

Policy code	CPG_OB_SHD_0722
Date	July, 2022
Purpose	To ensure consistent management of shoulder dystocia.
Scope	Applies to Queensland Ambulance Service (QAS) clinical staff.
Health care setting	Pre-hospital assessment and treatment.
Population	Applies to all ages unless stated otherwise.
Source of funding	Internal – 100%
Author	Clinical Quality & Patient Safety Unit, QAS
Review date	July, 2025
Information security	UNCLASSIFIED – Queensland Government Information Security Classification Framework.
URL	https://ambulance.qld.gov.au/clinical.html

While the QAS has attempted to contact all copyright owners, this has not always been possible. The QAS would welcome notification from any copyright holder who has been omitted or incorrectly acknowledged.

All feedback and suggestions are welcome. Please forward to: <u>Clinical.Guidelines@ambulance.qld.gov.au</u>

Disclaimer

The Digital Clinical Practice Manual is expressly intended for use by appropriately qualified QAS clinicians when performing duties and delivering ambulance services for, and on behalf of, the QAS.

The QAS disclaims, to the maximum extent permitted by law, all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages and costs incurred for any reason associated with the use of this manual, including the materials within or referred to throughout this document being in any way inaccurate, out of context, incomplete or unavailable.

 $\ensuremath{\mathbb{C}}$ State of Queensland (Queensland Ambulance Service) 2022.



This work is licensed under the Creative Commons Attribution-NonCommercial-NoDerivatives V4.0 International License

You are free to copy and communicate the work in its current form for non-commercial purposes, as long as you attribute the State of Queensland, Queensland Ambulance Service and comply with the licence terms. If you alter the work, you may not share or distribute the modified work. To view a copy of this license, visit http://creativecommons.org/licenses/by-nc-nd/4.o/deed.en

For copyright permissions beyond the scope of this license please contact: <u>Clinical.Guidelines@ambulance.qld.gov.au</u>

Shoulder dystocia

July, 2022

Background

In normal labour, the fetal head is birthed via extension out of the pelvic outlet followed by restitution of the fetal head. This means the fetal shoulders now lie in an anterior-posterior position. A pause in contractions between the birth of the head and shoulders is appropriate to allow for normal shoulder rotation. This pause in contractions is part of the normal birthing process and will usually last between approximately 60–90 seconds. Encouraging the birthing parent to push during a pause in contractions may increase the risk of shoulder impaction and postpartum haemorrhage and must therefore be avoided. In many births, the baby's head is delivered expeditiously and the birthing parent will attempt to birth the shoulders in the same contraction.

As the birthing parent attempts to birth the shoulders during a contraction, some gentle downward traction of the head (assuming the birthing parent is in the supine position), may be required by the birthing assistant to deliver the anterior shoulder. Excessive force must be avoided in all circumstances to avoid injury to the baby and/or birthing parent.^[1,3–5]

Shoulder dystocia (SD) is a time critical obstetric emergency. It occurs when the anterior shoulder of the fetus becomes impacted behind the maternal symphysis pubis, or less commonly, the sacral promontory obstructs the posterior shoulder, preventing the birth.^[1,2]

SD can result in serious adverse outcomes for both the birthing parent and the newborn. The most common complications for neonates are brachial plexus injuries, humeral and clavicular fractures, hypoxic brain injury and stillbirth. Maternal consequences include postpartum haemorrhage, severe vaginal and perineal trauma, uterine or bladder rupture, and psychological distress.^[2–8]

During shoulder dystocia, the chest of the fetus is compressed, and hypoxaemia and acidosis can occur, especially if there is also umbilical cord compression.^[1,3, 13]

Partial cord compression may allow the fetal heart to pump blood through the umbilical arteries, but the umbilical veins, which are more easily compressed, may restrict blood flowing from the placenta back to the fetus, resulting in fetal hypovolaemia.^[3,6]

The key aims for the management of SD are:

- Early recognition
- Timely intervention
- Systematic approach
- Birth of the fetus within four minutes of recognition of SD.

