National Women & Infants Health Programme

National Clinical Practice Guideline

Assisted Vaginal Birth



INSTITUTE OF OBSTETRICIANS & GYNAECOLOGISTS

ROYAL COLLEGE OF PHYSICIANS OF IRELAND

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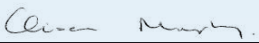
Document Approver Sign-off:	
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This Guideline aims provide evidence-based recommendations for the care of pregnant women who experience assisted vaginal birth, as well as promoting a standardised approach across all maternity services in the Republic of Ireland.
Description:
The guideline establishes evidence-based standards for assisted vaginal birth, emphasising clinical assessment, informed consent, operator competency and appropriate instrument selection. It outlines procedural safety criteria, indications for discontinuation and contingency planning. Aftercare includes antibiotic prophylaxis, analgesia, bladder monitoring, pelvic floor rehabilitation and psychological support, alongside individualised counselling regarding future births.

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Algorithm

Decision-making for Assisted Vaginal Birth (AVB)

Safety criteria for Assisted Vaginal Birth confirmed
Consider urgency on review of CTG

Where to perform AVB

Continue in the Labour Room if:
- Station is at least +1
- No rotation or rotates easily
- No features of CPD
- Effective anaesthesia
- Low probability of failure

Consider transfer to Theatre if:
- Station 0/+1
- Rotation required
- Features suspicious of CPD
- Neuraxial anaesthesia needed

Which instrument for AVB

- Select instrument within competency of clinician/supervising clinician
- Select instrument where likely to succeed, aim to avoid sequential instruments
- Avoid vacuum assisted birth at < 32 weeks gestation; caution at 32-36 weeks

Application of instrument

If unable to achieve correct application easily:
- Reassess engagement, station, position, and asynclitism
- Seek second opinion if less experienced
- Experienced clinician to reassess, consider reapplication, change instrument
- Discontinue procedure if correct application not achieved

Rotation (if indicated)

If unable to achieve rotation easily:
- Experienced Obstetrician to check application and rotation technique
- Discontinue procedure if rotation not achieved with above measures
- Note: AVB in direct OP position may occur with vacuum or at low station forceps

Traction

If progressive descent not observed with appropriate traction over 1-2 pulls:
- Check position, station, instrument application/seek second opinion
- Experienced clinician may revise direction of traction/change instrument
- Discontinue procedure if descent not achieved/two ‘pop offs’ of vacuum

Review progress after each pull

Consider discontinuing the procedure after 3 pulls:
- Vacuum – If fetal skull has not reached the pelvic floor/or two ‘pop offs’
- Forceps – if head is not crowning with birth imminent

Unsuccessful attempt at AVB

Contingency planning following unsuccessful attempt at AVB
- Consider forceps if unsuccessful vacuum at low station
- Anticipate surgical complexity at second stage caesarean birth
- Anticipate fetal head impaction at caesarean after unsuccessful AVB

- Alert Neonatologist of increased risk of neonatal morbidity
- Complete AVB documentation/Incident form/Aftercare plan
- Debrief the mother/partner

Key Recommendations

Documentation and Risk Management

1. A standard classification system should be used for AVB based on position and station of the fetal head. *Best practice*
2. A standard proforma should be used to record the technical aspects of the procedure with additional documentation on indication, timings, outcomes, and complications. *Best practice*
3. Paired cord blood samples should be processed and documented where possible following all attempts at AVB. *Best Practice*
4. Adverse maternal and perinatal outcomes require an incident report as part of risk management procedures. *Best Practice*
5. A standard classification and reporting approach should be part of clinical training. *Best practice*
6. AVB is indicated for maternal or fetal reasons, and these often co-exist. No indication is absolute and clinical judgment is required in all situations. *Best practice*
7. AVB is only indicated where the safety criteria are confirmed following a full assessment of the clinical situation, and where consent is given following clear communication with the woman. *Best practice*
8. Ultrasound assessment of the fetal head position prior to AVB is recommended where uncertainty exists following clinical examination. *Grade 1A*
9. Potential restrictions and contraindications to AVB should be documented in advance. Forceps assisted birth may be indicated where vacuum is not. *Best practice*
10. Vacuum assisted birth should be avoided below 32 weeks of gestation and used only by experienced clinicians between 32^{+0} and 36^{+0} weeks of gestation. *Grade 1C*
11. Women should be informed routinely about AVB in the antenatal period, especially in their first pregnancy. If specific preferences or restrictions are expressed, then these should be explored with experienced health professionals and documented in the woman's records. *Best practice*
12. When mid or rotational AVB is being considered, women should be advised of the risks and benefits of AVB compared with the alternatives of continued pushing or second stage caesarean birth. *Grade 1C*
13. Verbal consent should be obtained prior to AVB in a labour room, with written consent if feasible. Written consent should be obtained for a trial of AVB in an operating theatre. *Best practice*

Procedural Aspects of Assisted Vaginal Birth

14. AVB should be performed and/or supervised by a clinician who has the knowledge, skills and experience necessary to assess the woman, complete the procedure and manage any complications that arise. *Grade 2C*
15. Obstetric trainees should receive appropriate training in vacuum and forceps assisted birth, including theoretical knowledge, simulation training, and clinical training under direct supervision. Competency should be assessed before conducting unsupervised AVBs. *Grade 2C*
16. Complex AVBs (mid or rotational) should only be performed by experienced clinicians or under the direct supervision of an experienced clinician. *Grade 2C*
17. AVBs that have a low probability of failure can be conducted in a labour room. *Grade 2C*
18. AVBs that have a higher risk of failure should be considered a 'trial' and be conducted in an operating theatre. *Grade 1C*
19. Where there is urgency due to suspected fetal compromise, decision-making should take account of the time to perform an AVB, the time to transfer a woman to an operating theatre, and the likelihood of a safely completed procedure. *Grade 2C*
20. The clinician should choose the instrument most appropriate to the clinical circumstances and their level of skill. *Best practice*
21. Clinicians should consider that forceps and vacuum extraction are associated with different benefits and risks; failure to complete the birth with a single instrument is more likely with vacuum, and obstetric anal sphincter injury (OASI) is more likely with forceps. *Grade 1A*
22. Rotational AVBs should be performed by experienced clinicians. Effective approaches include rotational vacuum, manual rotation followed by direct traction forceps or vacuum, and Kielland's rotational forceps. *Grade 1C*
23. Where possible, occipito-posterior (OP) position should be rotated to occipto-anterior (OA), which presents smaller dimensions and results in less severe perineal trauma. *Grade 2C*
24. Top-up of epidural analgesia pudendal nerve block, and infiltration of local anaesthetic to the perineum are all suitable for low or lift-out procedures. *Best practice*
25. Neuraxial anaesthesia (epidural or spinal) is required for most mid or rotational procedures. *Best practice*
26. For trial of AVB in an operating theatre, effective neuraxial anaesthesia should be provided that allows immediate recourse to caesarean section if AVB is discontinued. *Grade 2C*
27. In most cases vacuum-assisted birth should be completed within three pulls [defined as three contractions, even if there are multiple maternal 'pushes' within each contraction] to bring the fetal head onto the perineum and up to three additional gentle pulls to ease the head over the perineum. *Grade 1C*
28. If there is minimal descent with the first one or two pulls of a vacuum, the clinician should consider whether the application is suboptimal, the fetal position has been incorrectly diagnosed or there is cephalopelvic disproportion. Less experienced clinicians should stop and seek a second opinion. Experienced clinicians should re-evaluate the clinical findings and either change approach or discontinue the procedure. *Best practice*
29. Vacuum-assisted birth should be discontinued if there have been two 'pop-offs' of the instrument. *Grade 2C*

30. The use of sequential instruments should be avoided, however, if the fetal head is on the pelvic floor following failed vacuum, the clinician needs to balance the risks of a caesarean birth with the risks of forceps and recommend the best approach for the circumstances. *Grade 1C*
31. Forceps assisted birth should be discontinued if the forceps cannot be applied easily or the handles do not approximate easily. *Best practice*
32. Rotational forceps should be discontinued if rotation cannot be achieved easily with gentle pressure. *Best practice*
33. In most cases forceps assisted birth should be completed within three pulls [defined as three contractions, even if there are multiple maternal 'pushes' within each contraction] of a correctly applied instrument by an experienced clinician. *Grade 2C*
34. If there is minimal descent with the first one or two pulls of the forceps, the clinician should consider whether the application is suboptimal, the position has been incorrectly diagnosed or there is cephalopelvic disproportion. Less experienced clinicians should stop and seek a second opinion. Experienced clinicians should re-evaluate the clinical findings and either change approach or discontinue the procedure. *Best practice*
35. Clinicians should be aware of the increased risk of fetal head impaction at caesarean birth following an unsuccessful attempt at AVB and should disimpact the fetal head using recognised manoeuvres. *Grade 1C*
36. Clinicians should be aware of the increased risk of serious neonatal morbidity following unsuccessful AVB and/or sequential use of instruments. The neonatologist should be alerted to ensure appropriate care of the baby. *Grade 1C*
37. Episiotomy should be discussed with the woman as part of the preparation for AVB. The decision to perform an episiotomy should be individualised according to the clinical circumstances and maternal preferences. *Best practice*
38. The evidence to support routine use of medio-lateral or lateral episiotomy at AVB in terms of preventing obstetric anal sphincter injury (OASI) is stronger for nulliparous women and for forceps assisted birth. *Grade 1B*
39. When performing a mediolateral episiotomy, the cut should be at a 60° angle initiated when the head is distending the perineum. *Grade 2C*

Aftercare following Assisted Vaginal Birth

40. A single prophylactic dose of intravenous amoxicillin and clavulanic acid (or similar broad spectrum antibiotic) should be recommended following AVB as it significantly reduces superficial or deep perineal wound infection. *Grade 1A*
41. In the absence of contraindications, women should be offered regular nonsteroidal anti-inflammatory drugs (diclofenac or ibuprofen) and paracetamol routinely for analgesia. *Grade 1A*
42. Women should be assessed after AVB for venous thromboembolism risk factors and the need for thromboprophylaxis. *Grade 2C*
43. Women should be advised at the earliest opportunity about the risk of urinary retention so that they are aware of the importance of bladder emptying in the postpartum period. *Best practice*
44. The timing and volume of the first void urine should be monitored and documented and a post-void residual should be measured if urinary retention is suspected. *Grade 2C*

45. Women who have received neuraxial anaesthesia for a trial of AVB in theatre should be advised to have an indwelling catheter for 6-12 hours after the birth to prevent covert urinary retention. This should be removed according to the local protocol. *Best practice*
46. Women should be advised that transient urinary incontinence is common following AVB. They should be offered physiotherapy-directed strategies to reduce the risk of persistent urinary incontinence and long-term pelvic floor dysfunction. *Grade 1C*
47. Women should be reviewed before hospital discharge to discuss the indication for AVB, the conduct of the procedure, management of any complications and advice for future births. Best practice is for the woman to be reviewed by the Obstetrician who performed the procedure. *Grade 2C*
48. Advice and support through a "Birth Reflections" service or similar postnatal review service, should be offered to women who wish to talk about their experience. The effect on the birth partner should also be considered. *Best practice*
49. Women with suspected post-traumatic stress disorder (PTSD) symptoms at 6 weeks should be referred to specialist services such as the local perinatal mental health team. *Grade 2C*
50. Documentation following AVB should include detailed information on the indication, conduct of the procedure, and any complications, that allows sufficient information for counselling in relation to subsequent pregnancies and births. *Best practice*
51. Women should be Informed that there is a high probability (78-91%) of a spontaneous vaginal birth in a subsequent labour following an uncomplicated AVB. *Grade 1C*
52. Care for women who have sustained an obstetric anal sphincter injury (OASI), who have ongoing pelvic floor dysfunction, or who have experienced psychological trauma should be individualised, including the offer of a caesarean birth in a future pregnancy. *Grade 1C*

Chapter 1: **Initiation**

The National Clinical Effectiveness Committee (NCEC) and Health Information and Quality Authority (HIQA) define clinical guidelines as systematically developed statements, based on a thorough evaluation of the evidence, to assist practitioner and patient decisions about appropriate healthcare for specific clinical circumstances, across the entire clinical spectrum[1].

1.1 Purpose

The purpose of this Guideline is to provide comprehensive evidence-based guidance for assisted vaginal birth (AVB). This document provides advice for healthcare professionals (HCPs) around the provision of safe, evidence-based care to pregnant women. Where there is a lack of strong evidence, consensus and expert opinion informs clinical practice recommendations. This Guideline is designed to guide clinical judgement but not to replace it.

1.2 Scope

Target Users

This Guideline is a resource for healthcare professionals providing care to women in the antenatal, intrapartum and postpartum periods. This includes Doctors, Midwives, Advanced Midwifery Practitioners[2] Neonatal Specialists, Physiotherapists, Mental Health Professionals and General Practitioners.

Target Population

This Guideline is intended for pregnant women attending maternity services.

1.3 Objective

To provide evidence-based recommendations for the care of pregnant women who experience assisted vaginal birth, as well as promoting a standardised approach across all maternity services in the Republic of Ireland.

1.4 Guideline development process

The Guideline Developers agreed to undertake this work under the direction of the Guideline Programme Team (GPT). An Expert Advisory Group (EAG) was commissioned by the GPT. Their role was to critically review the Guideline prior to submission to the National Women and Infants Health Programme (NWIHP) for final approval.

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1 National Clinical Effectiveness Committee (NCEC) and Health Information and Quality Authority (HIQA) (2015) National quality assurance criteria for clinical guidelines. Version 2. Dublin: NCEC and HIQA. https://www.hiqa.ie/sites/default/files/2017-01/National-Quality-Assurance-Criteria.pdf

2 Nursing and Midwifery Board of Ireland (NMBI) (2018) Advanced Practice (Midwifery) Standards and Requirements. Dublin http://www.nmbi.ie/NMBI/media/NMBI/Advanced-Practice-(Midwifery)-Standards-and-Requirements-2018-final.pdf

See Appendix 1 for EAG membership and Appendix 2 for Guideline Programme Process.

The Guideline Development Group (GDG) comprised of clinical and academic obstetric and midwifery health professionals with expertise in intrapartum care.

The GDG comprised as follows:

- Professor Deirdre J Murphy, Head of Obstetrics & Gynaecology, Trinity College Dublin & Consultant Obstetrician, The Coombe Hospital
- Dr Sahr Yambasu, Lecturer/Registrar, Trinity College Dublin & The Coombe Hospital
- Dr Yulia Shahabuddin, Senior Registrar, National Maternity Hospital, Holles Street
- Ms Clare Dunney, Lecturer in Midwifery & Midwife, Trinity College Dublin & The Coombe Hospital
- Dr Meena Ramphul, Consultant Obstetrician & Gynaecologist, Rotunda Hospital

1.5 Stakeholder involvement

Stakeholders are people who have a common interest in improving health services. This includes persons that are responsible for delivering and those who receive services related to the clinical Guideline.

The EAG has representatives from a broad range of professional backgrounds. Relevant to this Guideline there are representatives from Obstetrics, Neonatology, Midwifery as well as Physiotherapy and Anaesthesiology. A number of public, patient representatives are also included in the EAG, including a representative from Patient Advocacy Service Ireland and the Irish Neonatal Health Alliance.

1.6 Disclosure of interests

Guideline developers and reviewers bring a range of experiences and perspectives to the work of the national Guideline Programme. It is likely that both Guideline developers and stakeholders/reviewers will have a variety of interests, arising from different contexts and activities done in a professional or personal capacity. These can include employment and other sources of income, speaking engagements, publications and research, and membership of professional or voluntary organisations. The involvement of individuals with relevant content expertise is essential for enhancing the value of Guideline recommendations, but these individuals may also have interests that can lead to conflicts of interest, as may peer reviewers, patient representatives and researchers.

All interests should be declared if, in the view of a reasonable person, they are relevant, or could be perceived to be relevant, to the work of the Clinical Practice Guideline in question[3]. Declaring an interest does not mean there is a conflict of interest.

