INTRODUCTION

The best clinical management for a mother who is experiencing an abnormal labour or delivery is for her to be transferred to further care without delay. When there is a Midwife on scene it is their responsibility to manage the delivery, and crews should work under their direction. If the Midwife is not present, the decision on whether to move the mother should be based on the principle that any situation which deviates from a normal uncomplicated delivery should result in the mother being transported immediately to hospital. In this situation the crew must alert the hospital via Control en-route. Crews should make an early assessment of the need for additional assistance from a second crew and ensure that the vehicle is requested as soon as possible.

The most important feature of managing an obstetric incident is a rapid and accurate assessment of the mother to ascertain whether there is anything abnormal taking place.

The following maternal assessment process MUST be followed in order to allow you to decide whether to STAY ON SCENE AND REQUEST A MIDWIFE (if not already present) or TRANSFER TO FURTHER CARE IMMEDIATELY.

In maternity cases where delivery is not imminent and there are no complications (refer to maternal assessment flowchart) the mother may be transported to the unit into which she is booked. The assessment should be repeated en-route and if any complications occur, the condition should be treated appropriately, and the woman's destination revised if necessary. If the mother is booked into a unit that is not within a reasonable distance or travelling time, crews should base their judgments on the maternal assessment, and take the mother to the most appropriate unit.

MATERNAL ASSESSMENT
(refer to appendix 1)

Are the following indications present?

<table>
<thead>
<tr>
<th>Indication</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>show</td>
<td>a bloodstained mucous discharge from the cervix which is passed from the vagina.</td>
</tr>
<tr>
<td>waters broken</td>
<td>rupture of the membranes surrounding the baby.</td>
</tr>
<tr>
<td>contractions</td>
<td>usually noticed at 10 minute intervals becoming more frequent. There is usually intermittent pain that accompanies contraction of the uterus.</td>
</tr>
<tr>
<td>bleeding</td>
<td>there is a possibility of vaginal bleeding before, during and after labour.</td>
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</tbody>
</table>

If ANY of the above indications are present move on to the next stage of assessment.

If NONE of the above indications are present and there are no other medical or traumatic conditions, the management should be discussed with the BOOKED OBSTETRIC UNIT. It is useful to obtain the following information:

- a. mother’s name
- b. mother’s date of birth
- c. age
- d. hospital registration number
- e. name of consultant
- f. history of this pregnancy
- g. estimated date of delivery (EDD)
- h. previous obstetric history.

Ask to see the mother’s own hospital notes which most women keep with them.

Is the mother unwell or injured?

This stage of the assessment is concerned with medical and traumatic conditions that may not be directly associated with pregnancy or labour, and may be due to a pre-existing medical condition or accident. However, it should be remembered that unless the cause is obvious, specific pregnancy related conditions should always be considered.

If the mother presents with an obvious medical or traumatic condition that puts her life in imminent danger, or is having a trauma/epilepsy related seizure, the APPROPRIATE TREATMENT for that condition must be initiated. She must be transported to the NEAREST EMERGENCY DEPARTMENT (ED) UNIT preceded by a Hospital Alert Call remembering to inform the hospital that the patient is pregnant.

If the mother is having a seizure that is unrelated to either trauma or epilepsy (refer to Managing Complications: note 2-maternal seizures).

If there are no medical or traumatic conditions present move on to the next stage of assessment.

What is the period of gestation?

The period of gestation is important in determining your course of action. A pregnancy is divided into three “trimesters” each of 13 weeks. It is important to establish the stage in the pregnancy (measured in weeks of duration of the pregnancy). For example, 14/40 on a maternity plan means the mother is 14 weeks into the 40 week duration of pregnancy. The appropriate action for differing lengths of gestation would be:
Less than 20 weeks
- Transport to the nearest ED Dept.

20-34 weeks
- Transport Immediately To Booked Obstetric Unit (Refer To Delivery Algorithm, Appendix 2).

35-40 weeks
- Move On To Next Stage Of Assessment.

If the mother is unable to tell you her length of gestation she will usually be able to tell you when the baby is due. Count the number of weeks remaining before that date and subtract this number from 40. This will give you the period of gestation.

Are there any potential complications?

There are a number of potential complications that warrant IMMEDIATE transfer to the NEAREST OBSTETRIC UNIT, these complications are:

- severe vaginal bleeding
- prolapsed cord
- continuous severe abdominal/epigastric pain*
- presentation of part of the baby other than the head (e.g. an arm or leg).

The specific appropriate treatment for the above is given in the section of this protocol headed ‘Managing Complications’. The mother must be removed to the nearest obstetric unit WITHOUT DELAY having first put in a Hospital Alert Call. Commence the appropriate treatment regime as soon as possible.

