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Shoulder Dystocia

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This is the third edition of this guideline. The first edition was published in 2005 under the same title and the second edition was published in 2012.

Key recommendations

- Health professionals should be vigilant and prepared to manage shoulder dystocia in every case as it cannot be predicted or prevented. [Grade C]
- Fetal macrosomia is associated with an increased incidence of shoulder dystocia and neonatal brachial plexus injury (BPI). [Grade C]
- Women with an estimated fetal weight (EFW) over 4000g should be provided with information about the potential risks to both the woman and infant for the options available, that include expectant care, induction of labour and planned caesarean birth. [Grade D]
- Planned caesarean or vaginal birth can both be appropriate after a previous shoulder dystocia. The decision should be made jointly by the woman and the maternity team. [GPP]
- Routine traction in an axial direction can be used to diagnose shoulder dystocia but other traction should be avoided. [Grade D]
- Shoulder dystocia should be managed systematically. [GPP]
- All maternity staff should participate in shoulder dystocia training at least annually. [GPP]
- Documentation should be accurate and comprehensive. [GPP]

1. Purpose and scope

The purpose of this guideline is to review the current evidence regarding associated antenatal and intrapartum risk factors and the management of shoulder dystocia. This guideline does not include primary prevention of fetal macroscomia associated with gestational diabetes mellitus (GDM), as this is discussed in the NICE GDM guideline. This guideline provides guidance for skills training for the management of shoulder dystocia, but the practical manoeuvres are not described in detail as this requires practical training.

Owing to the emergency nature of shoulder dystocia, most published series examining procedures for the management of this condition are retrospective case series or case reports. This limits the ability to provide detailed evidence-based recommendations for specific aspects of care. Higher quality evidence is available for training in shoulder dystocia. Areas of uncertainty are highlighted along with recommendations for future research.

This guideline is for healthcare professionals who care for women, non-binary and trans people with shoulder dystocia.

Within this document we use the terms ‘pregnant woman’ and ‘women's health’. However, it is important to acknowledge that it is not only people who identify as women for whom it is necessary to access care. Obstetric and gynaecology services and delivery of care must therefore be appropriate,

inclusive and sensitive to the needs of those individuals whose gender identity does not align with the sex they were recorded at birth.

2. Introduction and background epidemiology

Shoulder dystocia is defined as a vaginal cephalic birth that requires additional obstetric manoeuvres to release the impacted shoulder after the head has been born, and routine traction employed to deliver a fetus has failed[1]. An objective diagnosis of a prolonged head-to-body delivery time of >60 seconds has also been proposed, [2, 3]but these data are not routinely collected. Shoulder dystocia occurs when either the anterior or, much less commonly, the posterior fetal shoulder impacts on the maternal symphysis or sacral promontory respectively.

There is a wide variation in the reported incidence of shoulder dystocia[4]. Studies involving the largest number of vaginal births (34 800 to 267 228) report incidences between 0.58% and 0.70%[5-10]. However, almost all recent studies report increased rates of identification of shoulder dystocia after training[11, 12], which implies previous under-recording. A recent study reported under-coding of shoulder dystocia even where release manoeuvres had been performed; there was a three-fold increase in births coded with the ICD-10 for shoulder dystocia and the incidence of shoulder dystocia based on scrutiny of the medical records[13]. It is essential that shoulder dystocia is both recognised and recorded.

There can be significant perinatal morbidity and mortality associated with shoulder dystocia, even when it is managed appropriately[7]. Maternal morbidity is increased, particularly postpartum haemorrhage (11%) and obstetric anal sphincter injury (3.8%), with their incidence remaining unchanged by the number or type of manoeuvres required to effect birth[14, 15]. A study of 130 008 women from the USA reported that the rate of composite maternal morbidity (including obstetric anal sphincter injury, postpartum haemorrhage, blood transfusion, chorioamnionitis, endometritis, thromboembolism, admission to intensive care unit and maternal death) was significantly higher among births with shoulder dystocia, with third or fourth-degree perineal tears being most common (6.5% versus 2.7%)[16].

The risk of composite neonatal morbidity with shoulder dystocia was also significantly higher [16] (including Apgar score of <7 at 5 minutes, birth injury, neonatal seizure, hypoxic ischemic encephalopathy (HIE) or neonatal death), particularly birth injuries (RR 5.25) and hypoxic-ischaemic brain injury (RR 14.8.4).

Neonatal hypoxic-ischaemic morbidity associated with shoulder dystocia is rare but increasingly being recognised[17]. The risk of hypoxia appears to be related to the duration of the head body delivery interval (HBDI): the risk of HIE for HBDI <5 minutes was 0.5%, compared with 23.5% for HBDI >5 minutes ($P < 0.001$)[18]. Moreover, there was a drop in pH of 0.01 per minute HBDI[18].

Brachial plexus injury (BPI) is one of the most important fetal complications of shoulder dystocia, complicating 2.3–16% of such births[7, 14, 19, 20]. Most cases resolve without permanent disability, with fewer than 10% resulting in permanent brachial plexus dysfunction (BPI lasting more than 12 months) [21]. A review of over 17 million births [22] demonstrated that the rate of neonatal BPI internationally was 1.4 per 1000 total births and this rate has decreased to 0.5 per 1000 births for the most recent publications. The likelihood of permanent BPI (>12 months) was 10–18% in the US-based reports and 19–23% in countries outside the US. A recent national study from Sweden reported a significant decrease in BPI from 3.1 per 1000 births in 1997 to 1.0 per 1000 births in 2019, despite an increase in the incidence of shoulder dystocia between 2005 and 2019 [12].

Neonatal BPI lasting >12 months has a significant effect on the affected individuals and their families: the overall mean utility scores, used to generate quality of life years (QALY) scores, for affected adults and parents of children with BPI were 0.56 and 0.80 respectively[23].

Neonatal BPI is the most common cause for litigation related to shoulder dystocia and one of the most frequently litigated obstetric related complications in the UK[24]. Medical theories around the causal relationships between birth, management of shoulder dystocia and neonatal BPIs have evolved and it is clear that conflating all BPIs is unhelpful[25]; there are likely to be different causes for BPI with and without shoulder dystocia and for temporary and permanent injuries.

There are data derived from computer modelling of births [26] and also physical models [27-29] demonstrating that uterine contractions during labour can be associated with force generation of up to 100 Newtons (equivalent to 10kg force), which may be a threshold for BPI[30]. This has led some clinicians to conclude that it would therefore be possible for the normal forces involved during labour to cause a BPI. However, brachial plexus ruptures require a stretch greater than 30%; average individual nerve rupture occurs at 37% +/- 6% stretch[31], whereas maternal forces cause less than 21% stretch of the brachial plexus in both mechanical (10–21% stretch) [27]and computer models (15.7% stretch)[26].

Recent data has demonstrated that permanent BPI may be more preventable than previously thought. There were no permanent BPI at all after shoulder dystocia for >17 000 consecutive births (now 28 000 births), or 562 births complicated by shoulder dystocia [11] in one centre. There were seven temporary injuries in the same cohort, and this suggests that while propulsion-based injuries may exist, they are likely to be a temporary neuropraxis, rather than a permanent injury. This improvement has been replicated in the US[32, 33], New Zealand[34], Sweden[35], Finland [36] and most recently Spain[37]. These data are consistent with the traction related mechanisms of injury proposed by neurosurgeons[38].