Incidence and risk factors

The reported incidence of SD is low but variable (overall around 1–2% of vaginal births) however, it is believed the incidence has increased over recent decades. This is partly due to improved nutrition and pre-natal care and also because conditions such as gestational diabetes have increased, resulting in larger newborn infants at term.^[3,7–9]

WHEN PRINTED

PRINIE

Several risk factors have been identified for SD:^[5,10,11]

- Previous SD
- Macrosomia (large fetus > 4 kg)
- Maternal diabetes mellitus
- Maternal obesity (BMI > 30)
- Older maternal age
- Post term pregnancy
- Excessive weight gain in pregnancy

However, around half of all SD cases have no antecedents and cannot be predicted before the time of birth.^[1,4,10,11,13]

Intrapartum risk factors include:[1]

- Prolonged first stage of labour
- Prolonged second stage labour
- Labour augmentation

SD is difficult to predict. It is therefore essential that the ambulance clinician is alert to the possibility of SD, and if suspected, remains calm and implements management procedures systematically and in accordance with these guidelines.^[9–11]

Timing is a critical factor. The likelihood of serious and adverse outcomes for the fetus increases significantly if SD is not resolved within four minutes of recognition.^[1,3,9]

Recognising shoulder dystocia

SD should be immediately suspected when any of the following occurs: [1,10]

- Prolonged or difficult birth of the face and chin;
- The head is birthed but remains tightly applied to the vulva;

- After the birth of the head the chin retracts into the perineum when the birthing parent stops pushing (the 'turtle sign'); **or**
- The fetal head fails to undergo external rotation (restitution).

Confirmation of SD should occur when: [2,5,7-9]

- The birthing parent is unable to birth the shoulders with the next contraction; **and**
- Appropriate traction fails to assist; and
- The process for delivery of the shoulders takes longer than one minute.

Should nuchal cord occur in shoulder dystocia, avoid clamping or cutting the cord before delivery of the fetus.^[3]

Key Management Principles

Emergency manoeuvres are designed to achieve one of three objectives:

- Increase the functional size of the bony pelvis;
- Change the relationship of the bisacromial diameter within the bony pelvis by rotating the fetus into the wider oblique diameter; **or**
- Decrease the bisacromial diameter of the fetus.

Manoeuvres are divided into the following classifications and should be attempted for a maximum of 30 seconds before progressing to the next with as little delay as possible:

- First line manoeuvres
 - McRoberts manoeuvre (knees to nipples while lying supine)
 - Application of supra-pubic pressure while maintaining McRoberts manoeuvre
 - Reposition to all fours

- Second line manoeuvres (attempt in any order, depending on clinical circumstance)
 - Internal anterior shoulder displacement
 - Rubin's II manoeuvre
 - Internal anterior and posterior shoulder rotation
 Wood's screw manoeuvre
 - Reverse posterior shoulder rotation Reverse Wood's screw manoeuvre
 - All fours running start position to deliver the posterior arm

During each manoeuvre the ambulance clinician must:

- Avoid rotating the fetus' head the shoulder should be rotated using pressure on the fetal scapular and/or clavicle only.
- Avoid excessive traction at all times excessive downward traction of the fetal head is associated with neonatal trauma and permanent brachial plexus injury resulting in a number of possible palsies or other movement deficits.^[3,4]
- Avoid fundal pressure associated with a high rate of brachial plexus injury in the fetus, uterine rupture, and maternal haemorrhage.

UNCONTROLLE

Emergency birthing manoeuvres

First line manoeuvres - External interventions

A 'hands on the head' approach with gentle downward traction by the primary clinician is necessary at this point. This should be maintained by the primary clinician throughout the external manoeuvres. A second officer or assistant should assist the birthing parent into a McRoberts position and apply supra-pubic pressure when required by the primary clinician.