Continuous severe abdominal or epigastric pain is not the same as labour pain and may be indicative of significant bleeding behind the placenta, without the presence of external blood loss (a condition known as concealed ‘placental abruption’). This can lead to an unstable cardiovascular state and fetal death.

Severe epigastric or right upper quadrant pain may be a presenting symptom of severe pre-eclampsia (Refer to pregnancy induced hypertension guideline).

Potential complications that warrant immediate removal to the BOOKED OBSTETRIC UNIT (unless delivery is actually in progress) are:

- known multiple births
- known breech presentation
- significant previous history of obstetric complications (e.g. eclampsia, rapid labour, born before arrival).

In cases of known multiple births/malpresentation where delivery is actually in progress, or occurs en-route, you should initiate the DELIVERY PROCEDURE, i.e.:

- remain on scene
- request a Midwife and second vehicle – with Paramedic if none present (unless delivery occurs en-route)
- prepare for delivery
- in cases of multiple birth/breech presentation refer to the ‘managing complications’ section of this guideline.

If there are none of these complications move on to the next stage of the assessment.

Is delivery imminent?

Delivery will be deemed to be imminent if either of the following are present:

- regular contractions at 1-2 minute intervals and an urge to push or bear down
- crowning or the top of the baby’s head/breech presentation visible at the vulva.

If either of the first two indications are present, a visual inspection must be made to observe if crowning is taking place. Remember that if the mother is from a community that is predominantly Buddhist, Hindu or Muslim it may be important to them that they are only examined by a female crew member. YOU SHOULD RESPECT THE WISHES OF THE MOTHER who may refuse a visual inspection. However, the safety of the mother and baby must always come first. If there is any difficulty in this respect, inform Control and ensure details are documented thoroughly.

Once you have used the above criteria to establish that delivery is imminent you should:

- remain on scene
- request a Midwife and second vehicle – with Paramedic if none present
- prepare for delivery (refer to Delivery Procedure).

If you are dealing with an uncomplicated imminent birth and no Midwife is available or central Ambulance Control (CAC) experience any difficulty in locating a Midwife, the best course of action is to take the mother to the ambulance and go to the nearest
obstetric unit, preceded by a hospital alert call. If the labour is so far advanced that delivery occurs on scene, transport both mother and baby to the nearest obstetric unit once the baby has been born and alert Ambulance Control to cancel the second vehicle. If the baby needs resuscitation await the arrival of the second crew who should transport the baby immediately to nearest emergency department.

Re-assessment
In all of the above scenarios it is very important to re-assess the mother at regular intervals. Should the situation change, or if complications occur, then appropriate action should be taken immediately and the treatment/ED regime revised accordingly.

DELIVERY PROCEDURE
(refer to Appendix 2)

First Stage of Labour (the cervix is dilating during this stage)
Encourage the mother to lie on her side or sit when in transit, whichever position is the more comfortable for her.
Entonox may give relief from pain. Inhalation should be started as soon as the mother feels the contraction, before the pain is fully established.

REMEMBER the risk of supine hypotension and always discourage a pregnant woman from lying flat on her back.

Second Stage of Labour (starts when the cervix is ‘fully dilated’ (10cm) and ends with delivery of the baby)
If you have not moved from the home address because birth is imminent, request Control to arrange for a Midwife and second vehicle/Paramedic to attend.
If you are en-route to hospital and delivery appears imminent, pull in and park safely. Inform Control.
Prepare the trolley bed or delivery area with incontinence pads.
Re-assure the mother and tell her what you are doing. Remember to include the woman’s partner if present.
Have towels ready, enough to dry the baby and use another to wrap the baby.
Support the mother in a semi-recumbent (or other comfortable) position with padding under her buttocks.
The mother should be discouraged from lying flat on her back because of the risk of supine hypotension.
Encourage her to continue taking entonox as needed to relieve pain and discomfort.
Open and lay out a maternity pack.