It is important that interests are openly declared so they can be appropriately managed. Conflicts of interest can bias recommendations and ultimately be harmful to women and the health system. Disclosures of interests and appropriate management of conflicts of interest, when identified, are therefore essential to producing high-quality, credible health guidelines[4].

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3 NICE (2019) Policy on declaring and managing interests for NICE advisory committees https://www.nice.org.uk/Media/Default/About/Who-we-are/Policies-and-procedures/declaration-of-interests-policy.pdf

4 Traversy G, Barnieh L, Akl EA, Allan GM, Brouwers M, Ganache I, Grundy Q, Guyatt GH, Kelsall D, Leng G, Moore A, Persaud N, Schünemann HJ, Straus S, Thombs BD, Rodin R, Tonelli M. CMAJ. 2021, 193(2):E49-E54. DOI: 10.1503/cmaj.200651 https://www.cmaj.ca/content/193/2/E49

The Guidelines International Network (GIN), a global network of Guideline developers that aims to promote best practices in the development of high-quality guidelines, developed a set of nine principles to provide guidance on how financial and non-financial conflicts of interest should be both disclosed and managed. It is recommended that Guideline developers follow the GIN principles[5].

For this National Clinical Practice Guideline, all Guideline developers are asked to complete a conflict-of-interest declaration form. The response to declared interests will be managed by the Guideline programme team, in accordance with GIN principles. Conflicts of interest may be reported in the published Guideline and declarations of interest can be made available.

Prof. D Murphy is lead author of the RCOG Guideline on Assisted Vaginal Birth and a co-author of the new Irish Guideline on Fetal Heart Rate Monitoring. She is a medico-legal expert witness for cases of cerebral palsy and perinatal death. She leads a research programme evaluating assisted vaginal birth and second-line tests of fetal wellbeing in labour.

1.7 Disclaimer

These guidelines have been prepared to promote and facilitate standardisation and consistency of good clinical practice, using a multidisciplinary approach. Information in this Guideline is current at the time of publication.

The ultimate judgement regarding a particular clinical procedure or treatment plan must be made by the Clinician in light of clinical data presented by the woman and the diagnostic and treatment options available. Clinical material offered in this Guideline does not replace or remove clinical judgment or the professional care and duty necessary for each specific woman. Clinical care carried out in accordance with this Guideline should be provided within the context of locally available resources and expertise.

This Guideline does not address all elements of standard practice and assumes that individual clinicians are responsible for:

- Discussing care with women in an environment that is appropriate and which enables respectful confidential discussion. This includes the use of interpreter services where necessary
- Advising women of their choices and ensure informed consent is obtained
- Provide care within professional scope of practice, meeting all legislative requirements and maintaining standards of professional conduct
- Applying standard precautions and additional precautions, as necessary, when delivering care
- Documenting all care in accordance with local and mandatory requirements.

5 Holger J. Schünemann, Lubna A. Al-Ansary, Frode Forland, *et al.*; for the Board of Trustees of the Guidelines International Network. Guidelines International Network: Principles for disclosure of interests and management of conflicts in guidelines. Ann Intern Med. 2015;163:548-553. doi:10.7326/M14-1885. https://www.acpjournals.org/doi/10.7326/m14-1885

1.8 Use of language

Within this guidance we use the terms 'woman' and 'women's health'. However, it is important to acknowledge that people who do not identify as cis-gender women are excluded from this descriptor, including people who identify as transgender, gender diverse and gender non-binary[6]. While there has been a trend to remove the word 'woman/women' and use 'gender neutral' language in policy and practice in relation to women's reproductive health and wellbeing, there is no evidence base to inform this change.[7] We also appreciate that there are risks to desexing language when describing female reproduction[8] [9].

Services and delivery of care must be appropriate, inclusive and sensitive to the needs of people whose gender identity does not align with the sex they were assigned at birth. This includes training and education regarding diverse pathways to pregnancy and the use of practices which affirm the sexual and gender identities of all people using Obstetrics and Gynaecology services. Finally, all those using maternal and reproductive health care and services should receive individualised, respectful care including use of the gender nouns and pronouns they prefer.[7]

Language use is key to effectively communicate options, recommendations, and respectfully accept a woman's fully informed decision[10]. With this in mind, the use of birth is preferable to the term delivery in all circumstances and is used consistently where possible throughout the guidelines. It is acknowledged that in some circumstances (e.g., in the case of a medically indicated intervention or surgery) and in some contexts, substituting with the term delivery is considered appropriate and this term may be used instead.

1.9 Adopting a trauma-informed approach to maternity care

Many women accessing maternity services may have experienced historical or current trauma prior to, or during pregnancy - including emotional, physical, sexual abuse, rape and torture. The perinatal period (pregnancy, birth and the postpartum) can be a time when previous trauma is triggered[11]. Maternity care procedures which may seem routine and 'non-invasive' to healthcare professionals (HCPs), e.g., abdominal palpation or providing breastfeeding support can be triggering for some women with a history of trauma, as can intimate procedures such as vaginal examinations[12].

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11 Horsche A., Garthus-Niegel S., Ayers S, Chandra P., Hartmann K., Caisbuch E., Lalor J (2024). Childbirth-related posttraumatic stress disorder: definition, risk factors, pathophysiology, diagnosis, prevention, and treatment. Am J Obstet Gynecol. 2024 Mar;230(3S): S1116-S1127. doi: 10.1016/j.ajog.2023.09.089

12 Montgomery E. Feeling safe: a metasynthesis of the maternity care needs of women who were sexually abused in childhood. Birth 40:88–95. Birth. 2013 Jun;40(2):88-95. doi: 10.1111/birt.12043

Trauma-informed care (TIC) is a developing approach to healthcare which recognises the importance of psychological safety, and the need to prevent or resist re-traumatisation of individuals[13]. It is based on 4 key principles (known as the 4Rs): (1) realisation of trauma; (2) recognition of trauma; (3) responding to trauma and (4) resisting re-traumatisation[14],. A trauma-informed approach to maternity care means that all staff in an organisation have an understanding of the impact of trauma on individuals, families and organisations[15]. While a universal approach is yet to be agreed, within clinical practice and research, many organisations recognise the need to move towards becoming trauma-informed in the provision of maternity care[15, 16]. Such an approach requires commitment, investment and transformation within maternity services.

In simple terms, HCPs should recognise the impact of women's previous or current history of trauma (whether disclosed or not) and adopt a universally sensitive approach to care provision that recognises the impact of trauma on service users and HCPs. Examples of this include ensuring clear communication and consent is sought before any procedures/interventions, ensuring women are provided with dignity and respect at all times.

13 Vogel TM, Coffin E. (2021). Trauma-informed care on labor and delivery. Anesthesiol Clin. 2021 Dec;39(4):779-791. doi: 10.1016/j.anclin.2021.08.007

14 SAMHSA's concept of trauma and guidance for a trauma-informed approach Rockville. October 2014. https://library.samhsa.gov/product/samhsas-concept-trauma-and-guidance-trauma-informed-approach/sma14-4884

15 Law C, Wolfenden L, Sperlich M, Taylor J. A (2021). Good practice guide to support implementation of trauma-informed care in the perinatal period. The centre for early child development (Blackpool, UK) commissioned by NHS England and NHS Improvement in 2021. https://www.england.nhs.uk/publication/a-good-practice-guide-to-support-implementation-of-trauma-informed-care-in-the-perinatal-period/

16 Ayers, S., Horsch, A., Garthus-Niegel, S., Nieuwenhuijze, M., Bogaerts, A., Hartmann, K., Karlsdottir, S. I., Oosterman, M., Tecirli, G., Turner, J. D., Lalor, J., & COST Action CA18211 (2024). Traumatic birth and childbirth-related post-traumatic stress disorder: International expert consensus recommendations for practice, policy, and research. *Women and birth : journal of the Australian College of Midwives*, 37(2), 362–367. https://doi.org/10.1016/j.wombi.2023.11.006

Chapter 2:
Clinical Practice Guideline

Background

Maternity services endeavour to provide high quality, safe care for women and babies, ensuring women are empowered to make informed decisions in collaboration with their healthcare professionals [1]. The National Maternity Strategy seeks to improve the quality and safety of maternity services and to standardise care across maternity services [2]. The development of national clinical practice guidelines enables the standardisation of practice across all maternity settings.

Assisted vaginal birth (AVB) accounts for 10-15% of births in Ireland with rates of 20-30% in first time mothers [3-5]. AVB occurs in the second stage of labour because of concerns about fetal wellbeing, prolonged second stage or because of maternal medical conditions[6]. There are a variety of vacuum devices and forceps available, and there is no single correct instrument for all circumstances [6]. AVB is associated in most cases with either an episiotomy or perineal tearing [7]. The alternatives to AVB are either continued pushing or a second stage caesarean section.

Some aspects of AVB are well researched which facilitates robust evidence-based recommendations. Other aspects reflect clinical experience, personal preferences and tradition, and as such allow consensus statements from the guideline development group rather than robust recommendations.

This guideline addresses antenatal, intrapartum and postnatal care. The aim is to promote safe clinical practice and a positive birth experience for women who require an assisted birth in the second stage of labour.

Recommendations relevant to this Guideline can also be found in:

- National Standards for Antenatal Education[17]
- National Consent Policy[18]
- National Clinical Guideline Fetal Heart Rate Monitoring[19]
- National Clinical Guideline Intrapartum Care of Women on the Supported Care Pathway (due 2025)
- National Clinical Practice Guideline: Induction of Labour.[20]
- National Clinical Practice Guideline: Vaginal Birth After Caesarean Section.[21]

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17 National Standards for Antenatal Education in Ireland. Health Service Executive. 2020 https://www.hse.ie/eng/about/who/healthwellbeing/our-priority-programmes/child-health-and-wellbeing/antenatal-ed.pdf

18 National Consent Policy. Health Service Executive. 2022 https://healthservice.hse.ie/staff/procedures-guidelines/hse-consent-policy/

19 Rowland M, Taylor J, Murphy C, McNamara K, Cronin M, Kinsella I, Murphy H, Carroll L, Murphy D, Purcell E. National Clinical Practice Guideline: Fetal Heart Rate Monitoring. National Women and Infants Health Programme and The Institute of Obstetricians and Gynaecologists. 2025

20 Mitchell J.M, Nolan C, El Shaikh M, Cullinane, S, Borlase D. National Clinical Practice Guideline: Induction of Labour. National Women and Infants Health Programme and The Institute of Obstetricians and Gynaecologists. October 2023

21 Ryan G, Duggan J, Finnegan C, Morrison JJ. National Clinical Practice Guideline: Vaginal Birth After Caesarean Section. National Women and Infants Health Programme and The Institute of Obstetricians and Gynaecologists. January 2023

Section 1: Documentation and Risk Management

Clinical Question 2.1: How should assisted vaginal birth be classified and reported?

Evidence Statement

AVB Classification

The classification of AVB is based largely on consensus and is similar across national clinical practice guidelines [8-11]. The standard approach is to use clinical assessment in relation to the station and position of the fetal head. This approach reflects the increased complexity and morbidity associated with higher stations, and rotational procedures [12-15]. The Royal Australia and New Zealand College of Obstetricians and Gynaecologists (RANZCOG) classification differs in that it highlights the complexity of occipito-posterior (OP) positions [9]. (RANZCOG) A standard classification system can be used to promote safe clinical practice, effective communication between health professionals and audit of outcomes. The approach in this guideline is to use a classification adapted from the Royal College of Obstetricians and Gynaecologists (RCOG) and RANZCOG guidelines [8-9]. The classifications in these guidelines will be most familiar to clinicians practising in Ireland.

Table 1: Classification for Assisted Vaginal Birth

Outlet	Fetal scalp visible without separating the labia. Fetal skull has reached the pelvic floor. Rotation does not exceed 45°.
Low	Fetal skull (not caput) is at station +2 cm, and not on the pelvic floor. Two subdivisions: 1. non-rotational ≤ 45° from OA. 2. rotational > 45°, including OP.
Mid	Fetal head is no more than one-fifth palpable per abdomen. Leading point of the skull is at station 0 or +1 cm. Two subdivisions: 1. non-rotational ≤ 45° from OA. 2. rotational > 45°, including OP.
High	AVB not recommended with two-fifths or more of fetal head palpable and/or station above ischial spines, with exception of second twin.

Adapted from RCOG and RANZCOG [8-9].

Recording of AVB

International guidelines recommend that AVB procedures are documented accurately, including use of a standardised proforma [8-9]. The RCOG guideline recommends detailed information on the assessment, decision making and conduct of the procedure, a plan for postnatal care and sufficient information for counselling in relation to subsequent pregnancies [8]. Documentation is particularly important in the event of an adverse outcome that may result in litigation [16]. The accurate recording of timings is essential and decision to delivery intervals should be reported routinely [17]. A before and after quality improvement study in Australia, that analysed documentation before and after implementation of a new AVB proforma, found that documentation was enhanced using the dedicated form [18]. They also reported that clinical judgement may be enhanced by the discipline involved in the formal assessment required by the form.

Table 2: Documentation in medical records

Indication(s) for AVB
Consent details/verbal or written/any preferences or restrictions
Assessment details
Procedural details
Deviations from initial plan
Neonatal outcome details
Maternal complications
Aftercare instructions
Incident report completed if indicated
Records should be legible, timed and signed, including name in capitals and medical council number

Birth outcomes and adverse events

Paired cord blood samples provide a measure of the fetal status at the time of birth, and information on temporal associations with clinically important neonatal outcomes [19]. As such, paired cord blood samples should be processed and recorded routinely. Adverse maternal and perinatal outcomes require an incident report as part of risk management procedures. In Ireland, adverse maternity outcomes from all units are monitored using the annual Irish Maternity Indicator System (IMIS) National Report, and the monthly published Maternity Patient Safety Statements (MPSS) from individual units (NWHIP 2022) [20].

Clinical Training

Clinical training for AVB should focus on accurate assessment, classification, technical and non-technical skills, documentation of procedures, and on strategies to deal with adverse events [16,21-22]. The RCOG guideline recommends that obstetricians should contribute to adverse event reporting, confidential enquiries, and participate in regular reviews and audits [8]. They should respond constructively to outcomes of reviews, taking necessary steps to address any problems and carry out further retraining where needed.

Clinical Practice

The use of a standard classification system (see Table 1) that is consistent across operators and institutions is important when performing vacuum and forceps-assisted births. A clear description such as "*low non-rotational vacuum*" allows effective communication with women, between health professionals and when recording and reporting outcomes.

Careful attention should be paid to timings, procedural details, and the recording of discussions before and after the procedure. This should be documented in a standard proforma (as per national maternity records) and in the contemporaneous labour records (see Table 2).

Paired cord blood samples should be processed and recorded as a measure of the fetal status at the time of birth. If a sample is unavailable or sampling is not possible, the reason why should be documented.

Adverse maternal and perinatal outcomes require an incident report as part of risk management procedures. This should include unsuccessful AVB, fetal impaction at caesarean section, obstetric anal sphincter injury (OASI), shoulder dystocia, major obstetric haemorrhage (>1000mL blood loss), neonatal encephalopathy, and neonatal trauma.

All health professionals providing care at AVBs (Obstetrician, Midwife, Anaesthetist, Neonatologist, Advanced Nurse Practitioner) have a responsibility to report adverse outcomes as part of risk management procedures.

Clinical training should include accurate assessment, classification and documentation of procedures.

Recommendations

1. **A standard classification system should be used for AVB based on position and station of the fetal head.**
2. **A standard proforma should be used to record the technical aspects of the procedure with additional documentation on indication, timings, outcomes, and complications.**
3. **Paired cord blood samples should be processed and documented where possible following all attempts at AVB.**
4. **Adverse maternal and perinatal outcomes require an incident report as part of risk management procedures.**
5. **A standard classification and reporting approach should be part of clinical training.**

Clinical Question 2.2: What are the indications and contraindications for AVB?

