior obstetrician as soon as possible (5b).</p> <p>Include short/long term risks to mother and fetus (5b). Include that planned course of action could change based on clinical circumstances (5b). Acceptable to offer C/S if diagnosed before labour commences – advise woman she may labour too quick to carry out C/S, especially if she labours preterm or has had a previous vaginal birth (5b).</p> | <p>Women should be informed about ECV (5b).</p> <p>Counselling should involve risks and benefits of planned VBB (5b).</p> | <p>Acknowledges that information presented to women is an essential part of care (5b).</p> <p>Crucial the women understand the information provided (5b). Counselling should consist of short/long term risks and benefit of planned VBB versus planned C/S to both mother and fetus (5b).</p> <p>Discussion must be documented (5b).</p> | <p>Informed consent should be documented including risks that perinatal and neonatal mortality and serious short term neonatal morbidity may be higher for vaginal breech birth compared to C/S (5b). Specifics of counselling should be documented (5b).</p> |
| Risk of perinatal mortality VBB versus CS | <p>Cephalic vaginal birth risk 1/1000.</p> <p>C/S risk 0.5/1000.</p> <p>VBB risk 2/1000.</p> | <p>C/S risk 0–0.8/1000.</p> <p>VBB risk 0.8–1.7/1000.</p> <p>Risks based on having appropriately skilled clinicians. (1c, 2c, 3c, 3e)</p> | <p>Specific statistics not included.</p> | <p>C/S risk 0.3%.</p> <p>VBB risk 1.3%.</p> <p>(1c)</p> | <p>VBB risk 1%.</p> <p>C/S risk <1%.</p> <p>(1c, 3d)</p> | <p>C/S risk 1.6%.</p> <p>VBB risk 5%.</p> <p>(1c)</p> |
| USS | <p>(1b, 3c) Not specifically addressed but guideline implies its use – i.e. check for hyperextended head, EFW <10th, >3.8 kg (2c).</p> <p>Recommends use in conjunction with ECV guideline which would require USS (1b). Offer the procedure in the absence of contraindication (1b).</p> | <p>Recommended to determine type of breech, assess fetal growth and attitude of the fetal head/neck (1c, 2c, 3c, 4c).</p> | <p>Recommended to confirm presentation and biophysical profile, check for fetal malformation/s, identify placental location and EFW;</p> <p>If malformation detected offer referral for genetic testing (2c).</p> <p>Offer the procedure and advise woman if successful, spontaneous version to breech could occur (1b, 1c).</p> | <p>Recommended to confirm presentation and rule out abnormalities (including hyperextension of the fetal neck, cord or footling presentation), EFW (5b).</p> <p>Recommended in the absence of contraindication (2d).</p> | <p>Recommended to exclude hyperextension of the fetal head (5b).</p> <p>Offered in the absence of contraindications (5b).</p> | <p>Not mentioned.</p> <p>Should be offered in the absence of contraindications (1a).</p> |
| ECV | <p>Offer the procedure in the absence of contraindication (1b).</p> | <p>Recommended in the absence of contraindication (1a, 4b).</p> | <p>Offer the procedure and advise woman if successful, spontaneous version to breech could occur (1b, 1c).</p> | <p>Recommended in the absence of contraindication (2d).</p> | <p>Offered in the absence of contraindications (5b).</p> | <p>Should be offered in the absence of contraindications (1a).</p> |

Table 2 (Continued)

| Organisation | RCOG | SOGC | IOG | RANZCOG | CNGOF | ACOG |
|---|---|---|------------------------------|--|--|---|
| Referral to another service/practitioner for on-going care or as a second opinion | Recommends if access is limited to experienced personnel (5b) | Referral to more experienced centres, back-up on-call arrangements and continuing training in VBB skills should be promoted (5b). | Not discussed. | Not discussed. | Clinicians who are uncertain about supporting a woman in a trial of labour should refer her to clinicians more familiar with VBB management rather than directly referring her for a C/S (5b). | Not discussed. |
| VBB success rate or emergency C/S rate in planned VBB | Incidence of Emergency C/S in planned VBB 29–45% (2c, 3c). | Likelihood of C/S is 40–50% (2c, 3c). | Specific rate not discussed. | Almost 90% of breech presentations are born by C/S – no differentiation made between elective and non-elective C/S (3e). | Planned VBB success rate of 70% (3d). | Reports rate of in labour C/S for breech presentation to be 86.9% in 2002 (3e). |