The literature on causation of obstetric brachial plexus injury has influenced recent judicial decisions regarding the causation of obstetric BPI. Based on this literature and case law, a template was proposed to provide guidance for those assessing issues of causation in clinical negligence claims [39] and updated in 2018[25].

In the UK, there have been reports recommending training for shoulder dystocia since 1997[40]. Annual skill drills, including shoulder dystocia, have been recommended in the Royal College of Obstetricians and Gynaecologists (RCOG) shoulder dystocia guideline since 2005 [41] and they remain part of the NHS Resolution Maternity Incentivisation Scheme (MIS)[24].

3. Identification and assessment of evidence

This RCOG Guideline was revised in accordance with standard methodology for producing RCOG Green-top Guidelines. Publications within this subject area were sought using the sites and gateways laid out in the RCOG clinical governance advice document, 'Searching for Evidence'.[42] The Cochrane Library (including the Cochrane Control Register of Controlled Trials (CENTRAL) and the Database of Abstracts of Reviews and Effects (DARE)) and Medline were searched using a combination of MeSH terms and keywords. The search was restricted to articles published in English in humans between January 1980 and May 2023 Search terms included: 'shoulder dystocia', 'macrosomia', 'McRoberts' manoeuvre', 'obstetric manoeuvres', 'complications of labour/delivery', 'brachial plexus injury', 'Erb's palsy', 'Klumpke's palsy', 'symphysiotomy', 'Zavanelli manoeuvre', 'skill drills', 'rehearsal of obstetric emergencies' and 'medical simulation'.

Reference lists of the articles identified were hand-searched for additional articles and experts within the field were contacted. Relevant key papers published prior to 1980 were also obtained and are referenced within this guideline. Where possible, recommendations are based on available evidence. Areas lacking evidence are highlighted and graded accordingly. Further information about the assessment of evidence and the grading of recommendations may be found in Appendix 1.

4. Prediction

4.1 Can shoulder dystocia be predicted?

Recommendation	Evidence quality	Strength	Rationale for the recommendation
Clinicians should be aware that shoulder dystocia is an unpredictable and therefore a largely unpreventable event.	**2++**	**C**	Conventional risk factors predicted only 16% of shoulder dystocia cases that subsequently resulted in infant morbidity.
Clinicians should be aware of existing risk factors but must be alert to the possibility of shoulder dystocia with any birth.	**3**	**D**	Risk assessment for the prediction of shoulder dystocia is insufficient for prevention.

Several antenatal and intrapartum characteristics have been reported to be associated with shoulder dystocia (Table 1), but statistical modelling has demonstrated that these risk factors have a low positive predictive value both singly, and in combination[43, 44]. Conventional risk factors predicted only 16% of shoulder dystocia cases that subsequently resulted in infant morbidity[45]. There is a relationship between fetal size and shoulder dystocia, [19]but it is not a good predictor. 76–91% of infants with a birth weight of ≥4500g do not develop shoulder dystocia [46] and, equally importantly, 48% of births complicated by shoulder dystocia occur with infants who weigh less than 4000g[6]. *[Evidence level 2+ and 3]*

Infants of diabetic women have a two to fourfold increased risk of shoulder dystocia compared with infants of the same birth weight born to non-diabetic women [19, 43]. This is not explained solely by macrosomia[47]. *[Evidence level 2+ and 3]*

A retrospective case control study to develop a predictive model of risk for shoulder dystocia with injury was published in 2006[48]. The authors reported that the best combination of variables to identify fetal injury associated with shoulder dystocia were maternal height and weight, gestational age at birth, parity and estimated fetal weight at birth. A score over 0.5 detected 50.7% of the shoulder dystocia cases with BPI, with a false positive rate of 2.7%[48]. However, the statistical modelling for this prediction tool was based on actual birth weight and not estimated fetal weight. Clinical fetal weight estimation is unreliable and third-trimester ultrasound scans have at least a 10% margin for error for actual birth weight and a sensitivity of just 60% for macrosomia (over 4.5 kg)[49]. Similar problems have been reported in the UK[50]. The use of shoulder dystocia prediction models cannot therefore be recommended[9, 50].

Table 1. Factors associated with shoulder dystocia

Pre-labour	**Intrapartum**
Previous shoulder dystocia	Induction of labour
Fetal macrosomia	Prolonged first stage of labour
Diabetes mellitus	Secondary arrest
Maternal body mass index >30 kg/m2	Prolonged second stage of labour
Race/ethnicity	Oxytocin augmentation
	Assisted vaginal birth

5. Prevention of shoulder dystocia

5.1.1 Does macrosomia increase the risk of shoulder dystocia?

Recommendation	Evidence quality	Strength	Rationale for the recommendation
Clinicians to be aware that fetal macrosomia is associated with an increased incidence of shoulder dystocia and neonatal BPI.	**2++**	**C**	Evidence from systematic review data.

Fetal macrosomia is a diagnosis based on neonatal birthweight, but there is currently no consensus around definition. A birthweight of 4000g is the 90th centile for growth at term, on a universal growth chart using a population centile, and is a clinically important threshold for maternal and neonatal morbidity[51]. Birthweight over 4000g is associated with increased risks of assisted vaginal birth, postpartum haemorrhage and perineal injury[52-55]. For the neonate, there is an increased risk of shoulder dystocia and the associated consequences[54, 55]. *[Evidence level 2+ and 3]*

The scope of this guideline is confined to shoulder dystocia and will not discuss the management of suspected fetal macrosomia more generally.

Shoulder dystocia is strongly associated with birthweight in international studies [56, 57] and in one US study the risk of shoulder dystocia was 5.2% with birthweight 4000–4250g; 9.1% with birthweight of 4250–4500g; 14.3% with birthweight of 4500–4750g; and 21.0% in those with birthweight of 4750–5000g[43]. *[Evidence level 3]*

The overall incidence from an international systematic review of neonatal brachial plexus injury is 1.74 per 1000 live births[58]. The prevalence of BPI increases with birthweight; a review of 12 studies, which included pregnancies without diabetes, reported that the risk of BPI following shoulder dystocia was 9% in infants weighing less than 4000g; 18% for 4000–4499g and 26% for 4500g or more[22]. Furthermore, the neurological severity of the BPI is positively correlated with birthweight [59] and the increase in the risk of permanent BPI was exponentially associated with birthweight. This risk increased almost tenfold for infants weighing 4500g or more[60]. *[Evidence level 2++]*

Finally, macrosomic babies are also at an increased risk of complications secondary to perinatal hypoxia, such as low Apgar scores and increased risk of admission to the neonatal intensive care unit[53, 61]. *[Evidence level 2+ and 3]*

5.1.2 How are macrosomic babies identified?

Recommendation	Evidence quality	Strength	Rationale for the recommendation
Clinicians should consider offering a biometry scan when the SFH is above the 90th centile in the third trimester.	**4**	**C**	SFH is endorsed in NICE NG201.