Evidence Statement

Indications

The indications for AVB in clinical practice guidelines fall broadly into the categories of maternal and fetal [8-11]. In practice, there is a high degree of overlap between prolonged second stage of labour and fetal indications [8]. Fetal indications include concern about fetal compromise, the presence of meconium, and fetal blood sampling results (if available). The classification of fetal heart rate abnormalities should be based on the HSE guidelines on fetal heart rate monitoring in labour. [22]

A common maternal indication is prolonged second stage of labour [8-11]. There is no universally agreed definition of prolonged second stage of labour which reflects the difficulty of differentiating between the adverse effects of prolonged second stage and the effects of the interventions used to expedite birth [23-24]. The RCOG guideline follows the National Institute for Health and Care Excellence (NICE) Intrapartum Care guideline with detailed recommendations on the duration of passive and active stages of the second stage of labour according to parity and use of epidural analgesia [8,25]. With this guidance, it would be acceptable for a nulliparous woman to spend five hours in the second stage of labour, with up to three hours actively pushing. The ACOG guideline recommendations are similar [10]. The RANZCOG guideline is less prescriptive and defers to decision-making by a senior clinician [9], which is more in keeping with practice in Ireland. This approach is also reflected in the RCOG and ACOG guidelines with an emphasis on decision-making in the context of the overall clinical circumstances [8,10]. The updated NICE Intrapartum Care guideline acknowledges the woman's birth experience and advises that AVB should be offered if the woman requests assistance [25]. The new Health Service Executive (expected 2025) National Clinical Guideline "Intrapartum Care of Women on the Supported Care Pathway" mirrors the NICE guideline and defines prolonged second stage as more than two hours of active pushing in a primiparous woman and more than one hour of active pushing in a multiparous women.[23] In these circumstances, women should be transferred to the Assisted or Specialised care pathways for medical review with birth anticipated within the following hour.

National guidelines all support AVB in the context of maternal medical conditions including severe hypertension, cardiac disease, retinal detachment, cerebro-vascular malformation, and other disorders where the second stage may need to be electively shortened [8-11].

22 Rowland M, Taylor J, McNamara K, Cronin M, Kinsella I, Murphy H, Carroll L, Murphy D, Purcell E, Murphy C. National Clinical Practice Guideline: Fetal Heart Rate Monitoring. National Women and Infants Health Programme and The Institute of Obstetricians and Gynaecologists. June 2025

23 Vallejo, N., Mc Cormack, E., Rowland, M., Dado, M.P., Healy, M., Brosnan, M., Imcha, M., Plans, C., National Clinical Practice Guideline: Intrapartum Care of Women on the Supported Care Pathway. National Women and Infants Health Programme. June 2025.

Table 3: Indications for Assisted Vaginal Birth

Fetal	Suspected fetal compromise
Maternal	Prolonged second stage Shortening of second stage for maternal benefit
Combined	Fetal and maternal indications often coexist

Adapted from RCOG and RANZCOG [8-9]

Prerequisites

The safety criteria for performing a vacuum or forceps-assisted birth are based on consensus rather than evidence and are largely consistent across guidelines [8-11]. AVB requires careful assessment, planning and clear communication with the woman, her birth partner and the clinical team. AVB is contraindicated where certain prerequisites are not met, including a high head (more than 1/5th palpable abdominally or station above the ischial spines) or where the cervix is not fully dilated.

Table 4: Preparation and Prerequisites for Assisted Vaginal Birth

Assessment	Systematic abdominal and vaginal examination Assessment of fetal size (review recent scans) Head fully engaged (no more than 1/5th palpable if deflexed OP) Cervix fully dilated and membranes ruptured Station at level of ischial spines or below Exact position of fetal head determined (scan if uncertain) Assessment of caput and moulding Pelvis is deemed adequate clinically Appropriate anaesthesia in place and effective Bladder emptied
Woman	Clear explanation and consent, appropriate to urgency
Personnel	Appropriate obstetric expertise or supervision Senior midwifery personnel available Anaesthetic personnel available Personnel trained in neonatal resuscitation available
Environment	Backup plan including theatre if needed

Adapted from RCOG and RANZCOG [8,9]

Role of ultrasound

An ultrasound scan to confirm the fetal head position prior to AVB has been shown to be feasible and acceptable to women and the health professionals caring for them [26]. A randomised controlled trial including 514 participants reported that an ultrasound scan prior to AVB reduced the incidence of incorrect diagnosis of the fetal head position (4/257, 1.6% versus 52/257, 20.2%, odds ratio (OR) 0.06, 95% confidence interval (CI) 0.02 to 0.19, p value <0.001) without delaying delivery [27]

Contraindications

Vacuum assisted birth is contraindicated with a face presentation [8]. Relative contraindications include fetal conditions such as bleeding disorders, a pre-disposition to fracture or where there is a risk of transmission of infection from mother to fetus (HIV, hepatitis) [8,9]. Advance planning is recommended in these circumstances. At preterm gestational ages, the risk of significant fetal scalp trauma is higher with vacuum assisted birth than forceps. A retrospective population-based study including 5064 vacuum and 432 forceps births between 32+0 and 36+6 weeks of gestation reported an increased risk of subgaleal haemorrhage (0.16% versus 0%), intracranial haemorrhage (0.12% versus 0%) and scalp trauma (9.8% versus 6.3%) associated with vacuum extraction when compared with forceps birth [28]. A Swedish register-based study reported vacuum use in 5.7% of preterm births with a higher incidence of intracranial haemorrhage (1.5%; adjusted OR (aOR) 1.84, 95% CI 1.09 to 1.32) and extracranial haemorrhage (0.64%; aOR 4.48, 95% CI 2.84 to7.07) compared with spontaneous vaginal birth [29].The RCOG guideline recommends that vacuum assisted birth should be avoided below 32 weeks of gestation and used with caution between 32^{+0} and 36^{+0} weeks of gestation [8].

Clinical Practice

AVB is indicated for prolonged second stage of labour (according to the care pathway the woman is following), concerns about fetal wellbeing, maternal medical conditions and where the labouring woman requests assistance. Clinical judgement is required in all situations, balancing the risks and benefits of continued pushing, AVB, and second stage caesarean section.

The safety criteria for AVB should be confirmed after a careful abdominal and vaginal examination. Clear communication with the woman is required when seeking consent and this needs to be time-sensitive in keeping with the urgency of the situation.

Clinicians should be trained in the use of ultrasound to define the fetal head position where uncertainty exists following clinical examination.

Potential restrictions or contraindications to AVB should be documented in advance, including whether low forceps is appropriate when vacuum is not. Vacuum assisted birth should be used with caution and only by experienced clinicians at late preterm gestations, and is best avoided below 32 weeks' gestation.

Recommendations

6. AVB is indicated for maternal or fetal reasons, and these often co-exist. No indication is absolute and clinical judgment is required in all situations.
7. AVB is only indicated where the safety criteria are confirmed following a full assessment of the clinical situation, and where consent is given following clear communication with the woman.
8. Ultrasound assessment of the fetal head position prior to AVB is recommended where uncertainty exists following clinical examination.
9. Potential restrictions and contraindications to AVB should be documented in advance. Forceps assisted birth may be indicated where vacuum is not.
10. Vacuum assisted birth should be avoided below 32 weeks of gestation and used only by experienced clinicians between 32+0 and 36+0 weeks of gestation.

Clinical Question 2.3: How should informed consent be achieved prior to assisted vaginal birth?

Evidence Statement

The importance of informed consent is highlighted in international practice guidelines [8-11]. The RANZCOG guideline recommends that women should be informed about AVB, and when it may be required, during antenatal care because AVB including possible episiotomy is such a common outcome of labour [9]. The RCOG guideline advises that if women indicate specific restrictions or preferences then this should be explored with an experienced obstetrician, ideally in advance of labour [8]. The 2015 Montgomery determination clarified UK law and set new standards for consent, stating that doctors have a duty to ensure that patients understand the material risks of any medical intervention and the risks of any reasonable alternatives [30]. This poses a particular challenge when there is urgency in the second stage of labour [31]. The NICE Intrapartum Care guideline recommends that if a woman declines a birth with forceps or ventouse that her remaining options (vaginal birth, caesarean birth or reconsidering her decision about forceps or ventouse) should be discussed, and that her choices may be limited by clinical safety or degree of urgency, for example, if a caesarean birth is no longer an option because the baby's head is too low in the pelvis [25].

The RANZCOG guideline states that the time spent obtaining consent for AVB during labour may be determined by the urgency of the situation [9]. Verbal consent should be obtained, and the discussion documented in the clinical record. Written consent should generally be obtained prior to an AVB in an operating theatre setting, and women made aware of the possibility that attempts at AVB may need to be abandoned and caesarean section performed. The RCOG guideline recommends that when mid or rotational birth is indicated, the risks and benefits of AVB should be compared with the risks and benefits of second stage caesarean birth for the given circumstances and skills of the operator [8]. Written consent should be obtained for a trial of AVB in an operating theatre. The HSE National consent policy should be followed.

Clinical Practice

Pregnant women in Ireland commonly experience a vacuum or forceps-assisted birth, which is often associated with episiotomy. AVB, caesarean section and episiotomy should be discussed routinely with women as part of antenatal education.with women as part of antenatal education and during clinic visits, especially in their first pregnancy**.** Women who express specific concerns about AVB should have an opportunity to discuss their concerns and alternative approaches with an experienced Obstetrician or Midwife. There may also be an opportunity to do this on labour ward rounds if the discussion has not taken place antenatally.

Verbal consent is acceptable for procedures in a labour room, given that decisions to proceed to AVB are often time-sensitive when there are concerns about fetal wellbeing. Written consent is preferable if feasible.

The decision to transfer a woman to an operating theatre for reassessment with a view to a mid or rotational AVB requires written consent for both AVB and possible caesarean birth.

Women should also be counselled and consented in relation to use of episiotomy.

Recommendations

11. **Women should be informed routinely about AVB in the antenatal period, especially in their first pregnancy. If specific preferences or restrictions are expressed, then these should be explored with experienced health professionals and documented in the woman's records.**
12. **When mid or rotational AVB is being considered, women should be advised of the risks and benefits of AVB compared with the alternatives of continued pushing or second stage caesarean birth.**
13. **Verbal consent should be obtained prior to AVB in a labour room, with written consent if feasible. Written consent should be obtained for a trial of AVB in an operating theatre.**

Section 2: Procedural aspects of Assisted Vaginal Birth

Clinical Question 2.4: Who should perform or supervise Assisted Vaginal Birth?

Evidence Statement

The success rate is high and morbidity low for vacuum and forceps-assisted births performed by experienced operators [32-35]. By contrast, in a UK study of AVBs conducted in theatre, serious neonatal trauma (fractures, cerebral haemorrhage, lacerations) was associated with initial unsuccessful attempts at AVB by inexperienced operators [36]. Obstetric trainees need to acquire the technical (operative) and non-technical skills (communication, teamwork) necessary for safe AVB [6,37]. A wide range of resources are available, including guidelines, clinical skills taxonomies, manuals, and online training resources [22,37-39]. As with any operative procedure, trainees need to be taught and observed in both simulated and clinical settings until they are ready for independent practice. The RCOG[40] say that competence should ideally be assessed using the OSATS (objective structured assessment of technical skills) form designed for AVB in their guidance and similar forms are available through the RCPI. Mid-station and rotational births demand a high level of clinical and technical skill and are associated with higher rates of maternal and neonatal morbidity [12-13]. Trainee operators must always receive adequate senior supervision [8].

A prospective cohort study of 597 consecutive AVBs in a large teaching hospital in Ireland reported no evidence of an association between time of AVB (day versus night) and adverse perinatal outcomes, despite off-site consultant obstetric support at night [35]. There was a policy of senior obstetric presence for all attempted AVBs in an operating theatre. There is evidence from a US study that the designation of a full-time, experienced faculty member to obstetrics teaching duty increased trainee forceps use and positive birth outcomes [41]. A further US retrospective cohort study reported an increase in forceps births and decrease in caesarean births in association with senior obstetric supervision of residents [42]. However, the change was only apparent during daytime hours when senior obstetricians were present.

Clinical Practice

Obstetric trainees need to acquire the technical and non-technical skills of AVB under direct supervision until they are assessed as competent for independent practice. They should avail of on-line resources, manuals, simulation training and clinical training using OSATS and workplace-based assessments to monitor progress.

More complex mid and rotational procedures should only be conducted by experienced operators or under direct supervision of an experienced operator.

Recommendations

14. AVB should be performed and/or supervised by a clinician who has the knowledge, skills and experience necessary to assess the woman, complete the procedure and manage any complications that arise.
15. Obstetric trainees should receive appropriate training in vacuum and forceps assisted birth, including theoretical knowledge, simulation training, and clinical training under direct supervision. Competency should be assessed before conducting unsupervised AVBs.
16. Complex AVBs (mid or rotational) should only be performed by experienced clinicians or under the direct supervision of an experienced clinician.

Clinical Question 2.5: Where should Assisted Vaginal Birth take place?

Evidence Statement

Delay in second stage

Where the indication for AVB is prolonged second stage, there should be sufficient time to perform a careful clinical assessment, confer with a senior colleague if needed, and determine the optimal place to perform the procedure. Risk factors for a failed attempt at AVB include fetal malposition (OT or OP), mid-station (at spines), increased maternal body mass index (BMI>30) and birthweight >4000g [9,14,40-42]. Where risk factors for failure are present international guidelines advise that the woman is transferred to an operating theatre for reassessment and if appropriate a "trial" of AVB with immediate recourse to caesarean section [5-8]. A US study of 3189 women reported that adverse neonatal outcomes following failed AVB were mainly associated with non-reassuring fetal heart rate recordings and when these cases were removed, there was no association between a failed attempt at AVB and adverse neonatal outcomes [43].

Suspected fetal compromise

Where the indication for AVB is suspected fetal compromise, the operator needs to use time well to achieve a safe and expeditious birth. Two retrospective studies compared AVB in the labour room with births in an operating theatre. A UK study of 229 operative births for all indications had a decision-delivery-interval (DDI) of 20 minutes for births in the room and 59 minutes for births in theatre [44]. A study in Scotland of 1021 singleton term operative births for fetal distress reported an average DDI of 15 minutes in the labour room and 30 minutes in theatre [14]. There were no statistically significant differences in the neonatal outcomes in either study in relation to short versus longer DDIs. Therefore, the risks of unsuccessful AVB in the labour room should be balanced with the risks associated with the additional transfer time to an operating theatre. In all cases of attempted vacuum or forceps, a contingency plan is essential in the event of discontinuing or failing an AVB [5-6].

Clinical Practice

The Obstetrician should perform a careful assessment to determine where an AVB should be conducted. They should confer with a senior colleague if needed and take account of the indication and urgency of the procedure.

Obstetricians should be cognisant of the risk factors for failed AVB which include malposition, mid-station, increased maternal BMI and large baby. They should transfer the woman for reassessment in an operating theatre in cases where there is an increased risk of failed AVB.

Where there is acute urgency to expedite the birth, decision-making needs to balance the time taken to transfer a woman to an operating theatre and the risks associated with failed AVB in a labour room. Contingency planning is essential in all circumstances.

Recommendations

17. **AVBs that have a low probability of failure can be conducted in a labour room.**
18. **AVBs that have a higher risk of failure should be considered a 'trial' and be conducted in an operating theatre.**
19. **Where there is urgency due to suspected fetal compromise, decision-making should take account of the time to perform an AVB, the time to transfer a woman to an operating theatre, and the likelihood of a safely completed procedure.**

Clinical Question 2.6: What instruments should be used for Assisted Vaginal Birth?