JB levels of evidence for effectiveness:

Level 1 experimental designs: 1a – systematic review of RCTs, 1b – systematic review of RCTs and other study designs, 1c – RCT, 1d – Psuedo-RCTs.
 Level 2 quasi-experimental designs: 2a – systematic review of quasi-experimental designs, 2b – systematic review of quasi-experimental designs and other lower study designs, 2c – quasi-experimental prospectively controlled study, 2d – pre-test – post-test or historic/retrospective control group study.
 Level 3 observational – analytical designs: 3a – systematic review of comparable cohort studies, 3b – systematic review of comparable cohort studies and other lower study designs, 3c – cohort study with control group, 3d – case controlled study, 3e – observational study without a control group.
 Level 4 observational – descriptive studies) 4a – systematic review of descriptive studies, 4b – cross-sectional study, 4c – case series, 4d – case study.
 Level 5 expert opinion and bench research) 5a – systematic review of expert opinion, 5b – expert consensus, 5c – bench research/single expert opinion.

Table 3

Indications for caesarean section or labour exclusion criteria.

| Guidelines | RCOG | SOGC | IOG | RANZCOG | CNGOF | ACOG | JB levels of evidence for criteria |
|---|------|----------------|----------------|---------|--------|------|------------------------------------|
| Footling breech | + | + | + | – | – | – | 2c |
| Any presentation other than frank or complete | – | – | – | + | + | + | 2d, 3d, 5b |
| Hyperextension of the fetal head/neck | + | + | – | – | + | – | 2c, 2d, 3c, 5b |
| Extension of the fetal head/neck | – | – | – | + | – | – | 5b |
| Fetal growth/weight: | | | | | | | |
| <10th centile | + | – | + | – | – | – | 2c, 3c |
| <2.5 kg | – | – | – | – | – | + | 2d |
| <2.8 kg | – | + | – | – | – | – | 2c, 3c, 3e |
| >3.8 kg | + | – | + | – | + | – | 2c, 5b |
| >4 kg | – | + | – | – | – | + | 1c, 2c, 2d, 3c, 3e |
| Growth restriction | – | – | – | + | – | – | 5b |
| Macrosomia | – | – | – | + | – | – | 5b |
| Previous C/S | – | – | + | – | – | – | 2c, 3a |
| Other factors: | | | | | | | |
| Fetal compromise | + | – | + | – | – | – | |
| Fetal anomalies that may interfere with a vaginal birth | – | + | – | + | – | – | |
| Cord presentation | – | + | – | + | – | – | |
| Clinically inadequate maternal pelvis | – | + | – | + | + | – | |
| Low AFI (vertical pocket <3 cm) | – | – | – | – | – | + | |
| # Of contraindications per guideline | 5 | 7 | 5 | 7 | 4 | 4 | n/a |
| JB levels of evidence as per each guideline | 2c | 2c, 3c, 3e, 4c | 2c, 3a, 3c, 3e | 5b | 3d, 5b | 2d | n/a |

+ Included.
 – Not included.

fetal head; growth restricted or macrosomic fetuses should be excluded from a VBB, and that a footling breech was an indication for C/S. Table 3 outlines indications for C/S as per each guideline. However differences exist between fetal weight parameters and maternal indications for C/S. The RANZCOG [16] criteria were all indicated to be based on consensus (5b) but showed similarities to other guidelines who based, at least some of the criteria, on greater levels of evidence (2c–d, 3a, 3c–e, 4c). These include reference to the TBT [19], the PREMODA [4] trial (both of which employed similar criteria), secondary analysis of the TBT data to determine factors associated with adverse outcomes [22] and other smaller studies including a case review study of neonates who were born with a hyperextended head [23].