NICE recommends serial SFH measurements for women with low-risk pregnancies [62, 63]. Ultrasound biometry is more accurate than SFH measurement for the antenatal identification of babies that maybe at risk of fetal macrosomia[64]. There is no current threshold for scanning for suspected fetal macrosomia, but it may be appropriate to offer a biometry scan for any SFH plotted on the 90th centile or more, in the third trimester. *[Evidence level 4]*

5.1.3 What should be the mode of birth for suspected fetal macrosomia?

Recommendation	Evidence quality	Strength	Rationale for the recommendation
Women with an EFW over 4000g should be provided with information about the potential risks to both the woman and infant for the options available, that include expectant care, induction of labour and planned caesarean birth.	**2+ and 3**	**D**	This is considered good practice, based on evidence from systematic review data.
Women should be counselled about their options for mode of birth using the Cochrane tool for suspected large for gestational age infants (EFW over 4000g at term).	**4**	**GPP**	Evidence from a Cochrane systematic review and considered good practice.[65]

Previous international guidelines have recommended offering birth by planned caesarean for diabetic women with an infant EFW of 4500g or more, and/or non-diabetic women with an infant EFW of 5000g or more[66-68]. However, there are no recommendations for the care of pregnancies with an EFW between 4000–4500g.

After 37^{+0} weeks of gestation, the options available to prevent shoulder dystocia in infants with an EFW predicted to be more than 4000g include early induction of labour (IOL) (with the aim of reducing the risk of should dystocia) and planned caesarean birth (to prevent shoulder dystocia), but these options have consequences and should be balanced against the current lack of accurate prediction of macrosomia in clinical practice, particularly the measurement of SFH[64].

A Cochrane Systematic review of four randomised controlled trials (RCTs) for suspected fetal macrosomia (EFW over 4000g) reported that in the IOL group there was a 40% risk reduction in shoulder dystocia and an 80% risk reduction in fractures[69]. There was no significant difference in the rate of caesarean, assisted vaginal birth, BPI or birth asphyxia. There was an increase in the risk of third- and fourth-degree tears (RR 3.70), but this increase was derived from a single study in the systematic review[69]. *[Evidence level 2++]*

More information will be available in the future from the 'Big Baby trial' in the UK[70]. On balance, there are also potential risks of an early induction (before 38^{+0} weeks) to both the neonate and the mother[71]. However, in the context of the risk of shoulder dystocia, IOL may remain a reasonable option[72]. *[Evidence level 4]*

Wider considerations for IOL, including the risks and benefits of IOL before 38^{+0} weeks of gestation, are covered in the NICE guidelines [73].

5.1.4 What should be discussed with a woman with a suspected large for gestational age baby?

Recommendation	Evidence quality	Strength	Rationale for the recommendation

Woman with a suspected large for gestational age baby should be counselled about all options for their labour and birth.	**4**	**GPP**	Based on the outcome of the Montgomery judgement and what is considered good practice by experts.

Consistent with the Montgomery judgement[74], women expecting an infant with an EFW over 4000g should be provided with information about the risks and benefits for both the woman and infant and the options available. These options should include expectant care, IOL and planned caesarean birth.

The RCOG has published patient information for planned caesarean birth [75] which includes a shared decision-making tool for IOL at term, from the Cochrane group for suspected large for gestational age infants (EFW over 4000g at term) (Appendix 2). These tools and information should be shared with women and they should be supported in their choices.

5.2.1 What should be discussed with a pregnant woman who has experienced shoulder dystocia in a previous pregnancy?

Recommendation	Evidence quality	Strength	Rationale for the recommendation
Women with a previous shoulder dystocia should be given options for their labour and birth in future pregnancies.	**4**	**GPP**	Based on evidence from large cohort studies and expert opinion.

Women with a previous shoulder dystocia should be provided with information about the potential risks and the options available, including expectant care, IOL and planned caesarean birth. This discussion should make use of available tools (Appendix 2) and may need to occur at different time intervals during the pregnancy, taking into account any fetal growth ultrasound scans or other clinical information available.

5.2.2 What is the appropriate mode of birth after a previous episode of shoulder dystocia?

Recommendation	Evidence quality	Strength	Rationale for the recommendation
Planned caesarean or vaginal birth can both be appropriate after a previous shoulder dystocia. Healthcare professionals must provide information about the risks and benefits of each option to enable the pregnant woman to make an informed decision about their care.	**4**	**GPP**	Based on evidence from large cohort studies and expert opinion.

The rate of shoulder dystocia after a previous shoulder dystocia has been reported to be 10 times higher than the rate in the general population [76]. There is a reported recurrence rate of shoulder dystocia of between 1% and 25% [6, 10, 44, 76-80]. However, this may be an underestimate owing to selection bias, as caesarean birth may have been more commonly advocated for pregnancies after severe shoulder dystocia, particularly with a poor neonatal outcome. *[Evidence level 2+ and 3]*

6. Management of shoulder dystocia

6.1 What measures should be taken when shoulder dystocia is anticipated?

Recommendation	Evidence quality	Strength	Rationale for the recommendation
All birth attendants should be aware of the signs for diagnosis of shoulder dystocia and the techniques required to facilitate birth (Appendix 3).	**4**	**GPP**	This is considered good practice.
Prophylactic McRoberts' positioning before delivery of the fetal head is not recommended to prevent shoulder dystocia.	**4**	**GPP**	Based on a single randomised trial.

Risk factors for shoulder dystocia have been described in Table 1 and decisions on place of birth should be made jointly between them and the maternity team. However, as shoulder dystocia is unpredictable, all birth attendants in all settings should be confident to perform the release manoeuvres required to manage shoulder dystocia.

There is no evidence that the use of the McRoberts' manoeuvre before clinical diagnosis of shoulder dystocia prevents shoulder dystocia[81]. Therefore, prophylactic McRoberts' positioning is not recommended to prevent shoulder dystocia. *[Evidence level 3]*

6.2 How should shoulder dystocia be diagnosed?

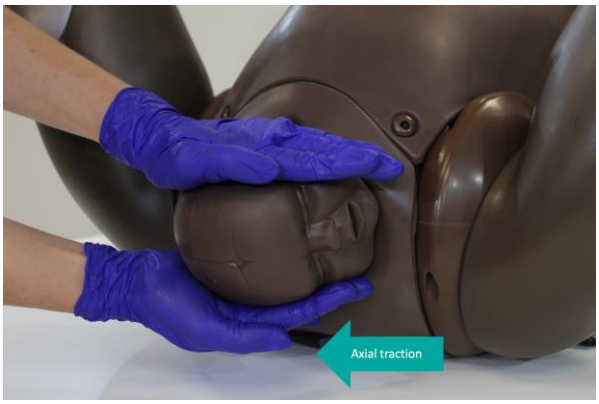
Recommendation	Evidence quality	Strength	Rationale for the recommendation
Birth attendants should routinely look for the signs of shoulder dystocia.	**4**	**GPP**	This is considered good practice.
Routine traction in an axial direction can be used to diagnose shoulder dystocia but other traction should be avoided.	**3**	**D**	This is considered good practice and based on evidence from an experimental study in 1979 that has not been repeated.

Timely management of shoulder dystocia requires prompt recognition. The birth attendant should routinely observe for:

- difficulty with birth of the face and chin
- the head remaining tightly applied to the vulva or even retracting
- failure of restitution of the fetal head
- failure of the shoulders to descend.