1. McRoberts manoeuvre:

The aim of this procedure is to increase the antero-posterior diameter of the pelvic inlet by reducing lumbosacral lordosis.^[2] The reported success rate of this manoeuvre is between 40% and 90%.^[1,4] The birthing parent's hips should be maximally flexed and abducted alongside her abdomen with her knees flexed (commonly known as knees to nipples).^[4] The birthing parent must be supine during the manoeuvre (not semi-recumbent), and must not have a pillow or any other type of padding placed behind her or under her head.



McRoberts manoeuvre

2. Supra-pubic pressure:

Supra-pubic pressure can be combined with McRoberts manoeuvre.^[4] The aim of this manoeuvre is to reduce the diameter of the fetal shoulders and rotate the anterior shoulder into the oblique diameter. If this can be achieved, the shoulder should slip under the symphysis pubis and be birthed. *Note – care must be exercised to avoid pressure on the fundus which could result in uterine rupture or detachment of the placenta*. The clinician's hands should be placed on the birthing patent's pelvic area, immediately superior to the symphysis pubis. The clinician applies pressure over the posterior aspect of the fetal shoulder that is impacted.

Alternatively, the clinician my apply a continuous rocking motion over the same area, rocking in a direction from the back of the fetus towards the front of the fetus.^[7]

This manyoeuvre has also been described as 'firm downward or oblique pressure just above the symphysis pubis.'^[2] Some clinicians may find that interlocking their fingers will assist in this process.



3. Reposition to all fours

Asking the birthing parent to reposition to the all fours position is another effective an non-invasive way of increasing the pelvic diameter. Changing to this posture can sometimes alleviate SD pressure sufficiently to dislodge the shoulder and allow the birthing process to progress normally.^[5]

Second line manoeuvres – Internal rotation manoeuvres

There are four techniques that can be attempted. There is no evidence that one manoeuvre is more successful than any other, therefore ambulance clinicians should attempt any manoeuvre, in any order, depending on the clinical circumstances.^[10] All of the internal manoeuvres can be performed with the birthing parent in either the supine position or on 'all fours'.

Before commencing an internal rotation manoeuvre, the birthing parent should be asked to stop pushing so as to avoid further impaction of the shoulder during internal manoeuvres.^[12]

WHEN PRINTED

Supra-pubic pressure technique

It is essential to the success of these manoeuvres, that the correct hand position is adopted, and the correct vaginal entry point is identified. The correct hand position has been described 'as if putting on a tight bracelet,' where the fingers are compressed, and the thumb is tucked into the palm.^[1,4] Vaginal entry should be made posteriorly as the sacral hollow is the most spacious part of the pelvis.





 Internal anterior shoulder displacement – Rubin's II manoeuvre The gloved hand is inserted into the vagina where upon pressure is applied posteriorly by the clinicians fingers, to the anterior shoulder of the fetus. The clinician should push the anterior shoulder, towards the chest of the fetus, to rotate the shoulders forward and into the oblique diameter of the pelvis.^[1,4]

UNCONTROLLE



2. Internal anterior and posterior shoulder rotation – Wood's screw manoeuvre With the fingers of the clinician's first hand remaining in the same position as for Rubin's II manoeuvre (*above*), the clinician's second hand is introduced to first locate, and then apply pressure to the anterior aspect of the fetus' posterior shoulder. The pressure should enable the fetus to rotate into the oblique diameter. If delivery is still unsuccessful, the clinician should continue rotating the fetus through 180° and re-attempt delivery.^[1,4]



Wood's screw manoeuvre

3. **Reverse posterior shoulder rotation – Reverse Wood's screw manoeuvre** The clinician applies pressure to the posterior aspect of the fetus' posterior shoulder, and attempts to rotate the shoulder through 180° in the opposite direction to that described in the Wood's screw manoeuvre (*above*).^[1]