Evidence Statement

Vacuum versus Forceps

A Cochrane systematic review of randomised controlled trials (RCTs) comparing vacuum with forceps included 31 studies involving a total of 5754 women [45]. The authors reported that forceps was less likely to fail in achieving vaginal birth than vacuum (8.2% versus 13.7%; Relative Risk (RR) 0.58, 95% CI 0.39 to 0.88). Forceps compared to vacuum was more likely to be associated with 3rd or 4th degree perineal lacerations (15.6% versus 8.2%; RR 1.83, 95% CI 1.32 to 2.55). There was no evidence of a difference between vacuum and forceps in the incidence of low Apgar score at five minutes or low umbilical artery pH or in admission to neonatal intensive care. There was no evidence of a difference in neonatal encephalopathy or in neonatal deaths between the two groups, but the estimates were imprecise based on small numbers. There was no evidence of a difference in the incidence of scalp, facial and intracranial injury but cephalhaematoma was less likely in the forceps group (RR 0.41, 95% CI 0.30 to 0.56) as was retinal haemorrhage (RR 0.66, 95% CI 0.46 to 0.94) and jaundice (RR 0.70, 95% CI 0.53 to 0.92). There was no difference in rates of urinary and bowel dysfunction in one trial that reported follow-up at five years [46].

The Cochrane summary states that the decision on which instrument to use is multifactorial and needs to consider the skills and resources available and the urgency for the birth. The clinician needs to choose the instrument that is most likely to achieve a successful birth with the least trauma to the mother and baby.

Table 5: Forceps assisted birth compared to vacuum assisted birth [45]

Forceps compared to vacuum may be:	Relative risk (RR) 95% Confidence Interval (CI)	RCT participants
Less likely to fail at achieving vaginal birth	RR 0.58; 95% CI 0.39 to 0.88	12 studies, 3129
Less likely to be associated with cephalhaematoma	RR 0.41; 95% CI 0.30 to 0.56	10 studies, 2729
Less likely to be associated with retinal haemorrhage	RR 0.66; 95% CI 0.46 to 0.94	5 studies, 386
Less likely to be associated with jaundice	RR 0.70; 95% CI 0.53 to 0.92	6 studies, 1600
More likely to be associated with any maternal trauma	RR 1.53; 95% CI 0.98 to 2.40	5 studies, 1356
More likely to be associated with 3rd or 4th degree tears	RR 1.83; 95% CI 1.32 to 2.55	9 studies, 2493
No more likely to be associated with 5 min Apgar <7	RR 0.83; 95% CI 0.46 to 1.51	7 studies, 1644
No more likely to be associated with pH artery <7.20	RR 1.33; 95% CI 0.91 to 1.93	2 studies, 789

A US linked natality and mortality birth cohort compared the risk of neonatal and infant adverse outcomes between vacuum and forceps assisted births [47]. Neonatal mortality was comparable between vacuum and forceps assisted births (OR 0.94, 95% CI 0.79 to 1.12). Vacuum was associated with a lower risk of birth injuries (OR 0.69, 95% CI 0.66 to 0.72) and neonatal seizures (OR 0.78, 95% CI 0.68 to 0.90) but was more likely than forceps to be complicated by postpartum haemorrhage (OR 1.22, 95% CI 1.07 to 1.39) and shoulder dystocia (OR 2.00, 95% CI 1.62 to 2.48).

Rotational procedures

Manual rotation has been explored as a strategy to correct fetal malposition, reducing the need for AVB, and is recommended in the SOGC guideline [8]. However, the clinical trial evidence to support this practice is currently limited [48]. A prospective cohort study in the UK of 393 women who had mid-station and rotational procedures performed in an operating theatre, reported that attempted forceps was more likely to result in completed vaginal birth than attempted vacuum (63% vs. 48%, $p<0.01$) [9]. Two further UK studies compared rotational vacuum, manual rotation with forceps, and Kiellands rotational forceps and reported similar maternal and neonatal morbidity rates but a higher failure rate with attempted rotational vacuum [10-11].

The ACOG guideline states that with occiput posterior position and arrest of descent in the second stage of labour, there may be a benefit from an attempt at rotation to occiput anterior [7]. This reflects a retrospective study of 148 forceps-assisted deliveries, 81 delivered occiput-anterior (OA) after either manual or forceps rotation and 67 delivered occiput-posterior (OP) [49]. Forceps-assisted vaginal birth after rotation of an OP position to an OA position was associated with less severe maternal perineal trauma than forceps-assisted birth in the OP position.

Clinical Practice

Obstetricians should be trained in both vacuum and forceps to ensure that they have the necessary skills to manage the range of clinical cases requiring assistance in the second stage of labour.

Vacuum and forceps are associated with different benefits and risks. There is a higher failure rate using vacuum and a higher OASI rate with forceps. Obstetricians need to perform a careful assessment and recommend the instrument that is most likely to achieve a successful birth with the least trauma to the mother and baby.

The options for fetal malposition include rotational forceps, manual rotation, and rotational vacuum. These procedures require experience and skill which should be part of obstetric training.

It is preferable to rotate an OP position to OA, rather than delivering by forceps in a direct OP position which presents wider dimensions, increasing the risk of severe perineal trauma.

Recommendations

20. **The clinician should choose the instrument most appropriate to the clinical circumstances and their level of skill.**
21. **Clinicians should consider that forceps and vacuum extraction are associated with different benefits and risks; failure to complete the birth with a single instrument is more likely with vacuum, and OASI is more likely with forceps.**
22. **Rotational AVBs should be performed by experienced clinicians. Effective approaches include rotational vacuum, manual rotation followed by direct traction forceps or vacuum, and Kielland's rotational forceps.**
23. **Where possible, occipito-posterior (OP) position should be rotated to occipto-anterior (OA), which presents smaller dimensions and results in less severe perineal trauma.**

Clinical Question 2.7: What form of anaesthesia is required for Assisted Vaginal Birth?

Evidence Statement

A Cochrane systematic review of analgesia for forceps-assisted birth included four trials involving 388 women [50]. Three trials compared diazepam with an alternative agent for the provision of general anaesthesia and one trial compared spinal anaesthesia to pudendal nerve block (in both groups lignocaine was administered). Diazepam and general anaesthesia reflect international practice and are not relevant to routine practice in Ireland. In exceptional circumstances, general anaesthesia may be indicated, for example cord prolapse at full dilatation. In the trial that compared spinal anaesthesia to pudendal nerve block, women receiving spinal anaesthesia were significantly more likely to regard their anaesthesia as adequate (RR 3.36, 95% CI 2.46 to 4.60; 183 women) and were less likely to report severe pain during forceps birth (RR 0.02, 95% CI 0.00 to 0.27; 183 women).

A retrospective register study of 62,568 women in Sweden evaluated pain relief in association with vacuum-assisted birth [51]. In all, 32.4% primiparas and 51.4% multiparas had a vacuum-assisted birth without epidural blockade, spinal blockade or pudendal nerve block. When local infiltration was accounted for as a method for pain relief, there remained 18% who were delivered without any pain relief. Multiparas were more likely than primiparas to be delivered without potent pain relief, (OR 2.29, 95% CI 2.20 to 2.38). The authors concluded that a considerable number of women are delivered by vacuum without pain relief. This may reflect that clinical staff do not always consider pain relief to be of high priority in vacuum-assisted births or that they fear impaired pushing forces.

National guidelines emphasise the importance of providing effective anaesthesia for vacuum and forceps-assisted births, and in most cases, this will involve regional anaesthesia [5-8].

Clinical Practice

Most women in Ireland who require an AVB will have epidural analgesia that can be topped-up to provide effective anaesthesia for the procedure. This can be supplemented with infiltration of local anaesthetic to the perineum if needed.

If the woman has no analgesia and the procedure is predicted to be uncomplicated at a low station, pudendal nerve block and/or perineal local anaesthetic may provide sufficient anaesthesia. Nitrous oxide may be of use while placing the instrument.

If the woman has no analgesia and requires a mid or rotational procedure, neuraxial anaesthesia (epidural or spinal) is preferable. The woman should be transferred to an operating theatre for spinal anaesthesia, although an experienced operator may be able to deliver safely in a labour room with a pudendal nerve block and local anaesthetic to the perineum.

If the woman is transferred to an operating theatre for a trial of AVB, effective regional anaesthesia should be provided that allows immediate recourse to caesarean section if needed.

Recommendations

24. **Top-up of epidural analgesia, pudendal nerve block, and infiltration of local anaesthetic to the perineum are all suitable for low or lift-out procedures.**
25. **Neuraxial anaesthesia (epidural or spinal) is required for most mid or rotational procedures.**
26. **For trial of AVB in an operating theatre, effective neuraxial anaesthesia should be provided that allows immediate recourse to caesarean section if AVB is discontinued.**

Clinical Question 2.8: When should Assisted Vaginal Birth be discontinued and how should a discontinued procedure be managed?

Evidence Statement

The technical aspects of AVB are difficult to research, and as a result, the conduct of vacuum and forceps-assisted birth rely on expert opinion, consensus statements and manufacturer's recommendations as much as research evidence [5-8]. The disposable Kiwi OmniCup device is commonly used in Ireland, with some operators using silastic vacuum cups and metal rotational cups.

Vacuum

Vacca reported on 50 early procedures of the Kiwi OmniCup where forty-nine (98%) of the extractions resulted in successful vaginal births [29]. Autorotation of the fetal head when the occiput was transverse, or posterior was achieved in 31 (97%) of the 32 rotational vacuum procedures. There were no cases of serious maternal trauma or clinically significant neonatal injuries. Two infants had cephalhaematomas and one infant developed a small subgaleal haemorrhage, each of which resolved quickly without complications. Vacca in a subsequent review suggested a 'three-plus-three-pull rule' when conducting a vacuum-assisted birth [30]. He maintained that three pulls for the descent phase and three pulls for the perineal phase are acceptable provided that some progress is observed with each pull and that the traction force is not excessive. He reported data showing that, with efficient uterine contractions and good maternal expulsive efforts, almost all vacuum-assisted births can be completed within 15 min and, recommended that if one reaches the 20min time limit, the procedure should be discontinued unless delivery is imminent. Similarly, if there are two pop-offs the procedure should be discontinued. [30]

In the Cochrane systematic review of instruments for AVB there were four studies including 968 women that compared handheld vacuum devices versus any vacuum cup [45]. There were no significant differences in the failure rates or maternal and perinatal morbidity outcomes between the two groups. However, the rate of failed delivery with the allocated instrument was high in both groups (97/487, 19.9% for the handheld vacuum and 66/475, 13.9% for any vacuum cup; OR 1.35, 95% CI 0.31 to 2.25). The rates of caesarean section were 5.3% and 3.6% respectively, indicating a high rate of sequential instrument use (vacuum followed by forceps).

A prospective cohort study of 1000 Kiwi vacuum procedures in Canada reported that in 87.1% of the women, vacuum-assisted birth was completed; forceps delivery occurred in 9.8%, and caesarean section was performed in 2% (1% after failed forceps) [31]. The vacuum was applied for no more than 10 minutes in 97.4% of births and no more than 3 pulls were used in 95.7%. There were 96 cases of cephalhaematoma (14.7%), four cases of neonatal intracranial hemorrhage (0.4%) and one case of subgaleal hemorrhage, and all infants recovered. The 3rd or 4th degree tear rate was 10.6% and this was higher in association with an episiotomy (15.8%).

Forceps/Sequential instruments

The data on procedural aspects of forceps-assisted birth are more limited and comparative outcomes are often confounded by including sequential use of instruments (forceps-assisted birth following a failed attempt at vacuum). A prospective cohort study in the UK of 393 women who had mid-station and rotational procedures performed in an operating theatre, reported that attempted AVB with more than three pulls was associated with increased neonatal trauma for completed (aOR 4.2, 95% CI 1.6 to 9.5) and failed vaginal births (aOR 7.2, 95% CI 2.1 to 24.0) [33]. The use of sequential instruments was associated with increased neonatal trauma (aOR 3.1, 95% CI 1.5 to 6.8). Neurodevelopmental

follow-up at five years was more reassuring with no reported differences between babies delivered by AVB or second stage caesarean section, and the two cases of cerebral palsy related to sepsis and antenatal stroke [52]. Another UK cohort study of 1360 nulliparous women undergoing AVB reported that sequential use of instruments was associated with greater maternal and neonatal morbidity than any single instrument use (anal sphincter tear 17.4% versus 8.4%, aOR 2.1, 95% CI 1.2 to 3.3; umbilical artery pH <7.10, 13.8% versus 5.0%, aOR 3.3, 95% CI 1.7 to 6.2) [53]. These differences persisted when sequential instrument use was compared to forceps alone (anal sphincter tear OR 1.8, 95% CI 1.1 to 2.9; umbilical artery pH <7.10 OR 3.0, 95% CI 1.7 to 5.5).

A US linked natality and mortality birth cohort compared the risk of neonatal and infant adverse outcomes between vacuum and forceps assisted births [47]. The sequential use of vacuum and forceps compared to forceps alone was associated with an increased need for mechanical ventilation in the infant (aOR 2.22, 95% CI 1.24 to 3.97) and 3rd or 4th degree perineal tears (aOR 1.21, 95% CI 1.06 to 1.38 and aOR 1.33, 95% CI 1.15 to 1.53 respectively).

Sub-optimal application

A cohort study nested within a multi-centre trial in Ireland included 478 nulliparous women undergoing AVB. The study aimed to identify risk factors and morbidity associated with suboptimal instrument placement [54]. Instrument placement was suboptimal in 138 of 478 (28.8%) births. Factors associated with suboptimal instrument placement included fetal malposition (OR 2.44, 95% CI 1.62 to 3.66), mid-station (OR 1.68, 95% CI 1.02 to 2.78), and forceps as the primary instrument (OR 2.01, 95% CI 1.33 to 3.04). Compared with optimal instrument placement, suboptimal placement was associated with prolonged maternal hospital stay (>3 days, 26.8% versus 14.7%; aOR 2.28, 95% CI 1.30 to 4.02) and neonatal trauma (15.9% versus 3.9%; aOR 4.25, 95% CI 1.85 to 9.72). Suboptimal placement was associated with more use of sequential instruments (aOR 3.99, 95% CI 1.94 to 8.23) and caesarean section for failed AVB (aOR 3.81, 95% CI 1.10 to 13.16). The authors concluded that greater attention should be focused on instrument placement when training obstetricians for AVB.

Second stage Caesarean section

Although there is a Cochrane systematic review aiming to evaluate "*trial of instrumental delivery in theatre versus immediate caesarean section for anticipated difficult births*", to date there have been no trials addressing this important question [55]. A systematic review of observational studies comparing vacuum and second stage caesarean section in low, middle, and high-income countries included 15 studies, and outcomes for a total of 20,051 births by caesarean and 32,823 births by vacuum [56]. All five maternal deaths resulted from complications of anaesthesia during second stage caesarean. In total, 133 perinatal deaths occurred: 92/20 051 (0.45%) in the caesarean group and 41/32 823 (0.12%) in the vacuum group. All other adverse maternal and perinatal outcomes showed no statistically significant differences. The authors concluded that vacuum extraction should be the recommended mode of birth, both in high-income countries and in low- and middle-income countries, to prevent unnecessary second stage caesareans and to reduce perinatal and maternal deaths when safe anaesthesia and surgery is not immediately available.

In the UK prospective cohort study of women transferred to theatre for second stage arrest, caesarean birth compared to AVB was associated with an increased risk of major haemorrhage (blood loss >1000mL; aOR 2.8, 95% CI 1.1 to 7.6) and prolonged hospital stay (>5 days; aOR 3.5, 95% CI 1.6 to 7.6) [9]. There was an OASI rate of 8% following AVB and the comparable morbidity at caesarean birth was a 24% incidence of extension of the uterine incision, which is surgically challenging and complicates future births. There was an increased risk of admission to the neonatal care unit following caesarean birth (OR 2.6, 95% CI 1.2 to 6.0), although neonatal trauma was less common than following AVB (OR 0.4, 95% CI 0.2 to 0.7). A low umbilical artery pH was more frequently recorded following a failed attempt at

AVB, but there was no increase in admissions to the neonatal unit. Similarly, a US retrospective study found no increase in neonatal morbidity among women who had a failed attempt at AVB birth when non-reassuring fetal heart rate tracings were accounted for [43].