There are case reports of birth attendants applying excessive traction sufficient to cause severe spinal cord injury [82] and decapitation[83]. Routine traction is defined as 'traction required for delivery of the shoulders in a spontaneous vaginal birth where there is no difficulty with the shoulders' [84] (also called diagnostic traction). More traction than this should be avoided. The direction and nature of traction are also important. Evidence from cadaver studies suggests that lateral and downward traction[85], and rapidly applied traction [84] are more likely to cause nerve avulsion. In a Swedish series, downward

traction on the fetal head was strongly associated with BPI and had been employed in all cases of residual BPI at 18 months old[38]. Routine 'axial' traction should be employed at all births i.e. traction in line with the fetal spine without lateral deviation and downward should always be avoided. *[Evidence level 3]*



6.3 Management of shoulder dystocia

6.3.1 How should shoulder dystocia be managed?

Recommendation	Evidence quality	Strength	Rationale for the recommendation
Shoulder dystocia should be managed systematically (see Appendix 3).	**4**	**GPP**	Based on retrospective observational studies in simulation training.
Immediately after recognition of shoulder dystocia, additional help should be called. Maternal pushing should be discouraged.	**4**	**GPP**	Maternal pushing may lead to further impaction of the shoulders.
The problem should be stated clearly as 'this is shoulder dystocia' to the arriving team.	**4**	**GPP**	Based on retrospective observational studies in simulation training.
Fundal pressure should not be used.	**3**	**D**	Based on a single prospective population-based case control study and review of cases in national enquiries.
External manoeuvres such as McRoberts' and suprapubic pressure should be performed first.	**3**	**D**	Based on experimental data and retrospective observational studies.
An episiotomy (after the fetal head has been born) is only needed if vaginal access cannot be easily achieved for internal manoeuvres.	**3**	**D**	Based on retrospective observational studies.
Attempt each manoeuvre following a systematic approach. There is a no need to attempt each manoeuvre for 30	**3**	**D**	Based on retrospective observational studies in simulated

seconds. If a manoeuvre is unsuccessful, move straight on to the next manoeuvre in the algorithm.	and real-life obstetric emergencies.

The Confidential Enquiry into Stillbirths and Deaths in Infancy (CESDI) report on shoulder dystocia identified that 47% of the babies who died did so within five minutes of the head being born; however, in a high proportion of the cases the baby had a pathological cardiotocograph prior to the shoulder dystocia[40]. A group from Hong Kong reported that there was a very low rate of hypoxic ischaemic injury for delays in birth of the shoulders of up to five minutes[18]. It is important, therefore, to manage the problem as efficiently as possible to avoid hypoxia acidosis, but also as carefully as possible, to avoid unnecessary trauma. *[Evidence level 3 and 4]*

NHS Resolution (a body of the Department of Health and Social Care in the UK, that provide expertise on resolving concerns and disputes) has published a small series on infants with hypoxic brain injuries following shoulder dystocia with a median head-to-body delivery interval of seven minutes. It is likely that a more effective and efficient execution of the release manoeuvres would have reduced the head-to-body delivery interval[66, 86], thereby reducing the risk of hypoxic brain injury. *[Evidence level 4]*

There does not appear to be an advantage in trying each of the release manoeuvres for 30 seconds, as it is likely to increase the head-to-body delivery interval, and therefore the risk of hypoxic injury, without improving success rates. It is recommended to perform a manoeuvre, but if it is unsuccessful, to move straight on to the next manoeuvre in the algorithm, without waiting 30 seconds each time. *[Evidence level 4]*

Managing shoulder dystocia according to the RCOG algorithm (see Appendix 3) has been associated with improved perinatal outcomes[20]. *[Evidence level 3]*

Help should be summoned immediately. In a hospital setting, this should include further midwifery assistance, a senior obstetrician, a neonatal resuscitation team and an anaesthetist[87]; this is often done through the user of emergency buzzer or obstetric emergency bleep or call. In a stand-alone midwifery-led or home birth setting, the summoned help should include calling for a paramedic/ambulance team and contacting the nearest obstetric unit. *[Evidence level 4]*

Clearly communicating the problem early to the team has been associated with improvements in outcomes in shoulder dystocia [88] and improved performance in other obstetric emergencies[89]. *[Evidence level 3]*

Maternal pushing should be discouraged, as this may lead to further impaction of the shoulders, potentially exacerbating the shoulder impaction[26].

Fundal pressure should not be used during the management of shoulder dystocia[40]. It is associated with a higher rate of BPI [38] and may result in uterine rupture[45]. *[Evidence level 3]*

McRoberts' manoeuvre requires the woman to be positioned lying flat with hips flexed so that their thighs are resting on their abdomen[90]. It straightens the lumbosacral angle, rotates the maternal pelvis cephalad and increases the relative anterior-posterior diameter of the pelvis[91]. McRoberts' manoeuvre is an effective intervention, with previous reported success rates as high as 90%[8, 14, 92, 93]. More recently, lower rates of success of McRoberts' +/- suprapubic pressure have been reported: 25.8% in Hong Kong [94] and 47.8% in association with a reduction in BPI and the head-body delivery interval in the UK[11]. *[Evidence level 2+ and 3]*

A recent systematic review of the success rates of shoulder dystocia release manoeuvres reported McRoberts' +/- suprapubic pressure was 56% successful, internal rotational methods 62.4% successful, and release of the posterior arm was successful in 86.1% of births where it was attempted[95]. *[Evidence level 2++]*

McRoberts' manoeuvre has a low rate of complication and is one of the least invasive manoeuvres, and therefore should be employed first. The woman should be laid flat and any pillows should be removed from under their back. With one assistant on either side, their legs should be hyper-flexed. In the lithotomy position, there is no advantage to straightening the legs initially, compared to moving directly to McRoberts' from lithotomy [94]. If they are in lithotomy position in maternity theatres, the woman's legs can be kept in the leg supports/'boots', and the supports moved from the abducted lithotomy position to a hyper-flexed 'thighs to abdomen' position. Effective McRoberts' manoeuvre requires the maternal buttocks to be raised off the bed during the flexion of the maternal hips[96]. Routine axial traction (the same degree of traction applied during a normal birth) can then be applied to the fetal head to assess whether the shoulders have been released (see Appendix 4). *[Evidence level 4]*

Supra-pubic pressure can be employed together with McRoberts' manoeuvre to improve success rates[14]. Supra-pubic pressure reduces the fetal bi-sacromial diameter and rotates the anterior fetal shoulder into the wider oblique pelvic diameter. The shoulder is then freed to slip underneath the symphysis pubis with the aid of routine traction[92]. *[Evidence level 4]*

Supra-pubic pressure should be applied by an assistant from the side of the fetal back in a downward and lateral direction just above the maternal symphysis pubis. This reduces the fetal bi-sacromial diameter by pushing the posterior aspect of the anterior shoulder towards the fetal chest. CPR hands, where the assistant has the heel of one hand over the top of the other hand, are often recommended to achieve effective supra-pubic pressure, but there are no published data to support a 'rocking' movement (see Appendix 4). *[Evidence level 4]*

Only routine axial traction should be applied to the fetal head when assessing whether the manoeuvre has been successful. Again, if the anterior shoulder is not released with supra-pubic pressure and routine axial traction, then the next manoeuvre in the algorithm should be attempted. *[Evidence level 4]*

An episiotomy (performed after the baby's head has been born) will not relieve the bony obstruction of shoulder dystocia, but may be required to allow the assistant more space to facilitate internal vaginal manoeuvres. The use of an episiotomy does not decrease the risk of BPI with shoulder dystocia[97]. An episiotomy should therefore only be considered to facilitate vaginal access for internal manoeuvres such as delivery of the posterior arm or internal rotation of the shoulders[98]. Most often, the perineum has already torn as the baby's head is born, or an episiotomy has already been performed to facilitate the birth of the baby's head. *[Evidence level 3]*