3.5. Intrapartum care

Each of the clinical guidelines were reviewed in terms of recommended methods for fetal monitoring, maternal birth positions, clinicians, available facilities, pain relief, first and second stage, labour induction or augmentation and management of women who presented with an undiagnosed breech presentation in labour (see Table 4). All but of one the guidelines (ACOG) made specific recommendations regarding the management of breech labours.

The evidence provided to support the recommendation of Continuous Electronic Fetal Monitoring (CEFM) was based on a quasi-experimental prospectively controlled study (2c), case series (4c) and expert opinion (5b). The studies these recommendations

Table 4
Intrapartum management.

| Labour management | RCOG | SOGC | IOG | RANZCOG | CNGOF | ACOG |
|--|---|---|--|---|--|--|
| Monitoring | Inform women CEFM may lead to improved outcomes though evidence is lacking (2c) | CEFM recommended (4c) | CEFM is indicated (2c) | CEFM (5b) | CEFM (5b) | Simply states VBB may be reasonable under hospital specific protocol (2d). |
| Maternal position | Semi-recumbent or all fours, should depend on maternal preference and experience of the attendant (2c, 3c, 5b) | Not discussed | Not discussed | Not discussed | Not discussed | See above |
| Clinicians | Skilled birth attendant is essential for safety of VBB (2c, 2d, 3c, 3e) | Skilled obstetrician should be present during the active second stage and birth (1c, 2c) | VBB should be conducted by a senior obstetrician. All obstetricians and midwives involved in intrapartum care should be trained in how to conduct a VBB (2c). | Suitably experienced obstetrician to manage delivery, arrangements to manage shift changes and fatigue (5b). | Obstetrician must be present, immediate access to an anaesthesiologist and paediatrician at the final stage of fetal expulsion (5b). | See above |
| Facilities | Hospital facilities with immediate access to C/S though birth in theatre not usually recommended (1c, 2c) | Should take place in hospital where rapid C/S is available, especially if the woman does not meet criteria but wishes to have a vaginal birth (3e, 5c) | Guideline imply birth should take place in hospital with immediate access to C/S, paediatricians, etc. (1c, 2c) | Immediate access to skilled anaesthetic staff, C/S and paediatric resuscitation (5b) | In a maternity ward with immediate access to C/S (3d, 5b). | See above |
| Pain relief | Epidural is likely to increase the risk of intervention, effect on VBB is unclear (2c). | Not specifically mentioned | Not discussed | Access to anaesthetic staff though pain relief not specifically mentioned (5b). | Epidural with low concentration of local anaesthesia must be encouraged (5b). | See previous |
| First stage/ passive second stage | First stage should be managed according to the same principles as a cephalic presentation. Recommend allowance for passive descent of breech to perineum in second stage (2c). | Passive second stage of up to 90 min to allow the breech to descend well into the pelvis (2c) | Women presenting in late first stage or in second stage should not prompt an emergency C/S, especially if they have had a previous vaginal birth (3c, 4d). | Not discussed | See below. | See above |
| Active second stage | Assistance without traction if there is delay or the evidence of poor fetal condition. All obstetricians and midwives should be familiar with techniques to assist VBB (5b). | Traction should be avoiding if possible. | See above | Not discussed | Active pushing should begin when fetus is engaged as low as possible (5b). | See above |
| Induction/ augmentation | Not usually recommended. Amniotomy reserved for definite clinical indications. May consider oxytocin in the presence of epidural anaesthesia and fewer than 4:10 contractions. (2c, 5b) | Recommend the presence of a skilled obstetrician (5c). Amniotomy should be avoided unless there is a clear indication and fetus is well engaged. Oxytocin augmentation may be appropriate for infrequent or weak contractions. Induction of labour maybe appropriate (selection criteria). (2c, 2d) | Oxytocic agents to induce or augment labour should be avoided as it may disguise fetopelvic disproportion, though acceptable for delivery of the after-coming head (5b). | Not discussed | Not contraindicated though there is a higher rate of C/S birth in women who are induced (in general) (3d, 5b). | See above |
| Undiagnosed breech before labour | Women near or in active second stage should not be routinely offered C/S. Where labour is progressing rapidly and fetus is very low, attempting a C/S is likely to increase perinatal and maternal risk as is an attempt of VBB in theatre with spinal anaesthesia or C/S when the breech is on the perineum. USS if time permits. (1c, 5b) | USS should be performed, if unavailable breech type and normal growth should be determined clinically otherwise C/S indicated (2c, 3c, 3e, 4b, 4c). | See first stage/passive second stage. | USS if able, obstetrician to discuss risks/benefits of emergency C/S versus VBB according to individual circumstances (5b). | Not discussed | See above |