Fetal Head Impaction

A prospective observational study using the UK Obstetric Surveillance System (UKOSS) was conducted between 1st March and 31st August 2019 to determine the incidence of, and complication rates from, impacted fetal head at full dilatation [12]. A total of 3,518 second stage caesarean births were reported, and the surgeon used a dis-impaction technique or reported difficulty in 564 (16%) of these. Of the 564 second stage caesareans requiring dis-impaction, four babies died (two directly attributable to the impacted fetal head), and a further nine babies sustained severe injury. In this study only 34% of births were conducted or supervised by a consultant. Most women had received syntocinon (64%), had a fetal malposition at the point of birth (81%), and had a preceding unsuccessful attempt at instrumental delivery (57%). The authors concluded that difficulty with delivery of the fetal head and the use of dis-impaction techniques during second stage caesarean sections are common but there is no consensus as to the best method to achieve delivery and in what order. Approaches to resolving fetal head impaction are listed in Table 6.

Table 6: Management of Fetal Head Impaction at Caesarean Section

Uterine relaxation	Administration of tocolysis to relax the uterus and facilitate advanced dis-impaction techniques.
Abdominal cephalic dis-impaction	Using dominant or non-dominant hand to flex and lift baby's head upwards into the maternal abdomen to deliver the head.
Manual vaginal dis-impaction	Introducing a hand into the vagina to move the head up into the abdomen – 'Push up'.
Reverse breech extraction	Hand is moved into the upper aspect of the uterus, baby's feet are grasped and delivered feet first. Once the shoulders are delivered, the baby's head is lifted out of the pelvis.
Patwardhan method	A modification of reverse breech extraction, whereby the arms are delivered first followed by delivery of the breech. Once the buttocks and feet are delivered, the baby's head is lifted out of the pelvis.

Clinical Practice

Most cases of vacuum and forceps-assisted birth should be completed with no more than three pulls of a correctly applied instrument. The operator should reassess or seek a second opinion if progressive descent is not apparent with the first one or two pulls or if there is a vacuum 'pop-off'.

Sequential use of instruments should be avoided where possible but low/lift out forceps is likely to be preferable to a second stage caesarean section with the fetal head deep in the pelvis.

Operators should anticipate fetal head impaction following a failed attempt at AVB and be familiar with techniques to overcome this.

Neonatal staff should be informed of complicated procedures including failed AVB and sequential use of instruments so that they can monitor for potential cranial complications.

Recommendations

27. In most cases vacuum-assisted birth should be completed within three pulls [defined as three contractions, even if there are multiple maternal 'pushes' within each contraction] to bring the fetal head onto the perineum and up to three additional gentle pulls to ease the head over the perineum.
28. If there is minimal descent with the first one or two pulls of a vacuum, the clinician should consider whether the application is suboptimal, the head position has been incorrectly diagnosed or there is cephalopelvic disproportion. Less experienced clinicians should stop and seek a second opinion. Experienced clinicians should re-evaluate the clinical findings and either change approach or discontinue the procedure.
29. Vacuum-assisted birth should be discontinued if there have been two 'pop-offs' of the instrument.
30. The use of sequential instruments should be avoided, however, if the fetal head is on the pelvic floor following failed vacuum, the clinician needs to balance the risks of a caesarean birth with the risks of forceps and recommend the best approach for the circumstances.
31. Forceps assisted birth should be discontinued if the forceps cannot be applied easily or the handles do not approximate easily.
32. Rotational forceps should be discontinued if rotation cannot be achieved easily with gentle pressure.
33. In most cases forceps assisted birth should be completed within three pulls [defined as three contractions, even if there are multiple maternal 'pushes' within each contraction] of a correctly applied instrument by an experienced clinician.
34. Clinicians should be aware of the increased risk of fetal head impaction at caesarean birth following an unsuccessful attempt at AVB and should disimpact the fetal head using recognised manoeuvres.
35. Clinicians should be aware of the increased risk of serious neonatal morbidity following unsuccessful AVB and/or sequential use of instruments. The neonatologist should be alerted to ensure appropriate care of the baby.

Clinical Question 2.9: What is the role of episiotomy at Assisted Vaginal Birth?

Evidence Statement

The role of routine episiotomy at vacuum- and forceps-assisted births is controversial. The RCOG guideline states that in the absence of robust evidence to support either routine or restrictive use of episiotomy at AVB, the decision should be tailored to the circumstances at the time and the preferences of the woman [5]. They state that the evidence to support use of mediolateral episiotomy is stronger for nulliparous women and for forceps, and that when an episiotomy is performed, the cut should be at a 60º angle initiated when the head is distending the perineum [5]. The RANZCOG guideline reports Australasian national population-based data showing that episiotomy in women having their first vaginal birth led to 24% fewer OASI when forceps were used and 16% fewer OASI when ventouse was used, and therefore should be considered [6]. The ACOG practice bulletin states that episiotomy should not be performed routinely for all AVBs, citing poor healing and prolonged discomfort [7]. The Canadian guideline states that restrictive use of mediolateral episiotomy is supported in AVB [8].

A Cochrane systematic review of episiotomy included 12 studies (6177 women), 11 in women for whom a spontaneous vaginal birth was intended, and one in women where an AVB was anticipated [57]. The RCT of episiotomy at AVB included 200 women in Scotland and England: 99 were randomised to routine use of episiotomy and 101 to restrictive use [58]. There were small differences in the rates of OASI (8.1% routine versus 10.9% restrictive; OR 0.72, 95% CI 0.28 to 1.87) and primary PPH (36.4% routine versus 26.7% restrictive; OR 1.57, 95% CI 0.86 to 2.86) but the study was underpowered to provide conclusive evidence that a policy of routine episiotomy is better or worse than a restrictive policy.

Since then, the EVA study in Sweden reported a multi-centre RCT designed to assess the effect of lateral episiotomy, compared with no episiotomy, on OASI in nulliparous women requiring vacuum extraction [59]. The trial included 717 women, 354 (49%) assigned to lateral episiotomy and 363 (51%) to no episiotomy. The incidence of OASI was lower in the episiotomy group (21 (6%) of 344 women versus 47 (13%) of 358 women; RR 0.46, 95% CI 0.28 to 0.78). No significant differences were noted between groups in postpartum pain, blood loss, or neonatal outcomes but the episiotomy group had more wound infections (9% versus 5%; RR 1.96, 95% CI 1.11 to 3.46) and dehiscence (9% versus 3%; RR 2.78, 95% CI 1.45 to 5.30). The authors concluded that lateral episiotomy can be recommended for nulliparous women requiring vacuum extraction to significantly reduce the risk of OASI. The lateral episiotomy was described as starting 1-3cm left of the posterior fourchette, at a 60˚ (45-80˚) angle from the midline, and 4cm (3-5cm) long. The challenge when interpreting this trial in the Irish context is that lateral episiotomy is not part of current clinical practice.

There have been several systematic reviews, based mainly on observational studies, evaluating the role of episiotomy at AVB. The latest review included a total of 703,977 women from 31 studies [60]. Medio-lateral episiotomy/Lateral episiotomy (MLE/LE) was reported to significantly reduce the rate of OASI at AVB (OR 0.60, 95% CI 0.42 to 0.84). On sub-group analysis, MLE/LE was associated with a reduced rate of OASI in nulliparous ventouse (OR 0.51, 95% CI 0.42 to 0.84) and forceps deliveries (OR 0.32, 95% CI 0.29 to 0.61) but there was no statistically significant difference in multiparous women. The authors concluded that the results of the meta-analysis should be interpreted with caution as there was significant unexplained heterogeneity across included studies and the overall quality of evidence was assessed to be very low because of the critical risk of bias across many studies.

Clinical Practice

Episiotomy should be included in the counselling and consent process for AVB. When applying the evidence to clinical practice the argument for routine use of episiotomy is stronger for nulliparous women and forceps-assisted birth. The evidence from the EVA trial relates to lateral episiotomy, and only short-term outcomes are available which limits implementation at present. This is a controversial area of clinical practice and involves trade-offs in relation to the risks of OASI, wound infection and wound dehiscence. When performing a medio-lateral (or lateral) episiotomy, it should be performed at a 60˚ angle from the midline.

Recommendations

36. **Episiotomy should be discussed with the woman as part of the preparation for AVB. The decision to perform an episiotomy should be individualised according to the clinical circumstances and maternal preferences.**
37. **The evidence to support routine use of medio-lateral or lateral episiotomy at AVB in terms of preventing OASI is stronger for nulliparous women and for forceps assisted birth.**
38. **When performing a mediolateral episiotomy, the cut should be at a 60˚ angle initiated when the head is distending the perineum.**

Section 3: Aftercare following Assisted Vaginal Birth

Clinical Question 2.10: What aftercare measures should be recommended following Assisted Vaginal Birth?

Evidence Statement

Preventing infection

Vacuum and forceps-assisted births are commonly associated with episiotomy and lower genital tract trauma, both of which increase the risk of postnatal infective complications. A Cochrane systematic review assessed the effectiveness and safety of antibiotic prophylaxis in reducing infectious puerperal morbidities in women undergoing AVBs [61]. Two studies, involving 3813 women undergoing either vacuum or forceps deliveries, were included. One study involving 393 women compared the antibiotic intravenous cefotetan and cord clamping compared with no treatment. The other study involving 3420 women compared a single dose of intravenous amoxicillin and clavulanic acid with placebo using sterile 0.9% saline. The evidence suggests that prophylactic antibiotics reduce superficial perineal wound infection (RR 0.53, 95% CI 0.40 to 0.69; 3420 women; 1 study; high-certainty evidence), deep perineal wound infection (RR 0.46, 95% CI 0.31 to 0.69; 3420; 1 study; high-certainty evidence) and probably reduce wound breakdown (RR 0.52, 95% CI 0.43 to 0.63; 2593 women; 1 study; moderate-certainty evidence). The review authors concluded that prophylactic intravenous antibiotics are effective in reducing infectious puerperal morbidities in terms of superficial and deep perineal wound infection or serious infectious complications. The larger study in the review was the ANODE trial conducted at 27 obstetric units in the UK with populations and practices comparable to Ireland [62]. The NICE Postnatal Care guideline recommends that women are advised about the importance of good perineal hygiene, including daily showering of the perineum, frequent changing of sanitary pads, and hand washing before and after doing this [63].

Managing pain

A Cochrane systematic review assessed the effectiveness of analgesic rectal suppositories for pain from perineal trauma following childbirth [64]. Women were less likely to experience pain 24 hours after birth if they received non-steroidal anti-inflammatory drugs (NSAID) suppositories compared with placebo (RR 0.37, 95% CI 0.10 to 1.38, 2 trials, 150 women). Paracetamol has a good safety record in the postnatal period and is used regularly in postoperative pain management. The RCOG AVB guideline recommends that, in the absence of contraindications, women should be offered regular nonsteroidal anti-inflammatory drugs (NSAIDs) and paracetamol routinely [5]. The RANZCOG guideline recommends the same approach and advises that pain not relieved by these measures should prompt clinical assessment to exclude complications such as haematoma formation or infection [6].

Preventing Venous thromboembolism

Many risk factors for thromboembolism, such as prolonged labour and immobility, are associated with AVB. Therefore, as recommended by RCOG and Irish Health Services Executive (HSE) guidelines, women should be reassessed after AVB for risk factors for venous thromboembolism and prescribed thromboprophylaxis accordingly [65-66]. The RCOG Green-top Guideline "Reducing the risk of Venous Thromboembolism during the Pregnancy and the Puerperium", has a risk assessment tool that includes AVB as a risk factor [65]. The HSE guidance states that every woman should have a repeat VTE risk assessment after delivery [66].

Bladder aftercare

Prolonged labour, epidural analgesia and AVB are associated with an increased risk of postpartum urinary retention, which can be associated with long-term bladder dysfunction [67]. The RCOG AVB guideline cites a survey reporting considerable variation in practice in postpartum bladder management in the UK [68]. The guideline recommends that at a minimum, the first void should be measured and if retention is a possibility, a post void residual should be measured to ensure that retention does not go unrecognised [5]. The use of bladder scanning, as an alternative to catheterisation, to measure residual urine can be used if appropriate training has been undertaken. The guideline recommends that women who have had regional anaesthesia for a trial of AVB should be offered an indwelling catheter for 6-12 hours after birth to prevent asymptomatic bladder overfilling, followed by fluid balance charts to ensure good voiding volumes. The RANZCOG guideline refers to RCOG guidance and recommends careful observation of postpartum voiding function and that the insertion of an indwelling catheter may be required to prevent bladder over-distention and long-term bladder dysfunction [6]. They recommend that obstetric units have protocols aimed at preventing this complication.

Pelvic floor rehabilitation

The NICE Pelvic floor dysfunction guideline states that the three most common and definable symptoms of pelvic floor dysfunction are urinary incontinence, faecal incontinence and pelvic organ prolapse [69]. Risk factors for pelvic floor dysfunction include an active second stage of labour taking more than one-hour, vaginal birth with the baby in an OP position and AVB. Urinary incontinence is common in late pregnancy and after birth, with an increased risk following AVB [4]. A Cochrane systematic review included 38 trials involving 9892 women to determine the effectiveness of pelvic floor muscle training (PFMT) in the prevention or treatment of urinary and faecal incontinence in pregnant or postnatal women [70]. Antenatal PFMT decreased the risk of urinary incontinence at more than three to six months' postpartum (29% less; RR 0.71, 95% CI 0.54 to 0.95; 5 trials, 673 women; moderate quality evidence). In postnatal women with persistent urinary incontinence, it was unclear whether PFMT reduced urinary incontinence at more than six to 12 months' postpartum (RR 0.55, 95% CI 0.29 to 1.07; 3 trials; 696 women; very low-quality evidence), although the evidence was stronger in women who had an AVB and/or a baby over 4000g. In postnatal women with persistent faecal incontinence, it was uncertain whether PFMT reduced incontinence in the late postnatal period compared to usual care (RR 0.68, 95% CI 0.24 to 1.94; 2 trials; 620 women; very low-quality evidence).

The NICE Pelvic floor dysfunction guideline encourages women who are pregnant or who have recently given birth to do pelvic floor muscle training and suggests a 3-month programme of supervised PFMT during postnatal care for women who have experienced AVB [69]. The RCOG guideline recommends that women should be offered physiotherapy-directed strategies to reduce the risk of persistent urinary incontinence [5]. Similarly, the RANZCOG guideline advises that appropriately conducted pelvic floor exercises in the postnatal period should be encouraged [6].

Clinical Practice

Prophylactic intravenous antibiotics are recommended following AVB as an effective measure in reducing superficial and deep perineal wound infection or serious infectious complications. Good anti-microbial stewardship should be followed, adhering to local antibiotic prescribing guidelines, with specific provision for women who are allergic to penicillin. Aseptic techniques should be used when assessing and treating perineal wounds, and women should be advised on postnatal wound care including hygiene measures.

In the absence of contraindications, women should be offered regular nonsteroidal anti-inflammatory drugs (NSAIDs) and paracetamol for postnatal analgesia. If pain is not relieved by analgesia, this should prompt clinical assessment to exclude complications such as haematoma formation or infection.

Women should be reassessed after AVB for risk factors for venous thromboembolism and prescribed thromboprophylaxis accordingly.

Local protocols should be in place in relation to bladder aftercare, aiming to prevent urinary retention, and to intervene early when retention is suspected. A six- to twelve-hour period of catheterisation is appropriate following a trial of AVB in theatre. Women should have access to specialist physiotherapist services prior to hospital discharge and in the postnatal period.

Women should be advised that transient urinary incontinence is common following AVB and should be encouraged to perform pelvic floor exercises in the postnatal period. This is particularly important where there are additional risk factors for incontinence and prolapse, including prolonged labour, OP position, birth weight over 4000g and obstetric anal sphincter injury (OASI).