McRoberts' (and/or suprapubic pressure) alone is not as effective as previously thought[11]. Therefore, there should be early recourse to internal manoeuvres if simple measures (McRoberts' manoeuvre and suprapubic pressure) are unsuccessful. *[Evidence level 4]*

The most spacious part of the maternal pelvis is in the sacral hollow; therefore, vaginal access should be gained posteriorly, into the sacral hollow (see Appendix 5). The whole hand should be entered posteriorly to perform internal rotation or delivery of the posterior arm[99]. The woman should be brought to the end of the bed, or the end of the bed should be removed, to make internal manoeuvres easier. Delivery of the fetal shoulders may be facilitated by rotation into an oblique diameter or delivery of the posterior arm[100]. *[Evidence level 4]*

Internal rotational manoeuvres were originally described by Woods [101] and Rubin[102]. The shoulders should be rotated by approximately 20 degrees into the wider oblique diameter, resolving the shoulder dystocia. Rotation can be most easily achieved by pressing on the anterior or posterior aspect of the posterior shoulder with directed suprapubic pressure applied externally by another attendant, to rotate the anterior shoulder into a matching oblique diameter (see Appendix 4)[11]. *[Evidence level 4]*

Delivering the posterior arm reduces the impaction of the fetal shoulders. The fetal wrist should be grasped, and the posterior arm should be gently withdrawn from the vagina in a straight line (see Appendix 4)[99]. Delivery of the posterior arm has previously been associated with humeral fractures with a reported incidence between 2% and 12% [7, 20] but training has been associated with reductions in the incidence of humeral fracture[11]. *[Evidence level 4]*

There are no randomised comparative studies available comparing delivery of the posterior arm and internal rotation. Some authors favour delivery of the posterior arm over other manoeuvres[93, 103], particularly where the woman has a raised body mass index[104]. Others have reported that rotational methods and posterior arm delivery were similarly successful, but rotational manoeuvres were associated with reductions in both BPI and humeral fractures [94] compared to delivery of the posterior arm (3% to 1%). Therefore, the healthcare professional should base their decision on their training, clinical experience, and the prevailing clinical circumstances. Shoulder dystocia requires emergency expert care that cannot always include consultation with the woman and her attendants. *[Evidence level 4]*

The all-fours position has been described, with an 83% success rate in one case series[105]. The individual circumstances should guide the assistant whether to try the all-fours technique before or after attempting internal rotation and delivery of the posterior arm. For a mobile person without epidural anaesthesia and with a single midwifery attendant, the all-fours-position can be appropriate. If there are other clinical features that make this potentially more unsafe, then employing internal manoeuvres in McRoberts position may be more appropriate. *[Evidence level 3 and 4]*

6.4.1 What measures should be taken if first- and second-line manoeuvres fail?

Recommendation	Evidence quality	Strength	Rationale for the recommendation
Third-line manoeuvres require careful consideration by the assistant to avoid unnecessary maternal morbidity and mortality.	**4**	**GPP**	Based on expert opinion, enquiries and small cohort studies.

It is difficult to recommend an absolute time limit for the management of shoulder dystocia, as there are no conclusive data available, but there appears to be a very low rate of hypoxic ischaemic injury with a head to body birth interval of under five minutes[18]. *[Evidence level 3]*

Several third-line methods have been described for those cases resistant to all standard measures. These include fetal cleidotomy, maternal symphysiotomy (dividing the symphyseal ligament) and the Zavanelli manoeuvre. It is rare that these are required. *[Evidence level 4]*

Vaginal replacement of the head (Zavanelli manoeuvre), and then delivery by caesarean birth has been described[106, 107]. Success rates (birth by caesarean) in case series vary, the most recent review of 110 cases was 89% but with the reporting bias associated with a case series[108]. Intuitively, the Zavanelli manoeuvre may be most appropriate for rare bilateral shoulder dystocia, where both the shoulders impact on the pelvic inlet, anteriorly above the pubic symphysis and posteriorly on the sacral

promontory. There is limited evidence around maternal and neonatal safety for this procedure; a high proportion of fetuses have irreversible hypoxia-acidosis by this stage and it may not reduce the risk of BPI[109]. *[Evidence level 4]*

Similarly, symphysiotomy has been suggested as a potentially useful procedure, both in the developing [110, 111] and developed [112] world. However, there can be serious maternal morbidity and poor neonatal outcome[113]. *[Evidence level 4]*

6.4.2 Other management options

Recommendation	Evidence quality	Strength	Rationale for the recommendation
Digital axillary traction of the posterior arm can be considered for the management of shoulder dystocia, particularly where standard manoeuvres have failed.	**4**	**D**	Based on retrospectic review of clinical records after introducing the maneouvre as a third-line management strategy.

In addition to the recommended standard manoeuvres[68]; a number of other manoeuvres have been described for consideration, including the 'Carit manoeuvre' [114] and 'shoulder shrug'[115]. However, the published series for these manoeuvres are extremely small and there are insufficient data to recommend their use without additional studies. Furthermore, the use of 'digital hooking' of the anterior axilla [116] does not seem biologically plausible because direct access to the anterior axilla is extremely difficult, if not impossible. *[Evidence level 4]*

Positive results have been described for digitally applied axillary traction to the posterior arm and in a small series for sling traction also to the posterior arm[117, 118]. Digital axillary traction to the posterior axilla appears safe and effective as an internal manoeuvre[119], although there is a theoretical increased risk of humeral fracture. *[Evidence level 4]*

The successful use of an axillary sling with rotation has also been reported for an intrauterine fetal death where other methods failed[120]. However, a more recent report described a serious complication caused by a sling: a neonatal degloving injury of the posterior fetal arm that required surgical treatment. [121]

In the largest published series of shoulder dystocia training[11], none of these alternative manoeuvres were required and it seems pragmatic that training should focus on the standard release manoeuvres first, with possible inclusion of digital or sling axillary traction where other release manoeuvres have not been successful. However, it is important that staff are trained in these alternative techniques prior to using them. *[Evidence level 3]*

6.5 How should shoulder dystocia be managed in different birth settings?

Recommendation	Evidence quality	Strength	Rationale for the recommendation
The management of shoulder dystocia should be consistent across all birth settings.	**4**	**GPP**	Based on expert opinions and national enquiries.
If shoulder dystocia is diagnosed in a pool birth setting, women should be advised	**4**	**GPP**	Based on expert opinions and national enquiries.

to exit the pool to allow the appropriate maneouvres to be accurately performed.

Shoulder dystocia is a high-risk event in all birth settings: there was a five-fold increase in the risk of neonatal admission after shoulder dystocia outside hospital obstetric units compared to births without shoulder dystocia[122]. The management of shoulder dystocia should be consistent across all birth settings. *[Evidence level 4]*

Effective performance of the standard release manoeuvres is required for all births complicated by shoulder dystocia, including pool births. There are descriptions of asking women to stand up in the pool and/or stand with one leg on the side of the pool when shoulder dystocia has been diagnosed during a water birth (communication – NHS Resolution) that put the woman at risk of slipping, and moreover, no release manoeuvres can be performed in that position.

Therefore, as soon as there is delay with birth of the shoulders and shoulder dystocia is suspected, help should be summoned; the woman asked to exit the pool so that shoulder dystocia can be confirmed, and the appropriate care performed safely and effectively. The standard release manoeuvres can be used, including positioning the woman on all fours [66] where required. Risks of shoulder dystocia and how to manage it, should be included as part of antenatal discussions about place of birth. *[Evidence level 4]*

6.6 What is the optimum care for the baby after shoulder dystocia?

Recommendation	Evidence quality	Strength	Rationale for the recommendation
The birth attendant should alert the neonatal resuscitation team, if in a hospital setting, via a neonatal emergency call. **In a stand-alone midwifery-led or home birth setting, the birth attendant should prepare neonatal resuscitation equipment and alert the paramedic ambulance team.** **The baby should be examined for injury by a neonatal clinician.**	**4**	**GPP**	This is considered good practice, based on national enquiries.