Reverse Wood's screw manoeuvre

4. All fours 'Running start' position: to deliver the posterior arm With the birthing parent positioned in 'all fours' (see diagram), gentle downward traction is applied to the fetus' posterior shoulder (the shoulder that is positioned against the maternal sacrum), or gentle upward traction is applied to the fetus' anterior shoulder (the shoulder against the maternal symphysis). This manoeuvre increases the maternal pelvic diameters, which will allow access to the fetus' posterior shoulder and arm. Thereafter, 'splinting' the arm (bending at the elbow) and sweeping it across the chest of the fetus should facilitate delivery. Birthing the arm decreases the neonatal bisacromial diameter, allowing for easier passage through the pelvis and birth of the shoulders.^[4]

Narrower bisacromial diameter

Wider bisacromial diameter

WHEN PRINTED





Documentation

The accurate documentation of actions taken to address this obstetric emergency is essential. Mandatory documentation includes, but is not limited to the following:

- The time that the head was birthed
- The manoeuvres that were performed including the time (commencement and duration) and sequence of each manoeuvre
- The direction the fetus was facing:
 - Fetal head facing maternal left (left fetal shoulder anterior); or
 - Fetal head facing maternal right (right fetal shoulder anterior)
- The time that the newborn was birthed
- The physiological condition of the newborn at birth.

Resuscitation of a newborn delivered following SD

Newborn infants birthed following prolonged SD complications are more likely to require resuscitation than those birthed without complications. Hypovolaemic shock, as well as hypoxaemia, may be the reason many newborn infants born after SD cannot be successfully resuscitated.^[1,3,6] Maximising the newborn's circulating volume by delayed cord cutting may improve outcomes in this cohort.^[1,3]

Whenever possible, cord clamping and cutting should be delayed in newborn infants that are not required to be resuscitated after SD. This will allow time for cord/placenta blood to reinfuse to the baby's circulation.^[1]

Interventions required for the management of an obstetric or neonatal emergency increase the risk of postpartum haemorrhage. Clinicians should be vigilant in observing for fundal tone and blood loss after the birth. Active management of the third stage of labour is highly recommended after an obstetric emergency and should be the preferred option. This should be explained to the birthing parent to ensure an appropriately informed consent.

Additional information

- It is important to keep in mind that in the vast majority of cases, full term newborns are birthed naturally and without adverse events. The natural birth process must be allowed to progress without undue interference or intervention from the birthing assistant or clinician. Unnecessary or premature interventions can have detrimental outcomes on both the newborn and birthing parent.
- Recognising if, and when, to intervene to facilitate birth is key to good management practice. Clinicians should contact the *QAS Clinical Consultation and Advice Line* if required.
- A delay in the onset of the second stage of labour can sometimes be managed simply by encouraging the birthing parent to change posture and/or position.
- An episiotomy will not relieve SD because SD is a problem where the shoulder of the fetus is obstructed by the maternal pelvis and not a soft tissue restriction issue. An episiotomy must not be performed by paramedics under any circumstances.
- Shoulder dystocia is an identified risk factor for maternal perineal tears.^[12] Clinicians undertaking internal rotation manoeuvres should be cognisant of this and exercise due care to minimise exacerbating this risk.
- Correct hand position for insertion into the vagina when performing internal rotation manoeuvres is essential for these manoeuvres to be successful. The most spacious part of the pelvis is the sacral hollow, therefore vaginal access can be gained more easily posteriorly.
- Drying and stimulation of the newborn are both assessment and resuscitative interventions.

- Newborn assessment in the pre-hospital environment is challenging and requires increased vigilance due to numerous logistical factors, such as poor lighting, environmental conditions and less than optimal patient positioning.
- Skin to skin contact between birthing parent and newborn is the preferred and more effective method of preserving the newborn's body warmth, compared with swaddling, and should be encouraged whenever possible.
- Training and regular skills maintenance in managing shoulder dystocia is critical to maintaining confidence and skill performance.^[2,5,10]

UNCONTRO

UNCONTROLLE

UNCONTROLLED WHEN PRINTF

Care of the newly born (post-natal cares)