Recommendations

39. **A single prophylactic dose of intravenous amoxicillin and clavulanic acid (or similar broad spectrum antibiotic) should be recommended following AVB as it significantly reduces superficial or deep perineal wound infection.**
40. **In the absence of contraindications, women should be offered regular nonsteroidal anti-inflammatory drugs (diclofenac or ibuprofen) and paracetamol routinely for analgesia.**
41. **Women should be assessed after AVB for venous thromboembolism risk factors and the need for thromboprophylaxis.**
42. **Women should be advised at the earliest opportunity about the risk of urinary retention so that they are aware of the importance of bladder emptying in the postpartum period.**
43. **The timing and volume of the first void urine should be monitored and documented and a post-void residual should be measured if urinary retention is suspected.**

44. Women who have received neuraxial anaesthesia for a trial of AVB in theatre should be advised to have an indwelling catheter for 6-12 hours after the birth to prevent covert urinary retention. This should be removed according to the local protocol.
45. Women should be advised that transient urinary incontinence is common following AVB. They should be offered physiotherapy-directed strategies to reduce the risk of persistent urinary incontinence and long-term pelvic floor dysfunction.

Clinical Question 2.11: What supports should be offered to address psychological morbidity experienced following Assisted Vaginal Birth?

Evidence Statement

A WHO policy and practice bulletin produced a research agenda to improve the incidence and outcomes of AVB [71]. From women's feedback, they learned of the urgent need to recognise labour, childbirth, and postpartum experiences as inherently physiological and dignified human processes, in which interventions should only be implemented if necessary. While AVB can be a life-saving intervention, it can have long-term psychological sequelae including fear of future childbirth and post-traumatic stress disorder (PTSD). A prospective cohort study of women in the UK who delivered in the second stage of labour in an operating theatre (either AVB or caesarean section) reported that at three years after the birth, a third of women wished to avoid further pregnancy, and for almost half of these women, fear of childbirth was the main reason [72]. A UK national maternity survey reported a higher rate of women reporting two or more PTSD-type symptoms at 3 months following forceps-assisted birth compared to unassisted birth (25/359 [7%] versus 93/3275 [3%]; OR 4.89, 95% CI 2.68-8.90) [73]. A systematic review identified subjective distress in labour and obstetrical emergencies as the most important risk factors for PTSD, with AVB and emergency caesarean section as the second highest risk factors [74].

A Cochrane review assessed the effects of debriefing interventions for the prevention of psychological trauma in women following childbirth [75]. Among women who had a high level of obstetric intervention during labour and birth, the authors found no difference between standard postnatal care with debriefing and standard postnatal care without debriefing on psychological trauma symptoms within three months postpartum (RR 0.61; 95% CI 0.28 to 1.31; n = 425) or at three to six months postpartum (RR 0.62; 95% CI 0.27 to 1.42; n = 246, two trials). Nonetheless, a qualitative study of women in the UK who had experienced an operative birth in the second stage of labour (AVB or CS) reported the need for a review following the birth to discuss the indication, procedure, complications, and implications for future births [76]. A recent rapid evidence review of postnatal listening services for women following a traumatic or negative childbirth experience explored who, how, when, where and what should be provided within postnatal listening services [77]. Services should be provided flexibly by trained maternity staff via active listening, empathy, and a nonjudgmental approach. The review concluded that further work is needed to develop an optimum training programme, to identify key components of effectiveness, and to ensure these services are culturally relevant.

The RCOG AVB guideline highlights the importance of good communication and shared decision making, and that women should be reviewed prior to hospital discharge, ideally by the Obstetrician who performed the procedure [5]. Similarly, the RANZCOG guideline recommends that women should be given the opportunity to discuss the reason for operative birth, the management of any complications, and

the prognosis for future pregnancies [6]. The SOGC guidelines recommend a debrief with the patient and support people immediately following an attempted or successful AVB [8]. If this is not possible, ideally this should be done prior to hospital discharge and include the indication for AVB, management of any complications, and the prognosis for future deliveries. The NICE guideline on antenatal and postnatal mental health recommends that women with continuing symptoms of PTSD following traumatic birth should be referred to relevant specialist services for psychological intervention [78].

Clinical Practice

Women who have experienced an AVB should be reviewed prior to hospital discharge, ideally by the personnel involved in assisting the birth. They should have an opportunity to discuss the indication, conduct, potential complications of the procedure and the implications for future potential births. This should be documented in the healthcare records.

An assisted birth may be a traumatic experience for the woman even when apparently uncomplicated. All women should have the opportunity for a subsequent debrief through a "Birth Reflections" service or similar postnatal birth review service if they wish. This is particularly important for women who have had sequential use of instruments, a failed attempt at AVB, or a significant maternal or perinatal complication.

Women who report symptoms suggestive of ongoing PTSD should be referred to specialist perinatal mental health services (SPMHS).

Recommendations

46. **Women should be reviewed before hospital discharge to discuss the indication for AVB, the conduct of the procedure, management of any complications and advice for future births. Best practice is for the woman to be reviewed by the Obstetrician who performed the procedure.**
47. **Advice and support through a "Birth Reflections" service or similar postnatal review service, should be offered to women who wish to talk about their experience. The effect on the birth partner should also be considered.**
48. **Women with suspected post-traumatic stress disorder (PTSD) symptoms at 6 weeks should be referred to specialist services such as the local perinatal mental health team.**

Clinical Question 2.12: What information should women receive for planning future births?

Evidence Statement

The RCOG guideline states that women who have experienced an uncomplicated AVB should be encouraged to aim for a spontaneous vaginal birth in a subsequent pregnancy as there is a high chance of success [5]. A population-based register study from Sweden found that 90% of women who had a vacuum-assisted birth with their first baby had a spontaneous or unassisted birth with their second baby [79]. For women who experienced more complex AVBs in theatre the likelihood of achieving a spontaneous vaginal birth in a subsequent pregnancy was almost 80% [80]. It is recommended that a discussion about the implications of AVB for future birth planning should take place at the earliest opportunity as there is evidence to suggest that women decide on their preferred approach soon after birth [72]. The future plan of care should be reviewed carefully with women who have experienced a third- or fourth-degree tear, particularly if they are symptomatic, and they should be counselled regarding the risk of recurrence and implications for future childbirth as per the RCOG OASI guideline [81]. The RANZCOG guideline states that after an AVB in a first labour, the success rates for achieving a spontaneous vaginal birth in the next pregnancy have been reported between 78% and 91% [6,82-83]. Women who have sustained a third- or fourth degree tear will need individual counselling about their outcome and plans for future delivery based on evaluation of anal sphincter, their symptoms, and preferences. The SOGC guidelines recommend a similar approach stating that in a subsequent pregnancy patients should be encouraged to consider spontaneous vaginal birth. However, care planning should be individualised, and patient preference respected [8].

Clinical Practice

The clinical records should be available when discussing preferences for subsequent births. The indication and conduct of the procedure should be reviewed, together with any complications and need for specialist aftercare (Table 2). Women should be advised that the overall prognosis for a spontaneous vaginal birth in a future pregnancy is 78-91% and this should be tailored to the woman's particular circumstances.

Women who have sustained an obstetric anal sphincter injury (OASI) should be managed according to OASI guidelines. Similarly, if women have ongoing pelvic floor dysfunction or psychological symptoms, their care should be individualised, including the offer of a future caesarean birth.

Recommendations

49. **Documentation following AVB should include detailed information on the indication, conduct of the procedure, and any complications, that allows sufficient information for counselling in relation to subsequent pregnancies and births.**
50. **Women should be Informed that there is a high probability (78-91%) of a spontaneous vaginal birth in a subsequent labour following an uncomplicated AVB.**
51. **Care for women who have sustained an obstetric anal sphincter injury (OASI), who have ongoing pelvic floor dysfunction, or who have experienced psychological trauma should be individualised, including the offer of a caesarean birth in a future pregnancy.**

Chapter 3: Development Of Clinical Practice Guideline

3.1 Literature search strategy

A comprehensive literature review was undertaken for each clinical question and included national and international publications. Details of supportive evidence-based literature for this guideline are reported in chapter two. The search included electronic databases PUBMED, MEDLINE, CINAHL and the Cochrane Library. We searched databases using relevant headings and keywords. Key words and terms used included but not limited to "assisted vaginal birth", "instrumental delivery", "operative vaginal birth", "vacuum", "forceps", "second stage caesarean section", "intrapartum", "prolonged second stage", "fetal compromise", "perinatal outcomes", "maternal morbidity", and "traumatic birth". There were no restrictions placed on any of the search terms. The results from these searches were systematically reviewed by the team using a systematic review tool, Covidence.

3.2 Appraisal of evidence

Following a comprehensive literature review the quality, validity and relevance of the evidence gathered were critically appraised by the guideline developers under the following headings:

- Study design
- Relevance of primary and secondary outcomes
- Consistency of results across studies
- Magnitude of benefit versus magnitude of harm
- Applicability to practice context

A number of evidence-based recommendations for Assisted Vaginal Birth were agreed upon. They have been adapted to reflect care in the Irish healthcare setting.

3.3 AGREE II process

While being developed, the guideline was assessed using the AGREE II checklist (Appendix 3) as recommended by the Department of Health in the 'How to Develop a National Clinical Guideline: a manual for guideline developers', 2019[24].

The purpose of AGREE II is to provide a framework to:

1. Assess the quality of guidelines;
2. Provide a methodological strategy for the development of guidelines; and
3. Inform what information and how information ought to be reported in guidelines

24 Department of Health (2019). How to develop a National Clinical Guideline: a manual for guideline developers. Available at: https://www.gov.ie/en/collection/cd41ac-clinical-effectiveness-resources-and-learning/

3.4 Literature review

The following steps were taken to ensure a comprehensive review of the literature with continuous input and discussion between the guideline development group:

- The GDG reviewed a set of draft clinical questions to be addressed which were revised and finalised.
- The initial literature search was undertaken in October 2023 by two members of the GDG and a third member arbitrated on studies to be included. New emerging evidence from publication alerts was reviewed up until July 2024, where the relevance to the clinical questions were discussed and decided if inclusion was applicable to the development of the guideline.
- The GDG collaborated regularly to review the evidence, discuss clinical practice and agree recommendations.
- Where there was no evidence to support certain clinical questions, clinical practice and recommendations were made based on national guidelines in other countries, group consensus and expertise.

3.5 Grades of recommendation

GRADE offers a transparent and structured process for developing and presenting evidence summaries and for carrying out the steps involved in developing recommendations[25].

While we acknowledge that for this particular work an extensive GRADE approach is not possible, we have referred to the suggested language set out in the GRADE table when making recommendations[26] (Appendix 4).

3.6 Future research

An important outcome of the guideline development process is in highlighting gaps in the evidence-base.

Some suggested topics in this broad area include:

- Further high quality trials on the use of episiotomy at AVB, addressing parity, choice of instrument, long-term outcomes and maternal perspectives.
- Further high quality studies comparing AVB and immediate caesarean section for mid and rotational procedures.
- Evaluation of approaches to enhance recovery and reduce morbidity for women following AVB.
- Evaluation of approaches to training and the assessment of competency for AVB.

25 Guyatt, Gordon, *et al.* "GRADE Guidelines: 1. Introduction – GRADE Evidence Profiles and Summary of Findings Tables." *Journal of Clinical Epidemiology*, vol. 64, no. 4, 2011, pp. 383-94, https://doi.org/10.1016/j.jclinepi.2010.04.026.

26 SMFM adopts GRADE (Grading of Recommendations Assessment, Development, and Evaluation) for clinical guidelines. Society for Maternal-Fetal Medicine (SMFM), Chauhan SP, Blackwell SC. Am J Obstet Gynecol. 2013 Sep;209(3):163-5. doi: 10.1016/j.ajog.2013.07.012

Chapter 4: Governance And Approval

4.1 Formal governance arrangements

This guideline was written by the guideline developers under the direction of the Guideline Programme Team (GPT). An Expert Advisory Group was formed to review the guideline prior to submission for final approval with the National Women and Infants Health Programme. The roles and responsibilities of the members of each group and their process were clearly outlined and agreed.

4.2 Guideline development standards

This Guideline was developed by the Guideline Developer Group (GDG) within the overall template of the HSE National Framework[27] for developing Policies, Procedures, Protocols and Guidelines (2023) and under supervision of the Guideline Programme Team.

A review was conducted by a group of experts, specialists and advocates (the EAG) prior to approval by the Clinical Advisory Group (CAG) of the National Women and Infants Health Programme with final sign off for publication by CAG Co-Chairs, the Clinical Director of NWIHP and the Chair of the IOG. See appendix 5 for list of CAG members.

27 Health Service Executive (2023). How to develop HSE National Policies, Procedures, Protocols and Guidelines (PPPGs).

Chapter 5:
Communication And Dissemination

A communication and dissemination plan for this guideline has been developed by the GPT and endorsed by the NWIHP. Effective ongoing clear communication is essential in explaining why the guideline is necessary and securing continued buy-in. It provides an opportunity to instil motivation within staff, helps overcome resistance to change and gives an opportunity for feedback[28].

The Clinical Guideline will be circulated and disseminated through the Guideline Programme Team as well as through the professional networks who participated in developing and reviewing the document.

Senior management within the maternity units are responsible for the appropriate dissemination of new and updated guidelines. Local hospital groups including guideline committees are also instrumental in the circulation of new and updated guidelines and promoting their use in the relevant clinical settings.

The HSE will make this guideline available to all employees through standard networks as well as storing it in the online PPPG repository. Electronic versions available on the NWIHP and RCPI websites and other communication means can be used to maximise distribution. The NWIHP website will also provide a training webinar introducing each guideline and where relevant a downloadable version of the recommended algorithm will be available.

28 Department of Health (2018). NCEC Implementation Guide and Toolkit. Available at: https://www.gov.ie/en/collection/cd41ac-clinical-effectiveness-resources-and-learning/?

Chapter 6: **Implementation**

6.1 Implementation plan

Implementation was considered at the beginning, and throughout the guideline development process. The local multidisciplinary clinical team, senior executive and clinical management in each maternity and gynaecology unit are ultimately responsible for the appropriate structured adoption and implementation of the guidelines within their area of responsibility. They must ensure that all relevant personnel under their supervision have read and understood the guideline and monitor both its effectiveness and adoption.

Within each site, local multidisciplinary teams are responsible for the clinical implementation of Guideline recommendations and ensuring that their local clinical practices and processes reflect and are aligned with the guideline recommendations.

The following have been put in place to help facilitate the implementation of this guideline.

- Quick Summary Document (QSD) for clinical staff (includes key recommendations, auditable standards, algorithms and recommended reading)
- Clinical Guideline mobile application
- Plain language summary

6.2 Education plans required to implement the Guideline

It is acknowledged that this guideline should be complemented by ongoing education, training and assessment where required. This guidelines education plan includes the development of a national curriculum for multidisciplinary team training in Assisted Vaginal Birth.

6.3 Barriers and facilitators

To ensure successful implementation of guidelines, it is first necessary to look at potential barriers and facilitators. Taking these into account when developing the implementation plan should improve levels of support from relevant users. (DOH 2018, 2019)

Barriers may be categorised as internal (specific to the guideline itself) or external (specific to the clinical environment).

The Guideline Development Group has aimed to address any internal barriers during the development of this Guideline.

Potential external barriers include:

- Structural factors (e.g., budget or service redesign)
- Organisational factors (e.g., lack of facilities or equipment)
- Individual factors (e.g., knowledge, skills, training)
- Woman's perceptions

In the case of this guideline, it will be necessary to examine possible barriers and consider implementation strategies to address them. By example, this may include discussion with relevant management groups with regards budgetary impact or providing training to the relevant staff. Additional time may be required in the antenatal setting to counsel women on AVB and episiotomy. Staff training may be required to ensure information is delivered in an unbiased manner. Additional services may be required to provide appropriate aftercare addressing birth-related complications, physiotherapy directed care and psychological supports.