A recent neonatal review of infants born with HIE after shoulder dystocia [124] identified there was often a discrepancy between umbilical cord gases and neonatal condition that may be related to poor sampling and/or cord compression at the shoulder dystocia. There was a recommendation to continue to robustly sample umbilical cord gases, but alert the neonatology team to not be falsely reassured by apparently normal gases. *[Evidence level 4]*

It is recognised from clinical experience that infants with birth complicated by shoulder dystocia may show an unexpectedly delayed response to resuscitation and possible mechanisms have been proposed including fetal hypovolaemia due to placental sequestration of blood or prolonged bradycardia secondary to excessive vagal stimulation[125-127]. *[Evidence level 4]*

Practical points proposed include neonatal resuscitation in combination with timely cord clamping, and early use of volume replacement where there is delay in response to resuscitation[124]. Combining obstetric and neonatal training may be useful to improve communication in this situation. During this time the woman and their birth partner should be kept continuously updated about ongoing care for the

baby.

The baby should be examined for injuries which may include BPI and other reported injuries, including fractures of the humerus and clavicle, pneumothoraces and hypoxic brain damage[128].

Referral for specialist opinion

The baby should be examined for injury and asymmetric upper limb movements by the neonatal team with early recourse for a peripheral nerve specialist opinion. All babies with a diagnosis of BPI should be referred before discharge to the local paediatric physiotherapy and information about the diagnosis shared with the parents. There is currently no national pathway for referral in the UK, but guidance from two of the specialist referral centres (Leeds and Stanmore) recommend the following criteria for immediate outpatient referral to a specialist centre:

- Any BPI affecting the hand (with no flexion in the fingers - with or without a Horner's syndrome)
- Any BPI where there is a failure to return to normal symmetrical upper limb movement by 4 weeks
- Any child with bilateral BPI. *[Evidence level 4]*

6.7 What is optimal care for women after shoulder dystocia?

Recommendation	Evidence quality	Strength	Rationale for the recommendation
Birth attendants should be alert to the possibility of postpartum haemorrhage and severe perineal tears.	**4**	**GPP**	This is considered good practice and based on evidence available from observational studies.
An explanation of the birth should be given to the woman and their birth partner.	**4**	**GPP**	This is considered good practice.

After birth, the birth attendants should be alert to the possibility of postpartum haemorrhage (11%) and third- and fourth-degree perineal tears (3.8%)[11]. Other reported complications include vaginal lacerations[96], cervical tears, bladder rupture, uterine rupture, symphyseal separation, sacroiliac joint dislocation and lateral femoral cutaneous neuropathy[123]. *[Evidence level 3]*

A discussion which includes an explanation of the birth should be offered to the woman and their birth partner. This should include an opportunity for them to debrief, ask questions and plan for follow-up. An information leaflet or letter should be offered to women, including sources of support and how to raise questions in the future. *[Evidence level 4]*

Debriefing staff involved can also be beneficial, both in the short-term and the option of a debrief after a period time, if needed by team members, to talk through the case. This allows learning to be gained and gives space to raise any concerns or examples of excellence. There is no single correct way to debrief and the style chosen will depend on the emergency itself and the staff involved.

7. Risk management

7.1 Training

7.1.1 What are the recommendations for training?

Recommendation	Evidence quality	Strength	Rationale for the recommendation
All maternity staff should participate in shoulder dystocia training at least annually.	**4**	**GPP**	On balance of evidence available from retrospective observational studies.

The fifth CESDI report recommended that a 'high level of awareness and training for all birth attendants' should be observed[40]. Annual 'skill drills', including shoulder dystocia, have been recommended jointly by both the Royal College of Midwives and the RCOG [129] and are one of the requirements in the Maternity Incentivisation Safety Actions required by NHS Resolution. This recommendation is based on evidence that skills were maintained through yearly training of maternity staff in the UK[130]. The Ockenden Report also clearly stated that staff that work together should train together, highlighting the importance of multi-professional training. *[Evidence level 4]*

7.1.2 What is the evidence for shoulder dystocia training?

Recommendation	Evidence quality	Strength	Rationale for the recommendation
All staff should be trained locally, annually and provided with the opportunity to practice all manoeuvres using a high-fidelity model in a multi-professional setting.	**2+**	**C**	Evidence from a systematic review regarding training.

Despite the similarity of the manoeuvres taught, not all training for shoulder dystocia is either equal, or effective in improving outcomes[131-134]. A systematic review of interventions to decrease the complications after shoulder dystocia concluded that training was associated with decreases in the rate of BPI after shoulder dystocia[132], but the data on BPI lasting more than 12 months were less clear. *[Evidence level 2++]*

However, training has been associated with reductions in neonatal injury, particularly fractures and brachial plexus injuries[11, 119, 135, 136], including BPI lasting >12 months, in multiple settings globally. In many studies practical shoulder dystocia training has been shown to improve knowledge[137], confidence [138] and management of simulated shoulder dystocia[139-142]. Training has also been shown to improve the patient-actors perception of their care during simulated shoulder dystocia[143]. *[Evidence level 1–]*

An eight-year retrospective review of shoulder dystocia management before and after the introduction of annual shoulder dystocia training for all staff in one UK hospital, demonstrated a significant reduction in neonatal injury at birth following shoulder dystocia: 9.3% pre-training, 2.3% post-training[20]. There are multiple other reports of improvements after training[32, 33, 35, 36, 88, 119, 144, 145]. *[Evidence level 3]*

Shoulder dystocia training associated with improvements in clinical management and neonatal outcomes was multi-professional, with manoeuvres demonstrated and practiced on a high-fidelity manikin. Teaching used the RCOG algorithm rather than staff being taught mnemonics (e.g. HELPERR) or eponyms (e.g. Rubin's and Woods' screw)[11, 119, 135, 136]. With this evidence all staff should be trained locally, annually and provided with the opportunity to practice all the manoeuvres required to release the shoulder impaction using a high-fidelity model and with a multi-professional team. Hospitals should also monitor their neonatal injury rate after the introduction of training to ensure it is effective. *[Evidence level 2–]*

Effective training for shoulder dystocia is extremely cost effective with cost savings of more than £1 million per quality-adjusted life year (QALY) saved[146].

7.1.3 What measures can be taken to ensure optimal management of shoulder dystocia?

Recommendation	Evidence quality	Strength	Rationale for the recommendation
It is useful to demonstrate the manoeuvres in direct view, as they are complex and difficult to understand by description alone.	**4**	**GPP**	On balance of evidence available from retrospective observational studies.

Practical training using manikins has been associated with improvements in management in simulation [139-142] and in real life[20, 32, 33, 35, 36, 119, 145].