- a) Clean the newborn's mouth and nose of visible blood and mucous with a clean cloth. If an airway obstruction is identified, gently suction the mouth followed by the nares (to decrease the risk of aspiration).
 Suctioning of the posterior pharynx should be avoided as it can stimulate a vagal response, resulting in apnoea and/or bradycardia. The vast majority of newborns do not require suctioning.
- b) Using a soft dry towel, or one of the baby blankets from the QAS
 'Maternity Pack', immediately and thoroughly dry the newborn's skin vigorous drying will assist to stimulate the newborn.
- c) Within the first 30 seconds following birth, assess the newborn's:
 - a. heart rate (HR) by listening for an apex beat with a stethescope;
 and
 - b. breathing status by visually assessing the respiration rate and chest rise and fall.

If the newborn has a HR of greater than 100 and is crying and/or breathing effectively (chest is rising at least 30 times per minute) immediate resuscitation is not indicated; **however**

If after 30 seconds the newborn has a HR of less than 100 and/or is not breathing effectively, commence resuscitation (refer to *CPG: Resuscitation – Newborn*). Apply an appropriate SpO2 monitor.

d) If practical, place the dry newborn directly on the birthing parent's chest, ensuring skin to skin contact. Skin to skin contact may benefit birthing parent-infant attachment and promote breastfeeding.

e) Apply neonatal SpO2 monitoring on the newborn's (pre-ductal) right hand (refer to *CPP: Assessment/Oximetry – pulse*). Ambulance clinicians should note that SpO2 readings may be lower than normal immediately following birth. The following table gives the expected SpO2 reading in full term newborns during the first ten minutes following birth.^[13]

Targeted pre-ductal SpO2 after birth		
60 - 70%		
65 - 85%		
70 - 90%		
75 - 90%		
80 - 90%		
85 - 90%		

f) At one minute after birth, complete an APGAR assessment (refer to CPP: Assessment/APGAR).

Resuscitation must be commenced if the newborn presents with any of the following:

- a. Heart rate < 100;
- b. Limp muscle tone;
- c. Slow (< 30/min) or irregular respirations (e.g. gasping); or
- d. Centrally pale or blue (cyanosed), or SpO2 readings < 60.

- g) Assign and clearly identify one ambulance clinician to be responsible for continual monitoring and ongoing assessment of the newborn.
- h) Perform the following neonatal assessments every 5 minutes

 at this point all HR assessment should include listening to the newborn's apex beat with a stethoscope:
 - a. APGAR (CPP: Assessment /APGAR); and
 - b. VSS/observations newborn's body position, temperature (via non-contact infrared thermometer if available) and SpO2.

Resuscitation must be immediately commenced (refer to *CPG: Resuscitation – Newborn*) if the newborn presents with any of the following:

- a. Heart rate < 100;
- b. Limp muscle tone;
- c. Slow (< 30/min) or irregular respirations (e.g. gasping); or
- d. Centrally pale or blue (cyanosed), or SpO2 reading lower than expected range (refer to the table on the previous page)
- Ensure the newborn is kept warm by minimising heat loss place a beanie on the newborn's head and lay blankets over the birthing parent and newborn.
 - Cord clamping and cutting:

i)

a. Delayed cord clamping and cutting (3–5 minutes following birth) is recommended for all births while initiating simultaneous essential neonatal care. Oxytocin may be administered prior to, or following cord clamping.^[14,15] Immediate cord clamping (less than 1 minute following birth) should only be performed if the newborn needs to be resuscitated.^[16]

- b. Some birthing parents may request the cord remain intact with the placenta attached (not clamped or cut). This request should be respected unless the newborn is required to be moved for resuscitation.
- c. If the birthing parent consents, clamp the cord in 3 places:
 - 1. at least 10 cm from the newborn
 - 2. at 5 cm further from the baby than the first clamp
 - 3. at another 5 cm further from the baby than the second clamp

Cut between the 2 clamps that are furthest from the baby.