Cover mother with a blanket for warmth and modesty.
Some women may be from ethnic communities in which modesty is highly valued for religious reasons. Childbirth may be viewed as an exclusively female area and it will therefore be extremely distressing for them to be attended by men. Every effort should be made to minimise distress. Where possible, female staff should be in attendance.
As the baby’s head is delivering, help the mother to avoid pushing by telling her to concentrate on panting or breathing out in little puffs. Entonox may help
Instruct the mother to pant or puff, allowing the head to advance slowly with the contraction. You may consider applying gentle pressure to the top of the baby’s head as it advances through the vaginal entrance – this is to prevent very rapid delivery of the baby’s head.
Check to see if the umbilical cord is around the baby’s neck. If it is, you may gently attempt to loop it over the head. If it is too tight, it is better to deliver the rest of the baby with the cord left in place. A tight cord will not prevent the baby delivering.
Wipe any obvious large collections of mucous from round the baby’s mouth and nose.
Quickly and thoroughly dry the baby using a warm towel while you make your initial assessment. Include the head, trunk, axilla and groin.
Remove the now wet towel and wrap the baby in dry towelling.
Hold the baby as it is born and lift it towards the mother’s abdomen.
Assess the baby’s airway. A crying baby has a clear airway. If the baby is not breathing, confirm that the airway is open. Remember the head is ideally placed in the ‘neutral’ position (‘sniffing the morning air’ – i.e. not as extended as in the adult position). SUCTION IS NOT USUALLY NECESSARY. If required, use the suction unit on half speed with a CH8 catheter and then only within the oral cavity.
If the baby is not breathing, apply resuscitative measures as per neonatal resuscitation guidelines.
Once the baby is breathing adequately, cyanosis will gradually improve over several minutes. If the cyanosis is not clearing, enrich the atmosphere near the baby’s
face with a light flow of oxygen.

To divide the cord, apply two cord clamps securely 3cm apart and about 15cm from the umbilicus. Cut the cord between the two clamps.

Ensure the baby remains wrapped and place the baby with its mother in a position where the mother can feed if she wants to and help keep the baby warm (breast feeding will also encourage delivery of the placenta). Reassure the mother and cover her adequately. Await the Midwife and third stage (delivery of the placenta and membranes).

If delivery has occurred en-route to hospital, you should proceed to the nearest obstetric unit once the baby has been delivered, requesting Control to inform the hospital. In this situation it is not necessary to await delivery of the placenta before continuing with your journey. If complications occur put in a Hospital Alert Call via Control.

Third Stage (delivery of the placenta and membranes)

The expulsion of the placenta and membranes may take 15-20 minutes. It will be accompanied by a gush of blood but this should not exceed 200-300mls.

Do not pull the cord during delivery of the placenta as this could rupture the cord, making delivery of the placenta difficult and cause excessive bleeding or inversion of uterus.

Assist the mother in expelling the placenta naturally. The mother may be encouraged to adopt a squatting, upright position to facilitate delivery of the placenta, but only if there has been no delay in delivery of the placenta and NOT IF THERE IS ANY SIGNIFICANT BLEEDING.

Deliver the placenta straight into a bowl or plastic bag and keep it, together with any blood and membranes, for inspection by a Doctor or Midwife.

If bleeding continues after delivery of the placenta, palpate the abdomen and feel for the top of the uterus. Massage the top (or ‘fundus’) of the uterus with a cupped hand, using a circular motion. The fundus will usually be at the level of the umbilicus and should become firm as gentle massage is applied. This may be quite uncomfortable and entonox (refer to the entonox drug protocol for administration and information) can be offered. Consider the need for fluid replacement (see below) and/or Paramedic back-up.

Administer syntometrine if bleeding is severe (refer to the syntometrine drug protocol for dosages and information).

MANAGING COMPLICATIONS

There are several complications that may arise during pregnancy and/or labour. Should you be presented with any of the conditions outlined below you should adopt the following treatment procedures and transport to hospital.

1. Pre-term Delivery (delivery before 37 weeks)

If the delivery occurs at less than 20 weeks gestation the mother and baby should be transported to the NEAREST ED DEPARTMENT.

In the case of a mother who is giving birth at 20-37 weeks every effort should be made to transport the mother to the BOOKED OBSTETRIC UNIT (refer to Appendix 2) without delay as the baby will need specialist care once delivered. The mother should be constantly re-assessed en-route and the appropriate action taken should the circumstances change.

In the event that birth is so far advanced that transfer to further care is not possible, request a Midwife plus a second vehicle and inform Control of the situation.

Once the baby is born, utilise the second vehicle to transport the infant IMMEDIATELY to the NEAREST ED or OBSTETRIC UNIT depending on local arrangements. The infant should be transported even if the Midwife has not yet arrived. Ensure that Control alerts the hospital, giving an ETA and description of the baby's condition. The mother should then be transferred to the OBSTETRIC UNIT of the same hospital as the baby.

Should delivery take place en-route assess the baby and take appropriate action. Convey mother and baby to the NEAREST ED or NEAREST OBSTETRIC UNIT depending on local arrangements. Ensure that Control alert the receiving hospital.