are based on include a study which explored the outcomes of VBBs where the protocol included CEFM [4] and the cases series examined neonatal morbidity and mortality related to cord prolapse [24].

Only the RCOG guidelines made reference to maternal position for birth, and support the use of a semi-recumbent or all fours position based on an observational study comparing an all fours position with 'classic support' (lithotomy) [25]. A Cochrane systematic review, concluded that upright positions in labour allowed the maternal pelvis to change diameters with movement [26], and a description of the mechanisms of physiological breech birth was provided by an independent midwife [27].

The recommendation for the presence of a skilled birth attendant, and breech birth conducted in hospital, was consistent across the five guidelines which made specific recommendations for the safety of VBB [13–17]. Four of these guidelines [14–17] specifically recommended the attendance of an obstetrician or for an obstetrician to act as primary accoucheur based on recommendations to come from the TBT, the PREMODA trial and a study exploring the safety of home based birth [28] and expert commentary [29].

4. Discussion

4.1. iCAHE Guideline Quality Checklist

The iCAHE checklist was chosen to examine the quality of the clinical guidelines included in this review. When compared to appraisal tools such as the such as the AGREE II, it has been shown to be more time efficient (by up to 55 min), easier to implement, and can be used by an individual or group, while giving similar rankings to guidelines as the AGREE II appraisal tool which is considered by some to be the gold standard for assessing the quality of clinical guidelines [11]. The questions in the iCAHE and AGREE II share similarities across four domains: Scope and Purpose, Stakeholder Involvement, Underlying Evidence/Rigour and Clarity [11]. The iCAHE checklist also covers currency, availability and summary, while the AGREE II instrument covers applicability and editorial independence [11]. Editorial independence was addressed by the lead author of this review by investigating whether or not each guideline was peer reviewed prior to publication. Whether or not each guideline is applicable is out of the scope of this paper, however, in the current climate surrounding breech birth which is well documented in the literature [1,3,30,31], the woman-centred aspects of the reviewed guidelines may be difficult to implement.

4.2. Consistencies and inconsistencies

This paper has highlighted substantial differences between six national guidelines for breech presentation published between 2016 and 2020. Consistencies were found in terms of antenatal screening and treatment options, indications for C/S and intrapartum monitoring. However inconsistencies were found in the diverse quality of the guidelines, varying statistics reported in regards to perinatal mortality, the success of VBB or the rate of C/S for breech presentation and the differences in the counselling recommendations were the main findings of this review. For example, the only guideline to provide a comparison of VBB to cephalic vaginal births was the RCOG [13] guidelines. When presented in this manner, it is evident that the risk of VBB itself is low.