The largest trial of shoulder dystocia training reported that before training only 43% of midwives and doctors could successfully manage a severe shoulder dystocia simulation within five minutes[140]. Three weeks after a 40-minute simulation training session 83% of staff were able to successfully complete the birth. Training on a high-fidelity manikin was more successful than training with lower fidelity rag doll and pelvis - with a significantly higher successful delivery rate (95% versus 72%), a shorter head-to-body interval and a lower total applied force[140]. *[Evidence level 3]*

Moreover, the traction used in simulated shoulder dystocia can be excessive[29, 147], but training using models which include force monitoring measurement has been shown to reduce the traction used by staff during simulated shoulder dystocia[29, 148, 149]. [*Evidence level 3]*

7.2 Documentation - what should be documented?

Recommendation	Evidence quality	Strength	Rationale for the recommendation
Documentation should be accurate and comprehensive.	**4**	**GPP**	This is considered good practice and from relevant medico-legal cases.

The sixth CESDI annual report highlighted inadequate documentation in obstetrics, with potential medico-legal consequences[150]. Poor documentation of shoulder dystocia management has been highlighted [13, 151, 152] and there are recommendations that documentation should be included in shoulder dystocia training[151]. Contemporaneous documentation of the time of arrival of the multi-professional team and key clinical actions taken should be undertaken through an allocated staff member during the emergency. The use of a structured pro forma has been proposed to improve accurate record keeping in the clinical setting [153] and there is some evidence that they are effective[154]. *[Evidence level 2+]*

An example is provided in Appendix 5.

It is important to record the[153, 155]:

- staff in attendance and the time they arrived
- time of birth of the baby's head and time of birth of their body
- direction of the anterior shoulder at the time of the dystocia

- manoeuvres performed, their timing and sequence
- maternal perineal and vaginal examination
- estimated blood loss
- general condition of the baby (Apgar score)
- neonatal assessment of baby
- paired umbilical cord gases
- maternal debrief.

It is particularly important to document at birth the direction the baby was facing or the side of the fetal back in relation to the woman as this facilitates identification of the anterior and posterior shoulders during the birth.

All actions and aspects of care should be explained to woman and their birth partner as a running commentary throughout the obstetric emergency. This can also aid their debrief following the birth. It will also be important when informing their choice in future pregnancies.

8. Future research

- Tools to personalise care and share information with women with suspected fetal macrosomia.
- Research to identify the key elements of effective training.

9. Auditable topics

- Incident reporting of shoulder dystocia
- Critical analysis of manoeuvres used in the management of shoulder dystocia
- Neonatal team called at diagnosis of shoulder dystocia
- Document of the event
- Performance of cord blood gas analysis
- Monitoring neonatal injury
- Staff attendance at annual training
- Discussion of events with parents

10. Useful links and support groups

An information leaflet for parents titled 'Shoulder dystocia' has been produced by the RCOG and is available online (https://www.rcog.org.uk/media/dpfhou15/pi-shoulder-dystocia.pdf).

The Erb's Palsy Group (www.erbspalsygroup.co.uk) provides an excellent support network for children and families affected by BPI.

Glossary of terms

- Apgar – an assessment of a baby soon after it is born including include colour, heart rate, reflexes, muscle tone, and respiration.
- Brachial plexus injury – damage to the nerves in the neck which can cause weakness, pain and numbness.
- Gestational diabetes – diabetes (high blood sugars) diagnosed for the first time during pregnancy.
- Hypoxic ischaemic encephalopathy - a type of brain injury that occurs when the brain experiences a decrease in oxygen or blood flow.

- Horner's syndrome – condition caused by an interruption of the sympathetic nervous system to the eye leading to miosis (constricted pupil), ptosis (dropping of the upper eyelid), anhidrosis (absence of sweating of the face) and enopthalmos (the eye sinking deeper into the socket).
- Secondary arrest – when there is no further progress in labour during the second stage.
- Specialist centre – a healthcare facility that offers services that are not available in all local units. These centres are often involved in the care of rare or complex conditions.
- Suspected fetal macrosomia - a baby that is believed to be large for its gestational age, defined for the purposes of this guideline as an estimated fetal weight above the 95th percentile, at or after 36^{+0} weeks of pregnancy.

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Appendix 1: Explanation of grades and evidence levels

Classification of evidence levels

1++	High-quality meta-analyses, systematic reviews of randomised controlled trials or randomised controlled trials with a very low risk of bias
1+	Well-conducted meta-analyses, systematic reviews of randomised controlled trials or randomised controlled trials with a low risk of bias
1–	Meta-analyses, systematic reviews of randomised controlled trials or randomised controlled trials with a high risk of bias
2++	High-quality systematic reviews of case–control or cohort studies or high-quality case–control or cohort studies with a very low risk of confounding, bias or chance and a high probability that the relationship is causal
2+	Well-conducted case–control or cohort studies with a low risk of confounding, bias or chance and a moderate probability that the relationship is causal
2–	Case–control or cohort studies with a high risk of confounding, bias or chance and a significant risk that the relationship is not causal
3	Non-analytical studies, e.g. case reports, case series
4	Expert opinion

Grades of Recommendation

A At least one meta-analysis, systematic reviews or RCT rated as 1++, and directly applicable to the target population; or a systematic review of RCTs or a body of evidence consisting principally of studies rated as 1+, directly applicable to the target population and demonstrating overall consistency of results

B A body of evidence including studies rated as 2++ directly applicable to the target population, and demonstrating overall consistency of results; or
Extrapolated evidence from studies rated as 1++ or 1+

C A body of evidence including studies rated as 2+ directly applicable to the target population, and demonstrating overall consistency of results; or
Extrapolated evidence from studies rated as 2++

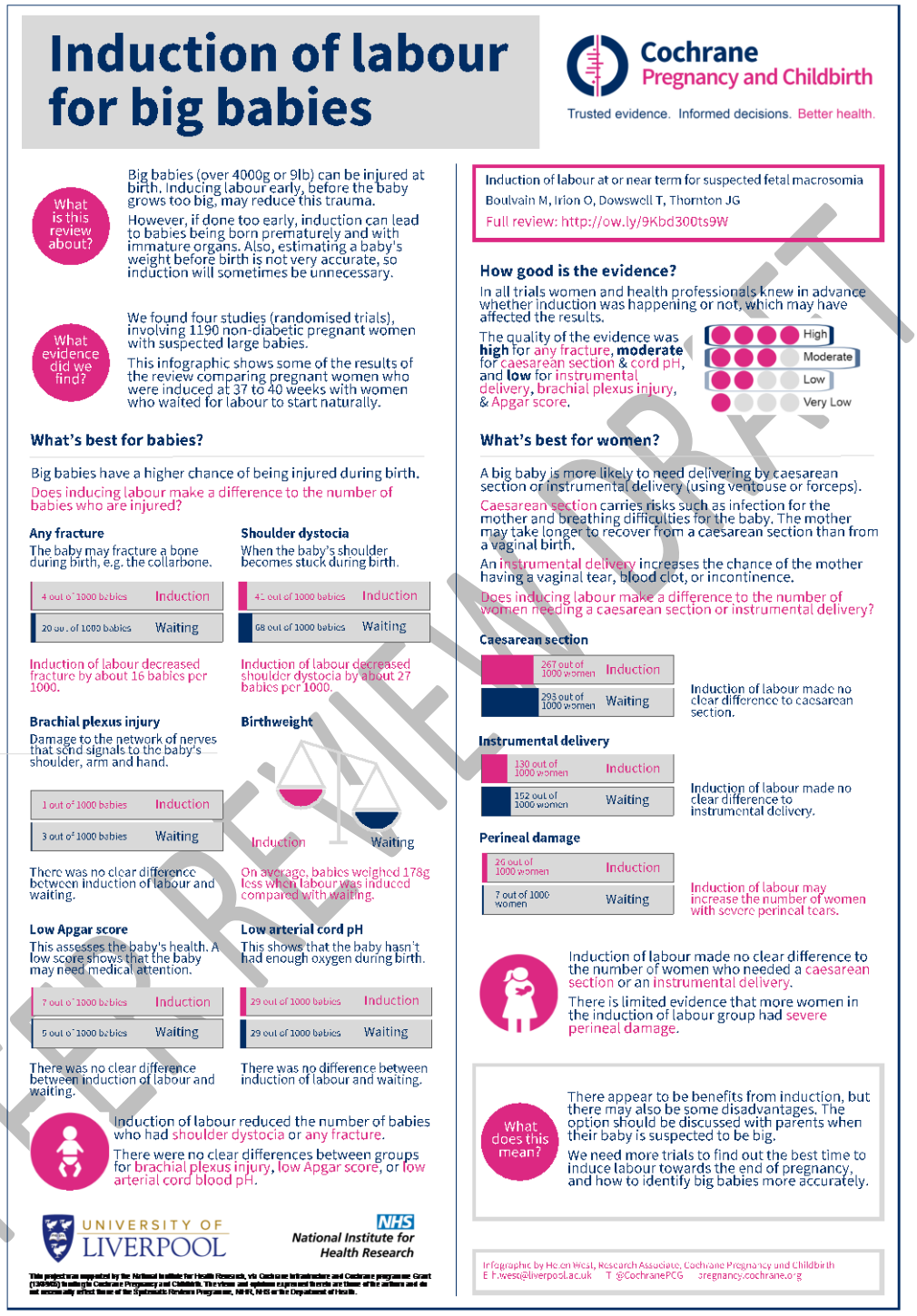
D Evidence level 3 or 4; or
Extrapolated evidence from studies rated as 2+