6.4 Resources necessary to implement recommendations

The implementation of this Guideline should be undertaken as part of the quality improvement of each hospital. Hospitals should review existing service provision against this Guideline, identifying necessary resources required to implement the recommendations in this Guideline.

Chapter 7: Audit And Evaluation

7.1 Introduction to audit

It is important that both implementation of the Guideline and its influence on outcomes are audited to ensure that this Guideline positively impacts on the care of the woman. Institutions and health professionals are encouraged to develop and undertake regular audits of Guideline implementation. Personnel tasked with the job of conducting the audit should be identified on receipt of the most recent version of the Guideline.

7.2 Auditable standards

Audit using the key recommendations as indicators should be undertaken to identify where improvements are required and to enable changes as necessary. Audit should also be undertaken to provide evidence of continuous quality improvement initiatives.

Auditable standards for this Guideline include:

1. Number of women who experience a failed attempt at AVB
2. Number of women who experience sequential use of instruments
3. Number of caesarean births complicated by fetal head impaction
4. Incidence of significant neonatal traumatic injuries following attempted AVB
5. Incidence of OASI following attempted AVB

7.3 Evaluation

Evaluation is defined as a formal process to determine the extent to which the planned or desired outcomes of an intervention are achieved[29].

Implementation of this Guideline will be audited periodically at national level, with standards for this set by the NWIHP. Evaluation of the auditable standards should also be undertaken locally by senior hospital clinical management to support implementation.

29 Health Information Quality Authority (2012). National Standards for Safer Better Healthcare [Internet]. Available from: https://www.hiqa.ie/reports-and-publications/standard/national-standards-safer-better-healthcare

Chapter 8: **Revision Plan**

8.1 Procedure for the update of the Guideline

It may be a requirement to amend, update or revise this Guideline as new evidence emerges. This Guideline will be reviewed at national level every three years, or earlier if circumstances require it, and updated accordingly[30].

The Guideline Development Group will be asked to review the literature and recent evidence to determine if changes are to be made to the existing Guideline. If the Guideline Development Group are unavailable, the GPT along with the NWIHP senior management team will select a suitable expert to replace them.

If there are no amendments required to the Guideline following the revision date, the detail on the revision tracking box must still be updated which will be a new version number and date.

The recommendations set out in this Guideline remain valid until a review has been completed.

8.2 Method for amending the Guideline

As new evidence become available it is inevitable that Guideline recommendations will fall behind current evidence-based clinical practice. It is essential that clinical guidelines are reviewed and updated with new evidence as it becomes available.

In order to request a review of this Guideline one of the following criteria must be met:

a) 3 years since the Guideline was published

b) 3 years since last review was conducted

c) Update required as a result of new evidence

Correspondence requesting a review of the Guideline should be submitted to the National Women and Infants Health Programme. Any such requests should be dealt with in a timely manner.

30 Health Service Executive (2023). How to develop HSE National Policies, Procedures, Protocols and Guidelines (PPPGs).

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Supporting Evidence

GRADE: http://www.gradeworkinggroup.org/

AGREE: http://www.agreetrust.org/agree-ii/

HSE: https://www.hse.ie/eng/about/who/qid/nationalframeworkdevelopingpolicies/

Glossary
(for the purpose of this guideline)

ACOG American College of Obstetricians and Gynaecologists

AGREE Appraisal of Guidelines for Research and Evaluation

BMI Body Mass Index

CAG Clinical Advisory Group

CI Confidence Interval

CTG Cardiotocograph

DDI Decision Delivery Interval

EAG Expert Advisory Group

EFM Electronic Fetal Monitoring

FHR Fetal Heart Rate

FIGO International Federation of Gynaecology and Obstetrics

GPT Guideline Programme Team

GRADE Grading of Recommendations, Assessments, Developments and Evaluations

HCP Healthcare Professional

HIQA Health Information and Quality Authority

HSE Health Service Executive

IMIS Irish Maternity Indicator System

IOG Institute of Obstetricians and Gynaecologists

MPSS Maternity Patient Safety Statements

NICE National Institute for Health and Care Excellence

NICU Neonatal Intensive Care Unit

NCEC National Clinical Effectiveness Committee

NWIHP National Women and Infants Health Programme

OA Occiput-anterior

OASI Obstetric Anal Sphincter Injury

OP Occiput-posterior

OR Odds Ratio (**aOR** – adjusted Odds Ratio)

OSATS Objective Structured Assessment of Technical Skills

PMHS Perinatal Mental Health Services

PPPG Policy, Procedures, Protocols and Guidelines

PTSD Post Traumatic Stress Disorder

RANZCOG Royal Australian and New Zealand College of Obstetricians and Gynaecologists

RCOG Royal College of Obstetricians and Gynaecologists

RCPI Royal College of Physicians of Ireland

RCT Randomised Controlled Trial

RR Relative Risk ratio

SOGC Society of Obstetricians & Gynaecologists of Canada

UKOSS UK Obstetric Surveillance System

WHO World Health Organisation

Appendix 1: **Expert Advisory Group Members 2024**

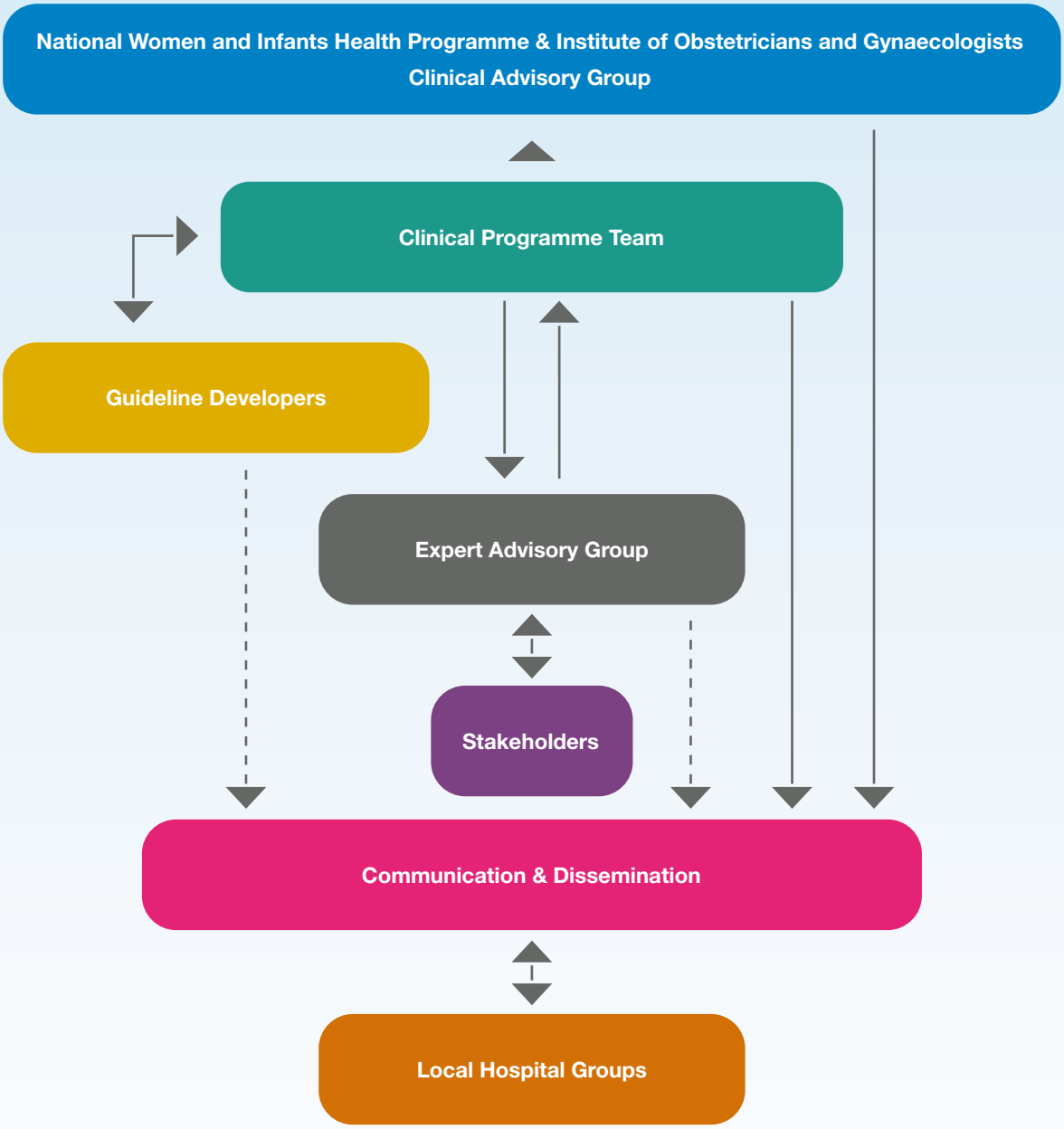
Member	Profession	Location
Dr Mairead Butler	Consultant Obstetrician and Gynaecologist	University Hospital Waterford
Dr Nicholas Barrett	Consultant Anaesthesiologist, Lead for Obstetric Anaesthesiology services	Limerick University Hospital
Dr Venita Broderick	Consultant Obstetrician and Gynaecologist	National Maternity Hospital Dublin
Ms Siobhan Canny	Group Director of Midwifery	Saolta University Health Care Group
Ms Triona Cowman	Director of the Centre for Midwifery Education	Centre for Midwifery Education, The Coombe Hospital
Ms Marie Culliton	Lab Manager/Chief Medical Scientist	National Maternity Hospital Dublin
Ms Niamh Connolly-Coyne *And* Ms Mandy Daly	Board of Directors Members *(Shared nomination)*	Irish Neonatal Health Alliance
Ms Sinéad Curran	Dietician Manager	National Maternity Hospital
Dr Niamh Conlon	Consultant Histopathologist	Cork University Hospital
Ms Georgina Cruise	National Manager	Patient Advocacy Service
Dr Orla Donohoe	Specialist Registrar, Obstetrics and Gynaecology and SWEC Fellow	St George Hospital, Sydney, Australia
Ms Alana Dineen	Senior Clinical Pharmacist	Cork University Maternity Hospital
Prof Maeve Eogan	Consultant Obstetrician and Gynaecologist National Clinical Lead SATU (HSE)	Rotunda Hospital, Dublin
Dr Brendan Fitzgerald	Consultant Perinatal Pathologist	Cork University Hospital
Dr Daniel Galvin	Specialist Registrar, Obstetrics and Gynaecology	Cork University Maternity Hospital

Member	Profession	Location
Ms Stacey Grealis	Patient Research Partner	Independent Living Movement Ireland
Ms Fiona Hanrahan	Director of Midwifery and Nursing	Rotunda Hospital, Dublin
Ms Laura Harrington	Principal Medical Social Worker	National Maternity Hospital, Dublin
Ms Marita Hennessy	Post-Doctoral Researcher	Pregnancy Loss Research Group, INFANT Centre, University College Cork
Ms Caroline Joyce	Principal Clinical Biochemist PhD Candidate	Cork University Hospital University College Cork
Dr Chaitra Jairaj	Consultant Perinatal Psychiatrist	The Coombe Hospital, Dublin Midland Regional Hospital Portlaoise
Dr Cathy Monteith	Consultant Obstetrician and Gynaecologist	Our Lady of Lourdes Hospital Drogheda
Prof John Murphy	Consultant Neonatologist Clinical Lead for the National Clinical Programme for Paediatrics and Neonatology	National Women and Infants Health Programme
Ms Janet Murphy	Advanced Midwifery Practitioner	University Hospital Waterford
Dr Jill Mitchell	Specialist Registrar, Obstetrics and Gynaecology	Cork University Maternity Hospital
Dr Aisling McDonnell	Specialist Registrar, Obstetrics and Gynaecology	Mater Misericordiae University Hospital Dublin
Dr Ciara McCarthy	General Practitioner ICGP and NWIHP Women's Health Lead	Irish College of General Practitioners
Ms Orla McCarthy	Clinical Specialist Physiotherapist in Pelvic Health	Cork University Maternity Hospital
Dr Donough J. O'Donovan	Director Neonatal Intensive Care Unit Consultant Neonatologist/Paediatrician	University College Hospital Galway

Member	Profession	Location
Mr Fergal O' Shaughnessy *And* Dr Brian Cleary *(Shared nomination)*	Senior Pharmacist, Honorary Lecturer *And* Chief Pharmacist, Honorary Clinical Associate Professor and Medications Lead, Maternal and Newborn Clinical Management System	Rotunda Hospital Dublin Royal College of Surgeons in Ireland
Dr Gillian Ryan	Consultant Obstetrician and Gynaecologist	University Hospital Galway
Prof Valerie Smith	Chair of Midwifery	University College Dublin
Ms Nora Vallejo	Advanced Midwife Practitioner	The Coombe Hospital, Dublin

Member 2021-2023	Profession	Location
Dr Katherine Astbury	Consultant Obstetrician and Gynaecologist	University Hospital Galway
Dr Richard Duffy	Consultant Perinatal Psychiatrist	Rotunda Hospital Dublin
Ms Clare Farrell	Physiotherapy Manager	Coombe Women and Infants University Hospital, Dublin
Ms Marie Finn	Medical Social Work Counsellor	Saolta University Health Care Group
Prof Declan Keane	Consultant Obstetrician, Gynaecologist, *Professor of* Obstetrics and Gynaecology	National Maternity Hospital Dublin, Royal College of Surgeons in Ireland
Ms Áine Kelly	Physiotherapy Manager	The Coombe Hospital, Dublin
Dr Fergus McCarthy	Consultant Obstetrician, Gynaecologist	Cork University Maternity Hospital, University College Cork
Dr Sarah Petch	Specialist Registrar, Obstetrics and Gynaecology	National Maternity Hospital Dublin
Ms Margaret Quigley	National Lead for Midwifery	Office of Nursing and Midwifery Services Director

Appendix 2:
Guideline Programme Process



Appendix 3: **AGREE II checklist**[31]

AGREE Reporting Checklist 2016

This checklist is intended to guide the reporting of Clinical Practice Guidelines.