The emergence of new research, differences in search strategies, evidence selection, interpretation and the professional philosophies and opinions of those contributing to the development of the guidelines may account for some of the discrepancies

noted [2]. Many of the recommendations outlined within the reviewed guidelines are based on expert opinion or consensus rather than evidence. While this may be appropriate where evidence is lacking, for transparency's sake, organisations should clearly report their research methodologies and acknowledge gaps in the literature in their clinical practice guidelines [10].

4.3. Levels of evidence

Despite the reviewed guidelines being published within five years of each other, the only universally referenced evidence was the TBT [19]. The next most commonly referenced study was the PREMODA trial which was mentioned in all guidelines except those from ACOG [16] where it was not included. While RCTs are considered the gold standard for assessing interventions (i.e. C/S versus VBB), care must be taken to examine the results of any study in detail, particularly those that will inform clinical recommendations and therefore practice [32,33]. With concerns raised to the TBTs validity due to issues regarding implementation, recruitment, randomisation and differing labour management protocols between participating sites studies such as Goffinet et al. [4], need consideration. The PREMODA trial involved a larger sample size, was conducted in countries where VBB was still common and showed significantly lower rates of perinatal mortality than the TBT. While it was not an RCT, there were not the same concerns raised in regards to the implementation and execution of the study, and the data supported the notion that under the right conditions and with appropriately skilled birth attendants, VBB was a viable option for some women [4]. For those using such guidelines, consideration needs to be given to the research the recommendations are based on, and any emerging research related to the situation or condition.

4.4. Birth mode decision making

A primary focus for women diagnosed with a breech presentation is the safety and health of their baby and is the central focus of modern maternity care [34,35]. Guidelines from areas which are more supportive of VBB (Canada, France, United Kingdom) report a higher VBB success rate or lower emergency C/S rate, while countries which seem to be more supportive of lower VBB success rates or higher C/S rates for breech presentation (Australia and United States of America). The majority of the guidelines reviewed reported rates of perinatal mortality between 0.2–1.3% for VBB, the ACOG guidelines report a perinatal mortality rate of 5%, which is significantly higher. The varying rates reported for VBB success rate or rate of emergency C/S and perinatal mortality may be problematic for clinicians in terms of breech birth counselling however, these inconsistencies may be accounted for due to differences in clinical practice and dominant attitudes towards breech birth and maternity care in general within these territories. As clinical practice guidelines are used to inform policy and practice [10] it is not unreasonable to assume that the tone and focus of a clinical practice guideline has the potential to influence perceptions of VBB among clinicians and women.

Women's birth mode decision-making is effected by several internal and external influences [9]. Internal influences include a woman's personality, experiences and personal birth culture, while external influences include time available to make the decision, relationships with their partner, family and friends, as well as interactions with healthcare professionals [36]. Breech birth counselling is known to have a significant effect on birth mode decision-making [37]. Halvorsen et al. [38], found that the attitude or bias of the counselling had significant influence on birth mode decision-making, which was supporting by the findings of

Abdessalami et al. [37]. If a woman is provided care by someone who shows a preference for C/S, she is more likely to opt for a C/S [37], even if she would prefer to birth vaginally [39]. While C/S reduces the potential immediate risk to the fetus, it poses significant future risk to women and any future pregnancies [9]. These risks include higher risk of infection, deep vein thrombosis, greater likelihood of a post-partum haemorrhage, longer hospital stays and increased risk of complications such as abnormal implantation of the placenta and uterine rupture [1]. For women who have already experienced a C/S birth, only two of the guidelines discussed this and statements differed. The CNOGF state that a previous C/S is not a contradiction to VBB while IOG states that it is reasonable to offer repeat C/S at 39 weeks gestation. With many women wanting large families and the incidence of repeat C/S for previous is increasing [40], this is an important factor which should be included in the birth mode discussion between women and their clinicians for family planning reasons, particularly for women in their first pregnancies.