Good Practice Points (GPP)

✓ Recommended best practice based on the clinical experience of the guideline development group.*

*on the occasion when the guideline development group find there is an important practical point that they wish to emphasise but for which there is not, nor is there likely to be any research evidence. This will typically be where some aspect of treatment is regarded as such sound clinical practice that nobody is likely to question it. These are marked in the guideline, and are indicated by ✓ **or GPP**. It must be emphasised that these are NOT an alternative to evidence-based recommendations, and should only be used where there is no alternative means of highlighting the issue.

Appendix 2: Cochrane infographics for induction of labour for big babies



Appendix 3: management algorithm

McROBERTS' MANOEUVRE: thighs to abdomen

Consider 'All fours - McRoberts' if **lone** birth attendant
(with routine **axial** traction to see if manoeuvre has worked)

SUPRAPUBIC PRESSURE
(and routine **axial** traction to see if manoeuvre has worked)

Try either internal manoeuvre first
depending on clinical circumstances
and operator experience

DELIVERY OF BABY'S POSTERIOR ARM
(and routine **axial** traction to see if manoeuvre has worked)

INTERNAL MOVEMENT OF BABY'S SHOULDERS INTO WIDER OBLIQUE DIAMETER OF MOTHER'S PELVIS
(and routine **axial** traction to see if manoeuvre has worked)

If a manoeuvre is unsuccessful move straight on to the next step

If above manoeuvres fail to release impacted shoulders, consider
ALL-FOURS POSITION AND/OR DIGITAL AXILLARY TRACTION OF THE POSTERIOR ARM (if appropriate)
OR
Go back to start and repeat all the above actions again

Alert the neonatologist to potential risk of hypovolaemia if infant is slow to respond to initial resuscitation

Baby to be reviewed by neonatologist after birth and referred for consultant neonatal review if any concerns

DOCUMENT ALL ACTIONS ON PRO FORMA AND COMPLETE CLINICAL INCIDENT REPORT

Appendix 4. Maneouvres

Observing visual representation of the maneouvres is best observed in three-dimensons. Below is a training to demonstrate common maneouvres for shoulder dystocia.

https://www.youtube.com/watch?v=UTz2eIiZOL8

Appendix 5: Documentation proforma

SHOULDER DYSTOCIA DOCUMENTATION

Date .....
Time .....
Person completing form ..... **Designation**.....
Signature .....

Mother's Name _____
Date of birth _____
Hospital Number _____
Consultant _____

Called for help at:		**Emergency call via switchboard at:**		
Staff present at delivery of head:		**Additional staff attending for delivery of shoulders**		
Name	**Role**	**Name**	**Role**	**Time arrived**

Procedures used to assist delivery	**By whom**	**Time**	**Order**	**Details**	**Reason if not performed**
McRoberts' position					
Suprapubic pressure				From maternal **left / right** (circle as appropriate)	
Episiotomy				Enough access / tear present /already performed (circle as appropriate)	
Delivery of posterior arm				**Right / left** arm (circle as appropriate)	
Internal rotational manoeuvre					
Description of rotation					
Description of traction	Routine axial (as in normal vaginal delivery)	Other -		Reason if not routine axial:	
Other manoeuvres used					

Mode of delivery of head		**Spontaneous**		**Instrumental – vacuum / forceps**	
Time of delivery of head			**Time of delivery of baby**	**Head-to-body delivery interval**	
Fetal position during dystocia		Head facing maternal **left** **Left** fetal shoulder anterior		Head facing maternal **right** **Right** fetal shoulder anterior	
Birth weight	**kg**	**Apgar**	**1 min :**	**5 mins :**	**10 mins :**
Cord gases		**Art pH :**	**Art BE:**	**Venous pH :**	**Venous BE :**
Explanation to parents		Yes	By	**AIMS form completed**	Yes

Neonatologist called? Yes Neonatologist arrived: ..... Name: .....
If neonatologist not called or didn't arrive, give reason: .....

Baby assessment after birth (maybe done by M/W):			**If yes to any of these questions for review and follow up by Consultant neonatologist**
Any sign of arm weakness?	Yes	No	
Any sign of potential bony fracture?	Yes	No	
Baby admitted to Neonatal Intensive Care Unit?	Yes	No	
Assessment by			

Please copy x 2 copies: x1 maternal notes, x 1 attached to AIMS form.

This guideline was produced on behalf of the Royal College of Obstetricians and Gynaecologists by: **Dr K Lattey, Bristol; Mrs C Winter FRCOG, Bristol; Dr VA Ellis, Somerset; Dr JF Crofts MRCOG, Bristol; Mr T Quick, London; Miss G Bourke FRCSI FRCS, Leeds; Professor TY Leung FROCG, Hong Kong; and Professor T Draycott FRCOG, Bristol.**

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The final version is the responsibility of the Guidelines Committee of the RCOG.

The guideline will be considered for update 3 years after publication, with an intermediate assessment of the need to update 2 years after publication.

DISCLAIMER

The Royal College of Obstetricians and Gynaecologists produces guidelines as an educational aid to good clinical practice. They present recognised methods and techniques of clinical practice, based on published evidence, for consideration by obstetricians and gynaecologists and other relevant health professionals. The ultimate judgement regarding a particular clinical procedure or treatment plan must be made by the doctor or other attendant in the light of clinical data presented by the patient and the diagnostic and treatment options available.

This means that RCOG Guidelines are unlike protocols or guidelines issued by employers, as they are not intended to be prescriptive directions defining a single course of management. Departure from the local prescriptive protocols or guidelines should be fully documented in the patient's case notes at the time the relevant decision is taken.