When placing the Alert Call Control will advise you of the local arrangements for units receiving distressed neonates where this is not the Obstetric Unit.

2. Maternal Seizures

Refer to Pregnancy Induced Hypertension (including pre-eclampsia)
3. Prolapsed Umbilical Cord

This is an EXTREME EMERGENCY that requires immediate intervention, rapid removal and transport. In a mother who presents with a prolapsed cord use two fingers to replace the cord gently in the vagina, handling the cord as little as possible. Use dry padding to prevent further prolapse. This will keep the cord warm and moist within the vagina and prevent cord spasm.

Occasionally it may not prove possible to replace the cord in the vagina, particularly if a large loop has prolapsed. In these instances keep the cord warm and moist with physiological saline sterile dressings.

Crews should use their professional judgment to determine the best means of removal, ensuring that the safety of the mother is maintained. Ideally the trolley bed should be used, but where necessary and expedient the mother may be helped to walk to the nearest point of access for the trolley bed. Use of the service carrying chair should be avoided if at all possible and if used should be utilised only to convey the mother to the nearest point of access for the trolley bed. Following replacement of the cord or application of the sterile dressings the mother should be positioned on her side with padding placed under her hips to raise the pelvis and reduce pressure on the cord. Entonox should be administered to help prevent the urge to push, which also increases pressure on the cord.

The mother should be transported to the NEAREST OBSTETRIC UNIT preceded by a Hospital Alert Call ensuring that Control alert the hospital giving an ETA and clear advice that the mother has a prolapsed cord.

4. Post Partum Haemorrhage

The commonest cause of severe haemorrhage immediately after delivery is uterine atony (i.e. poor uterine contraction). If severe haemorrhage occurs following delivery (post-partum) the following treatment regimen should be followed en-route if possible:

- Uterine massage – palpate the abdomen and feel for the top (fundus) of the uterus – it is usually at the level of the umbilicus. Massage with a cupped hand using a circular motion.
- Paramedics should initiate the procedure for syntometrine (refer to syntometrine drug protocol). Non-Paramedic crews should not delay transfer to further care by waiting for a Paramedic crew to attend.
- Establish IV access using large bore cannulae.

- If there is visible external blood loss greater than 500mls, fluid replacement should be commenced with a 250ml bolus of crystalloid.

  Central pulse ABSENT, radial pulse ABSENT – is an absolute indication for urgent fluid.

  Central pulse PRESENT, radial pulse ABSENT – will normally need fluid replacement in the pregnant patient.

  Central pulse PRESENT, radial pulse PRESENT – DO NOT commence fluid replacement, unless there are other signs of poor central tissue perfusion (e.g. altered mental state, abnormal cardiac rhythm or in the pregnant patient a high index of suspicion of significant blood loss.

  Re-assess vital signs prior to further fluid administration.

- If bleeding continues – check for bleeding from tears at the vaginal entrance. Bleeding can be controlled by direct pressure using a gauze or maternity pad.

The mother and baby should be transported to the NEAREST OBSTETRIC UNIT immediately. Transfer to further care must be preceded by a Hospital Alert Call via Control. The information passed should include details as to whether the placenta has been delivered or is still in-situ. This information will be valuable to the hospital in determining their treatment.

5. Continuous severe abdominal pain / placental abruption

Major placental abruption is when a large part of the placenta detaches from the uterine wall. Bleeding occurs under the placenta causing significant abdominal and/or epigastric pain. There may be no visible vaginal bleeding (‘concealed’ abruption). Alternatively there may be a variable amount of vaginal bleeding (‘revealed’ abruption). Despite little or no visible bleeding, there may be signs of hypovolaemic shock.

It is important that you make a thorough assessment for signs of shock. The mother must be removed to the NEAREST OBSTETRIC UNIT WITHOUT DELAY having first put in a Hospital Alert Call. Commence the appropriate resuscitation regimen as soon as possible.
6. Multiple Births – delayed delivery of second or subsequent baby

It is now very unusual for a mother expecting a multiple birth to deliver outside hospital. However, twin pregnancies are at much higher risk of delivering pre-term (i.e. before 37 weeks) – the babies may therefore need resuscitation. Unless delivery is actually in progress, mothers expecting multiple births should be transported to the BOOKED OBSTETRIC UNIT without delay. The mother should be constantly re-assessed en-route and the appropriate action taken should the circumstances change.

If delivery is in progress, or occurs en-route, proceed according to the delivery procedure. In most instances the normal pattern of delivery will apply for each baby. The procedure for normal delivery and management of the new-born will apply for the first and all subsequent babies.