Morris et al. [39] found that women experiencing a breech presenting fetus at term were provided with information regarding birth mode that was often biased towards C/S. Balanced written information was suggested by women as a decision making aid [39], such as that available from the Breech Birth Network website [41]. This pamphlet explains what a breech presentation is, the different types of breech presentation, discusses ECV and provides balanced information related to birth mode options along with visual representations of statistics comparing the perinatal mortality rate between cephalic vaginal birth, VBB and C/S. This pamphlet was also developed in conjunction with women who experienced a term breech pregnancy.

4.5. Breech presentations

In terms of the differing types of breech presentation only the SOGC guidelines provided a description of a complete, frank, and footling breech. A footling breech is often listed as a contraindication to a VBB [13,15,17]. The SOGC guidelines defines a footling breech presentation as a fetus where "... one or both hips are extended" and provides an explanation for the recommendation of a C/S, that being a ten-fold risk of cord prolapse (10% versus 1%) compared to frank breech [15]. Another clinical guideline from Australia – not included in this review, proposes an alternative definition of a footling breech "... where one or both feet are presenting as the lowest part of the fetus" [42]. As the feet of a complete breech may be felt below the buttocks [15], the Royal Women's Hospital definition of a footling breech contradicts that provided by the SOGC guidelines. The lack of a standard definition of a footling breech is problematic because the term is open to interpretation and will invariably lead to a higher rate of C/S for breech in this setting, further limiting birth mode options for women.

4.6. Autonomy, consent and breech birth

Respect of women's bodily autonomy has been the focus of feminist and midwifery agendas for decades due to a lack of adherence to this principle, particularly in maternity care [43]. In relation to breech presentation, women who decline recommended procedures such as C/S can be characterised as difficult or selfish [44] and experience coercion, threats [39] and in extreme cases withdrawal of care [43]. Morris et al. [39], found women who's wishes for a vaginal breech birth were accepted by their clinicians, often had to compromise on other preferences in terms of birth place (i.e. birth centre setting) and birth position (i.e. all fours) to suit institutional policies and clinician preferences. In terms of autonomy, only the SOGC [15] state that women's choice

in regards to birth mode for breech presentation should be respected, while other guidelines state it should be a joint decision between the woman and the obstetrician [14]. For care to be truly collaborative, women need to be presented with balanced information regarding their options.

Recommendation 5 of the RANZCOG [16] guidelines state:

"Where there is maternal preference for vaginal birth, the woman should be counselled about the risks and benefits of planned vaginal breech delivery in the intended location and clinical situation" (p. 4 & 8).

However, if the woman presents in labour with an undiagnosed breech presentation the guidelines state in Recommendation 8 that the obstetrician should explain:

"... the respective risks and benefits of each option (emergency C/S or VBB) according to her individual circumstances" (p. 4 & 9)

This ambiguity within a clinical guideline is challenging. In Australia, for consent to meet legal requirements, three criteria need to be met – the person providing consent has to be mentally competent, fully informed of all their options including their right to refuse treatment and under no duress [45]. If women are not presented with current evidence-based information regarding all options available to them, it raises concerns regarding the validity of the consent they provide. All clinicians providing care have a legal and ethical responsibility to provide complete and impartial information about the risks and benefits of all treatments available [1,46]. In relation to breech birth mode, for consent to be valid, women would have to be informed of the potential short and long term (maternal and neonatal) risks and benefits of a VBB and those of a C/S.

4.7. Midwifery and breech birth

During the process of obtaining guidelines for review, the lead author conducted an additional search to determine if there were any breech birth guidelines produced by midwifery organisations such as the Australian College of Midwives (ACM). None were found. The RCOG [13] and IOG [17] guidelines supported the training of both obstetricians and midwives in breech birth skills, and RCOG involved midwives in their peer review process. While some believe that VBB is an obstetric skill [29] and this is supported in some of the guidelines, others believe that an experienced midwife with the appropriate skills is the most suitable professional to oversee a VBB [1,47,48]. However, the RCOG [13] and IOG [15] guidelines support the development of VBB skills for both midwives and obstetricians, primarily because the safety of a VBB is directly related to the skill and experience of the attendant.