CHECKLIST ITEM AND DESCRIPTION	REPORTING CRITERIA	Page #
DOMAIN 1: SCOPE AND PURPOSE		
1. OBJECTIVES *Report the overall objective(s) of the guideline. The expected health benefits from the guideline are to be specific to the clinical problem or health topic.*	☐ Health intent(s) (i.e., prevention, screening, diagnosis, treatment, etc.) ☐ Expected benefit(s) or outcome(s) ☐ Target(s) (e.g., patient population, society)	
2. QUESTIONS *Report the health question(s) covered by the guideline, particularly for the key recommendations.*	☐ Target population ☐ Intervention(s) or exposure(s) ☐ Comparisons (if appropriate) ☐ Outcome(s) ☐ Health care setting or context	
3. POPULATION *Describe the population (i.e., patients, public, etc.) to whom the guideline is meant to apply.*	☐ Target population, sex and age ☐ Clinical condition (if relevant) ☐ Severity/stage of disease (if relevant) ☐ Comorbidities (if relevant) ☐ Excluded populations (if relevant)	
DOMAIN 2: STAKEHOLDER INVOLVEMENT		
4. GROUP MEMBERSHIP *Report all individuals who were involved in the development process. This may include members of the steering group, the research team involved in selecting and reviewing/ rating the evidence and individuals involved in formulating the final recommendations.*	☐ Name of participant ☐ Discipline/content expertise (e.g., neurosurgeon, methodologist) ☐ Institution (e.g., St. Peter's hospital) ☐ Geographical location (e.g., Seattle, WA) ☐ A description of the member's role in the guideline development group	

31 AGREE Reporting Checklist is available on the AGREE Enterprise website, a free and open access resource to support the practice guideline field (www.agreetrust.org)

CHECKLIST ITEM AND DESCRIPTION	REPORTING CRITERIA	Page #
5. TARGET POPULATION PREFERENCES AND VIEWS *Report how the views and preferences of the target population were sought/considered and what the resulting outcomes were.*	☐ Statement of type of strategy used to capture patients'/publics' views and preferences (e.g., participation in the guideline development group, literature review of values and preferences) ☐ Methods by which preferences and views were sought (e.g., evidence from literature, surveys, focus groups) ☐ Outcomes/information gathered on patient/public information ☐ How the information gathered was used to inform the guideline development process and/or formation of the recommendations	
6. TARGET USERS *Report the target (or intended) users of the guideline.*	☐ The intended guideline audience (e.g. specialists, family physicians, patients, clinical or institutional leaders/administrators) ☐ How the guideline may be used by its target audience (e.g., to inform clinical decisions, to inform policy, to inform standards of care)	
DOMAIN 3: RIGOUR OF DEVELOPMENT		
7. SEARCH METHODS *Report details of the strategy used to search for evidence.*	☐ Named electronic database(s) or evidence source(s) where the search was performed (e.g., MEDLINE, EMBASE, PsychINFO, CINAHL) ☐ Time periods searched (e.g., January 1, 2004 to March 31, 2008) ☐ Search terms used (e.g., text words, indexing terms, subheadings) ☐ Full search strategy included (e.g., possibly located in appendix)	
8. EVIDENCE SELECTION CRITERIA *Report the criteria used to select (i.e., include and exclude) the evidence. Provide rationale, where appropriate.*	☐ Target population (patient, public, etc.) characteristics ☐ Study design ☐ Comparisons (if relevant) ☐ Outcomes ☐ Language (if relevant) ☐ Context (if relevant)	

CHECKLIST ITEM AND DESCRIPTION	REPORTING CRITERIA	Page #
9. STRENGTHS & LIMITATIONS OF THE EVIDENCE *Describe the strengths and limitations of the evidence. Consider from the perspective of the individual studies and the body of evidence aggregated across all the studies. Tools exist that can facilitate the reporting of this concept.*	☐ Study design(s) included in body of evidence ☐ Study methodology limitations (sampling, blinding, allocation concealment, analytical methods) ☐ Appropriateness/relevance of primary and secondary outcomes considered ☐ Consistency of results across studies ☐ Direction of results across studies ☐ Magnitude of benefit versus magnitude of harm ☐ Applicability to practice context	
10. FORMULATION OF RECOMMENDATIONS *Describe the methods used to formulate the recommendations and how final decisions were reached. Specify any areas of disagreement and the methods used to resolve them.*	☐ Recommendation development process (e.g., steps used in modified Delphi technique, voting procedures that were considered) ☐ Outcomes of the recommendation development process (e.g., extent to which consensus was reached using modified Delphi technique, outcome of voting procedures) ☐ How the process influenced the recommendations (e.g., results of Delphi technique influence final recommendation, alignment with recommendations and the final vote)	
11. CONSIDERATION OF BENEFITS AND HARMS *Report the health benefits, side effects, and risks that were considered when formulating the recommendations.*	☐ Supporting data and report of benefits ☐ Supporting data and report of harms/side effects/risks ☐ Reporting of the balance/trade-off between benefits and harms/side effects/risks ☐ Recommendations reflect considerations of both benefits and harms/side effects/ risks	
12. LINK BETWEEN RECOMMENDATIONS AND EVIDENCE *Describe the explicit link between the recommendations and the evidence on which they are based.*	☐ How the guideline development group linked and used the evidence to inform recommendations ☐ Link between each recommendation and key evidence (text description and/or reference list) ☐ Link between recommendations and evidence summaries and/or evidence tables in the results section of the guideline	

CHECKLIST ITEM AND DESCRIPTION	REPORTING CRITERIA	Page #
13. EXTERNAL REVIEW *Report the methodology used to conduct the external review.*	☐ Purpose and intent of the external review (e.g., to improve quality, gather feedback on draft recommendations, assess applicability and feasibility, disseminate evidence) ☐ Methods taken to undertake the external review (e.g., rating scale, open-ended questions) ☐ Description of the external reviewers (e.g., number, type of reviewers, affiliations) ☐ Outcomes/information gathered from the external review (e.g., summary of key findings) ☐ How the information gathered was used to inform the guideline development process and/or formation of the recommendations (e.g., guideline panel considered results of review in forming final recommendations)	
14. UPDATING PROCEDURE *Describe the procedure for updating the guideline.*	☐ A statement that the guideline will be updated ☐ Explicit time interval or explicit criteria to guide decisions about when an update will occur ☐ Methodology for the updating procedure	
DOMAIN 4: CLARITY OF PRESENTATION		
15. SPECIFIC AND UNAMBIGUOUS RECOMMENDATIONS *Describe which options are appropriate in which situations and in which population groups, as informed by the body of evidence.*	☐ A statement of the recommended action ☐ Intent or purpose of the recommended action (e.g., to improve quality of life, to decrease side effects) ☐ Relevant population (e.g., patients, public) ☐ Caveats or qualifying statements, if relevant (e.g., patients or conditions for whom the recommendations would not apply) ☐ If there is uncertainty about the best care option(s), the uncertainty should be stated in the guideline	
16. MANAGEMENT OPTIONS *Describe the different options for managing the condition or health issue.*	☐ Description of management options ☐ Population or clinical situation most appropriate to each option	

CHECKLIST ITEM AND DESCRIPTION	REPORTING CRITERIA	Page #
17. IDENTIFIABLE KEY RECOMMENDATIONS *Present the key recommendations so that they are easy to identify.*	☐ Recommendations in a summarized box, typed in bold, underlined, or presented as flow charts or algorithms ☐ Specific recommendations grouped together in one section	
DOMAIN 5: APPLICABILITY		
18. FACILITATORS AND BARRIERS TO APPLICATION *Describe the facilitators and barriers to the guideline's application.*	☐ Types of facilitators and barriers that were considered ☐ Methods by which information regarding the facilitators and barriers to implementing recommendations were sought (e.g., feedback from key stakeholders, pilot testing of guidelines before widespread implementation) ☐ Information/description of the types of facilitators and barriers that emerged from the inquiry (e.g., practitioners have the skills to deliver the recommended care, sufficient equipment is not available to ensure all eligible members of the population receive mammography) ☐ How the information influenced the guideline development process and/or formation of the recommendations	
19. IMPLEMENTATION ADVICE/TOOLS *Provide advice and/or tools on how the recommendations can be applied in practice.*	☐ Additional materials to support the implementation of the guideline in practice. For example: • Guideline summary documents • Links to check lists, algorithms • Links to how-to manuals • Solutions linked to barrier analysis (see Item 18) • Tools to capitalize on guideline facilitators (see Item 18) • Outcome of pilot test and lessons learned	

CHECKLIST ITEM AND DESCRIPTION	REPORTING CRITERIA	Page #
20. RESOURCE IMPLICATIONS *Describe any potential resource implications of applying the recommendations.*	☐ Types of cost information that were considered (e.g., economic evaluations, drug acquisition costs) ☐ Methods by which the cost information was sought (e.g., a health economist was part of the guideline development panel, use of health technology assessments for specific drugs, etc.) ☐ Information/description of the cost information that emerged from the inquiry (e.g., specific drug acquisition costs per treatment course) ☐ How the information gathered was used to inform the guideline development process and/or formation of the recommendations	
21. MONITORING/ AUDITING CRITERIA *Provide monitoring and/or auditing criteria to measure the application of guideline recommendations.*	☐ Criteria to assess guideline implementation or adherence to recommendations ☐ Criteria for assessing impact of implementing the recommendations ☐ Advice on the frequency and interval of measurement ☐ Operational definitions of how the criteria should be measured	
DOMAIN 6: EDITORIAL INDEPENDENCE		
22. FUNDING BODY *Report the funding body's influence on the content of the guideline.*	☐ The name of the funding body or source of funding (or explicit statement of no funding) ☐ A statement that the funding body did not influence the content of the guideline	
23. COMPETING INTERESTS *Provide an explicit statement that all group members have declared whether they have any competing interests.*	☐ Types of competing interests considered ☐ Methods by which potential competing interests were sought ☐ A description of the competing interests ☐ How the competing interests influenced the guideline process and development of recommendations	

From: Brouwers MC, Kerkvliet K, Spithoff K, on behalf of the AGREE Next Steps Consortium. The AGREE Reporting Checklist: a tool to improve reporting of clinical practice guidelines. BMJ 2016;352:i1152. doi: 10.1136/bmj.i1152.

For more information about the AGREE Reporting Checklist, please visit the AGREE Enterprise website at http://www.agreetrust.org

Appendix 4: **Grade of Recommendations**[32]

Grade of recommendation	Clarity of risk/ benefit	Quality of supporting evidence	Implications	Suggested Language
1A. Strong recommendation, high-quality evidence	Benefits clearly outweigh risk and burdens, or vice versa	Consistent evidence from well-performed randomized, controlled trials or overwhelming evidence of some other form. Further research is unlikely to change our confidence in the estimate of benefit and risk	Strong recommendations can apply to most patients in most circumstances without reservation. Clinicians should follow a strong recommendation unless a clear and compelling rationale for an alternative approach is present	We strongly recommend… We recommend that …should be performed/ administered… We recommend that …. is indicated/ beneficial/ effective…

32 SMFM adopts GRADE (Grading of Recommendations Assessment, Development, and Evaluation) for clinical guidelines. Society for Maternal-Fetal Medicine (SMFM), Chauhan SP, Blackwell SC. Am J Obstet Gynecol. 2013 Sep;209(3):163-5. https://pubmed.ncbi.nlm.nih.gov/23978245/

Grade of recommendation	Clarity of risk/ benefit	Quality of supporting evidence	Implications	Suggested Language
1B. Strong recommendation, moderate-quality evidence	Benefits clearly outweigh risk and burdens, or vice versa	Evidence from randomized, controlled trials with important limitations (inconsistent results, methodologic flaws, indirect or imprecise), or very strong evidence of some other research design. Further research (if performed) is likely to have an impact on our confidence in the estimate of benefit and risk and may change the estimate	Strong recommendation and applies to most patients. Clinicians should follow a strong recommendation unless a clear and compelling rationale for an alternative approach is present	We recommend… We recommend that … should be performed/ administered… We recommend that … is (usually) indicated/ beneficial/ effective…
1C. Strong recommendation, low-quality evidence	Benefits appear to outweigh risk and burdens, or vice versa	Evidence from observational studies, unsystematic clinical experience, or from randomized, controlled trials with serious flaws. Any estimate of effect is uncertain	Strong recommendation that applies to most patients. Some of the evidence base supporting the recommendation is, however, of low quality	We recommend… We recommend that … should be performed/ administered… We recommend that … Is (maybe) indicated/ beneficial/ effective…
2A. Weak recommendation, high-quality evidence	Benefits closely balanced with risks and burdens	Consistent evidence from well-performed randomized, controlled trials or overwhelming evidence of some other form. Further research is unlikely to change our confidence in the estimate of benefit and risk	Weak recommendation: best action may differ depending on circumstances or patients or societal values	We suggest… We suggest that… may/might be reasonable...

Grade of recommendation	Clarity of risk/ benefit	Quality of supporting evidence	Implications	Suggested Language
2B. Weak recommendation, moderate-quality evidence	Benefits closely balanced with risks and burdens, some uncertainty in the estimates of benefits, risks and burdens	Evidence from randomized, controlled trials with important limitations (inconsistent results, methodologic flaws, indirect or imprecise), or very strong evidence of some other research design. Further research (if performed) is likely to have an impact on our confidence in the estimate of benefit and risk and may change the estimate	Weak recommendation; alternative approaches likely to be better for some patients under some circumstances	We suggest… We suggest that … may/might be reasonable...
2C. Weak recommendation, low-quality evidence	Uncertainty in the estimates of benefits, risks, and burdens; benefits may be closely balanced with risks and burdens	Evidence from observational studies, unsystematic clinical experience, or from randomized, controlled trials with serious flaws. Any estimate of effect is uncertain	Very weak recommendation: other alternatives may be equally reasonable	We suggest … is an option We suggest that … may/might be reasonable.
Best practice	A recommendation that is sufficiently obvious that the desirable effects outweigh undesirable effects, despite the absence of direct evidence, such that the grading of evidence is unnecessary			We recommend… We recommend that … should be performed/ administered… We recommend that… Is usually) indicated/ beneficial/effective

Appendix 5: NWIHP/IOG CAG membership (2024-)

Dr Cliona Murphy (Chair, 2023-). Consultant Obstetrician and Gynaecologist, Coombe Women and Infants University Hospital. Clinical Director, National Women and Infants Health Programme.

Dr Venita Broderick (2024-). Clinical Lead Gynaecology, National Women and Infants Health Programme.

Dr Brian Cleary (2023-). Chief Pharmacist, Rotunda Hospital. Medications Lead, Maternal and Newborn Clinical Management System Project.

Ms Angela Dunne (2023-). Director of Midwifery, National Women and Infants Health Programme.

Prof. Seán Daly (2023-). Master, Consultant Obstetrician and Gynaecologist, Rotunda Hospital.

Prof. Maeve Eogan (2023-). Consultant Obstetrician and Gynaecologist, Rotunda Hospital. Clinical Lead, Sexual Assault Treatment Units, National Women and Infants Health Programme.

Prof. Richard Greene (2023-). Consultant Obstetrician and Gynaecologist, Cork University Maternity Hospital. Clinical Director, National Perinatal Epidemiology Centre, University College Cork.

Prof. John Higgins (2023-). Cork University Maternity Hospital, Consultant Obstetrician and Gynaecologist, Clinical Director, Ireland South Women and Infants Directorate.

Prof. Shane Higgins (2023-). Master, Consultant Obstetrician and Gynaecologist, National Maternity Hospital.

Dr Mendinaro Imcha (2023-). Clinical Director, Consultant Obstetrician and Gynaecologist, University Maternity Hospital Limerick.

Prof. John Murphy (2023-). Clinical Lead Neonatology, National Women and Infants Health Programme.

Dr Aoife Mullaly (2023-). Consultant Obstetrician and Gynaecologist, Coombe Women and Infants University Hospital. Clinical Lead, Termination of Pregnancy Services, National Women and Infants Health Programme.

Prof. John Morrison (2023-). Consultant Obstetrician and Gynaecologist, University Hospital Galway. Clinical Director, Saolta Maternity Directorate.

Mr Kilian McGrane (2023-). Director, National Women and Infants Health Programme.

Prof. Keelin O'Donoghue (2023-). Consultant Obstetrician and Gynaecologist, Cork University Maternity Hospital. Clinical Lead, National Guidelines, National Women and Infants Health Programme.

Dr Suzanne O'Sullivan (2023-). Consultant Obstetrician and Gynaecologist, Cork University Maternity Hospital. Chair, Institute of Obstetricians and Gynaecologists. Director of Education and Training, Obstetrics and Gynaecology, Institute of Obstetricians and Gynaecologists.

Prof. Mike O'Connell (2023-). Master, Consultant Obstetrician and Gynaecologist, Coombe Women and Infants University Hospital.

Ms Davinia O'Donnell (2024-). General Manager | National Women and Infants Health Programme.

Dr Vicky O'Dwyer (2023-). Consultant Obstetrician and Director of Gynaecology, Rotunda Hospital.

Dr Mairead O'Riordan (2024-). Consultant Obstetrician and Gynaecologist, Cork University Maternity Hospital.

Dr Fergal O'Shaughnessy (2025-) Senior Pharmacist, Rotunda Hospital Dublin.

Prof. Nóirín Russell (2023-). Consultant Obstetrician and Gynaecologist, Cork University Maternity Hospital. Clinical Director, Cervical Check.

Dr Carmen Regan (April 2024). Clinical Lead Obstetrics, National Women and Infants Health Programme.

Dr Orla Shiel (2024-). Consultant Obstetrician and Gynaecologist, National Maternity Hospital.

Ms Clare Thompson (2023-). Consultant Gynaecological Oncologist, The Mater, Dublin.