- k) Encourage breast feeding to promote the production of maternal oxytocin.
- If the newborn is unable to be placed on the birthing parent's chest, swaddle the newborn using a dry baby blanket from the QAS 'Maternity Pack'. Skin to skin contact with the other parent may be considered as an alternative.

Place the newborn's other

hand under the fold.



Fold the top of the longer edge down approximately 10 cm and lay the newborn on it with their shoulders in line with the fold.

Tuck the fold under their leg on

the opposite side.



Place one of the newborn's hands under the fold.



Bring the other edge of the wrap across the newborn's body and tuck firmly under their back. Fold the excess blanket up and under the newborn's legs.

Active management of the third stage of labour (oxytocin administration)

- a) Promote maternal production of oxytocin by providing a safe, warm environment with uninterrupted skin to skin contact between birthing parent and newborn, and encourage breastfeeding.
- b) Administer oxytocin (refer to *DTP: Oxytocin*).
- c) Observe for and confirm signs of placental separation:
 - a. The uterus rises in the abdomen (observe but do not perform fundal massage at this point)
 - b. The uterus becomes firmer and globular (ballotable)
 - c. Fresh show/trickle of blood
 - d. Lengthening of the umbilical cord

UNCONTRC

- d) Birth of the placenta.
 - Assist the birthing parent to birth the placenta by her own efforts.
 Encourage her to adopt an upright position, bearing down to expel the placenta; or
 - b. Guard the uterus by placing one hand suprapubically and applying steady controlled cord traction until the placenta is visible. Support the birth of the placenta and membranes by gently twisting to strengthen the placenta and limit the chance of retained products do not apply increased traction if resistance is felt, leave and reassess resistance with cord traction after approximately ten minutes.

Application of cord traction until the placenta is visible

Support birth of placenta and membranes Guarding uterus

Placenta visible

- e) Complete a fundal assessment:
 - a. If the uterus is soft massage the fundus until it is firm and central. Consider asking the birthing parent to pass urine, as a full bladder can inhibit the contraction of the uterus. Fundal massage must never be performed prior to delivery of the placenta as this can potentiate undesirable complications.
 - b. If the uterus is firm do not massage the fundus as this may cause further bleeding and pain for the birthing parent.
- f) Assess the placenta for completeness and integrity; check to see if there are missing parts or ragged membranes that may contribute to excessive postpartum blood loss – document findings.
- g) Retain the placenta for visual inspection by the midwife and/or doctor.
- h) Assess and estimate blood loss (normally around 200–300 mLs)
 document findings.

Physiological management of the third stage of labour (patient refusal of oxytocin administration)

- a) Promote maternal production of oxytocin by providing a safe, warm environment with uninterrupted skin to skin contact between birthing parent and newborn, and encourage breastfeeding.
- b) Assist the birthing parent to birth the placenta naturally by her own efforts. Encourage her to adopt an upright position, bearing down to expel the placenta.
- c) Do not apply cord traction.

- d) Complete a fundal assessment:
 - a. If the uterus is soft massage the fundus until it is firm and central. Consider asking the birthing parent to pass urine, as a full bladder can inhibit the contraction of the uterus. Fundal massage is only performed after delivery of the placenta.
 - b. If the uterus is firm do not massage the fundus as this may cause further bleeding and pain for the birthing parent.
- e) Assess the placenta for completeness and integrity; check to see if there are no missing parts or ragged membranes that may contribute to excessive postpartum blood less and document findings.
- f) Retain the placenta for visual inspection by the midwife and/or doctor.
- g) Assess and estimate blood loss (normally around 200-300 mLs) and document findings.

HØN PRINTE

UNCONTROLLED WHEN PRINTED



the birthing parent into the running start position (Gaskin maneouvre) and attempt to deliver



BIRTHING PARENT

• Manage the third stage of labour

(active management preferred

due to increased risk of PPH)

assessments and management

• Provide ongoing patient

(active management preferred

due to increased risk of PPH)

and management

• Provide ongoing patient assessments

Transport to hospital Pre-notify as appropriate