Midwives can and have been shown to make an impact on the quality of women's experiences of breech birth [39]. Midwives have been portrayed as supportive navigators of a medicalised system for women experiencing a breech presenting fetus at term through the intentional referring of women to obstetric professionals known to be supportive of VBB [39]. Dr Shawn Walker, a Specialist Breech Midwife, recommends the implementation of multidisciplinary breech teams [49]. Members of the team (both midwives and obstetricians) are mentored in skill development and supported to attend breech births by a breech specialist [7]. The Breech Specialist Midwife role, to the authors' knowledge, was first implemented in the UK and includes the use of basic third trimester USS and ECV [50]. The model of care allows the team to increase their level of skill over a relatively short time, improving the safety of the breech births they attend while receiving specialist support [7]. Once they have consolidated their own skills, the team may then provide specialist support to other

midwifery and obstetric members of the organisation, through a similar process [7]. This role could be implemented in other organisations wishing to increase the skill level of their workforce in VBB and accessibility to supportive, specialised care for women.

Midwives are also making significant contributions to breech research. Dr Shawn Walker is the Chief Investigator for the OptiBreech study currently underway in the UK with the other Principle Investigators Emma Spillane, Gillian Houghton and Kate Stringer all being Consultant Midwives. This study is aimed at determining the feasibility and acceptability of proficient team care for women planning a VBB. Full details of the OptiBreech Project can be obtained from the study's website (<https://optibreech.uk/>).

5. Limitations

This study has some limitations. The guidelines were purposively selected because they are extensively used and referred to and are published by prominent obstetric organisations. Numerous other guidelines are readily available from different hospitals, health departments or services and professional organisations. However, it was beyond the scope and intentions of this study to review all available clinical practice guidelines. This decision was made because it was likely that the less prominent guidelines would refer to those chosen for review. Another limitation involves the use of the JBI Levels of Evidence only, rather than pairing it with a grading for the recommendations as well. However examining every reference utilised by the examined guidelines was not achievable in the time available to the authors and in most cases would be duplication.

6. Conclusion

This paper has critically evaluated prominent breech birth guidelines and identified key consistencies and inconsistencies among them. The authors acknowledge that breech birth is a challenging area of practice due to an adherence to recommendations made over two decades ago, a lack of adequately experienced and skilled clinicians and the individual clinical issues that may occur for each woman. However, a lack of consistency among clinical guidelines further contributes to the complexities by potentially confusing and creating uncertainty among clinicians and women alike [10], especially in an area of practice that is already divisive such as breech presentation.

With numerous institutions and clinicians using professional guidelines to dictate policy and practice relating to the care of all women, policy makers should emphasise the importance of providing balanced and consistent information. With leading guidelines such as those from RANZCOG and ACOG, focusing on the risks of a VBB, compared to a C/S without also discussing the risks of a C/S when a breech presentation is diagnosed prior to labour, has the potential to sway clinician attitudes and therefore birth mode decision-making in women. As a means of respecting women's right to bodily autonomy and fulfilling the legal requirements of consent, clinicians providing breech birth mode counselling should provide balanced and unbiased counselling as recommended in recent breech birth research. The use of balanced, standardized and evidence-based written information may aid women and clinicians in decision-making. Midwives have the potential to influence women's experiences of breech presentation and contribute to changing current clinical practice.

Ethical statement

Permission to undertake the study was gained from the University Human Research Ethics Committee (HREC) – Project number 19566 MORRIS. The approval date was 22/10/2018.

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Conflict of interest

The authors declare no conflict of interest.

CRedit authorship contribution statement

Sara Morris: Conceptualization, Methodology, Formal analysis, Investigation, Data curation, Writing - original draft, Visualization, Project administration. **Sadie Geraghty:** Writing - review & editing, Supervision. **Deborah Sundin:** Writing - review & editing, Supervision.

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