Shoulder dystocia is defined as a birth which requires additional manoeuvres to release the shoulders after gentle downward traction has failed\(^1\).

It occurs due to impaction of the anterior shoulder against the maternal symphysis pubis, or less commonly the posterior shoulder impacted against the sacral promontory \(^2\).

Incidences of 0.58% to 0.7% vaginal births have been reported.\(^1\)

The following antenatal and intrapartum characteristics have been reported to be associated with shoulder dystocia\(^4\):

<table>
<thead>
<tr>
<th>Pre-labour</th>
<th>Intrapartum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fetal macrosomia(^*)</td>
<td>Prolonged first stage</td>
</tr>
<tr>
<td>Maternal BMI &gt; 30kg/m²</td>
<td>Secondary arrest in labour</td>
</tr>
<tr>
<td>Diabetes</td>
<td>Prolonged second stage</td>
</tr>
<tr>
<td>Induction of Labour</td>
<td>Oxytocin augmentation</td>
</tr>
<tr>
<td>Previous shoulder dystocia</td>
<td>Assisted vaginal birth</td>
</tr>
</tbody>
</table>

\(^*\)Although there is a link between fetal size and shoulder dystocia, 48% of incidences occur in infants with a birth weight less than 4000g\(^2\).

Shoulder dystocia is often an unpredictable and unpreventable event. The large majority of cases occur in the infants of women with no risk factors. In cases of shoulder dystocia resulting in infant morbidity, only 16% had identified risk factors\(^1\).
Shaoulder dystocia is an obstetric emergency that may lead to complications for both the woman and her baby including:

Maternal

- Genital tract trauma
  - Increased rates of 3rd and 4th degree tears
  - Uterine rupture
- Symphysial separation
- Postpartum haemorrhage
- Psychological distress/trauma

Neonatal

- Brachial plexus injuries (e.g. Erb’s, Klumpke’s palsies)
- Clavicular & humeral fractures
- Fetal acidosis/hypoxia may lead to permanent neurological damage
- Fetal/neonatal death

Regular training for all health professionals attending births is essential for the reduction of these complications.

PREVENTION

In cases of suspected macrosomia:

- Without diabetes: Elective caesarean section is NOT indicated
- With diabetes: Elective caesarean section may be considered following discussion with consultant obstetrician

In cases of maternal diabetes:

- Maintain tight glycaemic control
- Monitor weight gain during preconception and pregnancy care
In cases of previous shoulder dystocia:

- Either caesarean section or vaginal birth is appropriate in women, taking into consideration the severity of previous shoulder dystocia (eg: manoeuvres required, maternal trauma and neonatal morbidity), fetal size in this pregnancy and maternal choice.

**RECOGNITION**

- Prolonged second stage
- Head comes down to introitus with pushing but retracts back between contractions – “Head Bobbing”
- Delivered head retracts back into vagina - “Turtle” sign
- Delayed restitution of fetal head
- Gentle traction does not free the shoulder

**MANAGEMENT**

Flowchart for the management of shoulder dystocia is included below.

This flowchart begins with simple measures and leads to more invasive manoeuvres. The order of these actions may differ according to clinical circumstances (e.g. experience of birth attendants, maternal ability to change position, existing or available analgesia/anaesthesia)

Do not delay. Fetal hypoxia will worsen the longer the delay between the birth of the head and the birth of the body (approximate drop in blood pH of 0.04 per minute).
Flowchart for the management of shoulder dystocia

**CALL FOR HELP**
- Midwifery help
- Obstetric help
- Neonatal team

**MATERNAL RE-POSITIONING**
- McRoberts’ Manoeuvre and/or
- All Fours position

**SUPRAPUBIC PRESSURE**
- Constant and/or rocking pressure on back of anterior fetal shoulder

**INTERNAL MANOEUVRES (any order)**
- Rotation of either shoulder into the oblique
- Delivery of posterior arm
- Axillary traction

Consider:
- Cleidotomy
- Zavenelli manoeuvre
- Symphysiotomy

Inform consultant obstetrician and anaesthetist

- Discourage pushing
- Avoid excess traction
- Prepare for newborn resus
- Prepare for PPH
The flowchart is consistent with the H.E.L.P.E.R.R. mnemonic in Appendix 1, taught as part of the Advanced Life Support in Obstetrics (ALSO) course\(^3\).

The aim of each of the actions in the flowchart is to:

- Increase functional size of bony pelvis
- Dislodge fetal shoulder due to pelvic movement
- Decrease fetal bisacromial diameter by adduction of shoulders
- Change relationship of bisacromial diameter with the bony pelvis (i.e rotate)
- Allow more space for internal manoeuvres to be performed

Each action in the flowchart is described in more detail below:

1. **Call for Help/Initial Actions**
   - Press emergency buzzer
   - Request additional assistance for manoeuvres
   - Prepare for neonatal resuscitation and PPH
   - Discourage maternal pushing
   - Avoid excessive traction on fetal head

   **In secondary/ tertiary unit**
   Fast page on 777 - neonatal team, obstetric team and anaesthetic team

   **In primary unit**
   Fast page on 777 - clinical co-ordinator (CCO) and/or obstetric team
   Dial 111 for ambulance and state “Code One” (lights and siren)

2. **Maternal Re-positioning**
   - McRoberts’ Manoeuvre (bed flat, buttocks to edge of bed and move knees towards shoulders) and/or

   (Ref. Crofts et al.)
3. Suprapubic Pressure

- Determine position of fetal back
- Place hands in “CPR” position
- Apply downward and lateral pressure to posterior aspect of anterior shoulder to displace shoulder from behind symphysis pubis and rotate into the oblique position
- Provide constant and/or rocking pressure

4. Internal Manoeuvres (any order)(with Episiotomy if required)

Internal rotation\(^{485}\)
Insert fingers posteriorly
Apply pressure to fetal shoulder(s) in order to rotate in a clockwise or anticlockwise direction

Delivery of posterior arm
Insert fingers posteriorly, slide hand along fetal arm and bend it at the elbow. Sweep arm across chest and over face.

(Ref. Crofts et al)
Axillary Traction

1. Slide hand along fetal neck to shoulder

2. Grasp axilla with thumb and first finger

3. Apply axillary traction – follow curve of sacrum

(Photos used with permission of Lesley Ansell)
5. Further intervention

Cleidotomy

- Upward pressure with finger onto the baby’s clavicle to cause a fracture

Zavanelli Manoeuvre

- Cephalic replacement followed by emergency caesarean delivery
- Flex fetal head to replace
- Acute tocolysis will be required

Symphysiotomy

- Used primarily in developing nations
- Local anaesthetic injected over symphysis
- Insert a Foley catheter
- Vaginal hand displaces urethra laterally
- Skin incision down to symphysis
- Scalpel blade to cut ligaments
- Assistant should support the pelvis on either side to prevent excessive traction
- Symphysis will then spread, allowing delivery.

POSTPARTUM CARE

1. Active management of 3rd stage.
2. Thorough examination for perineal and cervical injury.
3. Ensure adequate pain relief.
4. Debrief the woman and her family/whanau and birth attendants.
5. Ensure appropriate neonatal follow-up in accordance with neonatal handbook.
The shoulder dystocia documentation form (Ref: 6775) must be completed following the birth of the baby (see Appendix 2)

Complete and submit incident report form.

**REFERENCES**

APPENDIX 1

Mnemonic for the management of shoulder dystocia

**HELPERR mnemonic**

- **H** = Help (call for additional assistance)
- **E** = Evaluate for episotomy
- **L** = Legs (McRoberts’ manoeuvre)
- **P** = Pressure (Suprapubic)
- **E** = Enter (Internal manoeuvres)
- **R** = Remove (Posterior arm)
- **R** = Roll (to hands & knees)


- Always call for help first
- Remaining HELPERR mnemonic can be followed in any order, using least invasive manoeuvres first
### APPENDIX 2

**SHOULDER DYSTOCIA**

<table>
<thead>
<tr>
<th>Called for help at</th>
<th>Staff present at delivery of head</th>
<th>Additional staff attending for delivery of shoulders</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Name</td>
<td>Role</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Procedures used to assist delivery</th>
<th>By whom</th>
<th>Time</th>
<th>Order</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maternal repositioning</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Suprapubic pressure</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Episiotomy</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internal rotation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Delivery of posterior arm</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Auxillary traction</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other manoeuvres used</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mode of delivery of head</th>
<th>Spontaneous</th>
<th>Instrumental</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time of delivery of head</td>
<td>Time of delivery of baby</td>
<td>Head-to-body delivery interval</td>
</tr>
<tr>
<td>Fetal position during dystocia</td>
<td>Head facing maternal left (i.e. left fetal shoulder anterior)</td>
<td>Head facing maternal right (i.e. right fetal shoulder anterior)</td>
</tr>
<tr>
<td>Birth weight: kg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cord gases:</td>
<td>pH</td>
<td>Base Excess</td>
</tr>
<tr>
<td>Arterial</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Venous</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Explanation to woman and family/whanau</td>
<td>By:</td>
<td></td>
</tr>
</tbody>
</table>

**Initial Neonatal Assessment:**

<table>
<thead>
<tr>
<th>Any sign of arm weakness?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any sign of potential bony fracture?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Referred for neonatal team review?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Baby admitted to Neonatal Intensive Care Unit (NICU)</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name:</th>
<th>Date:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Signature:</td>
<td>Designation:</td>
</tr>
</tbody>
</table>

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**Review Team:** Maternity Guidelines Group