Once the first baby has been born and assessed you should make arrangements to transport both mother and baby to the NEAREST OBSTETRIC UNIT IMMEDIATELY having put in a Hospital Alert Call. In this situation it is not necessary to await the arrival of the Midwife prior to transfer to further care.

If delivery of the second baby occurs en-route, park the ambulance and make a request via Control for a SECOND VEHICLE. Once the second baby has been delivered, utilise both vehicles to transport mother and babies to the nearest obstetric unit.

If any/either baby requires resuscitation, follow the appropriate neonatal resuscitation guideline.

REMEMBER – with a twin delivery, the mother is at increased risk of immediate post-partum haemorrhage due to poor uterine tone (refer to section 4 above).

7. Malpresentation

Breech birth; this is a birth where the feet or buttocks present first during delivery rather than the baby’s head. Cord prolapse is more common with a breech presentation (refer to note 3 – prolapsed umbilical cord). In the case of a known breech presentation the mother should be transported to the BOOKED OBSTETRIC UNIT unless birth is in progress. The mother should be constantly re-assessed en-route and the appropriate action taken should the circumstances change. If birth is in progress treat as for a normal delivery except for the following points:

- Do not touch the baby or the umbilical cord until the body is free of the birth canal and the nape of the neck is visible. The only exception is when the baby’s back rotates to face the floor. Gently hold the baby by its pelvis and rotate the baby back towards the front (take care NOT to squeeze the infant’s abdomen which could damage internal organs).

- Do not clamp or cut the cord until the HEAD is free of the birth canal.

- Once the baby is born, gently lift the baby by its feet to facilitate delivery of the head. This should be undertaken as the head is delivering and so as not to over-extend the baby’s neck. Care should be taken not to pull the baby.

Once the baby is born treat as for a normal delivery. Breech babies are more likely to be covered in meconium and may require resuscitation. If the baby requires resuscitation, follow the appropriate neonatal resuscitation guideline.

Any other body part presenting; if, upon inspection, a part of the baby is presenting other than the head, buttocks or feet (e.g. one foot or a hand/arm) transport the mother immediately to the NEAREST OBSTETRIC UNIT. Transfer to further care must be preceded by a Hospital Alert Call via Control.

8. Shoulder Dystocia

This is when delivery of the baby’s shoulders is delayed. The baby’s anterior shoulder is stuck behind the symphysis pubis. DO NOT pull, twist or bend the baby’s head. If the shoulders are not delivered within two contractions following the birth of the head, then, place a pillow under the mother’s head and bring her knees up towards her chest and slightly outwards (McRobert’s position).

Alternatively, the mother should be positioned in an “all-fours” position on her hands and knees. A further attempt can be made to deliver the shoulders in either of these positions.

If the shoulders are not delivered following a further two contractions the mother should be transferred immediately to the NEAREST OBSTETRIC UNIT. In this situation it is not necessary to await arrival of the Midwife.
Ideally, the mother should be removed from scene using the trolley bed. However, if necessary, the mother may be helped to walk a SHORT distance to the nearest point of access for the trolley bed, but crews should be prepared to deliver the baby as this may precipitate birth. Once on the trolley bed and during transportation the mother should be placed on her side with padding placed under her hips to raise the pelvis.

Transfer to further care must be preceded by a Hospital Alert Call via Control.

**Key Points – Birth Imminent (normal delivery and delivery complications)**

- For a patient experiencing an abnormal labour or delivery, transfer to further care without delay.
- Undertake a rapid assessment of the patient to ascertain whether there is anything abnormal taking place.
- If the mother presents with an obvious medical or traumatic condition that puts her life in imminent danger treat appropriately.
- The period of gestation is important in informing the appropriate course of action.
- Severe vaginal bleeding, prolapsed cord, continuous severe abdominal/epigastric pain and presentation of part of the baby other than the head (e.g., an arm or leg) warrant IMMEDIATE transfer to the NEAREST OBSTETRIC UNIT.

**REFERENCES**


**METHODOLOGY**

Refer to methodology section.
Appendix 1 – Maternal Assessment

Is the period of gestation below 20 weeks?

- NO
  - Is the mother presenting with an obvious non-pregnancy related emergency (e.g. trauma)?
    - NO
      - Is the mother presenting with one of the following:
        - eclampsia
        - severe vaginal bleeding
        - prolapsed cord
        - continuous severe abdominal pain.
        - presentation of part other than head or buttocks/feet.
      - Nearest emergency department.
    - YES
      - Nearest obstetric unit.
  - YES
    - Nearest emergency department.

- YES
  - Nearest obstetric unit.

Is the period of gestation 20-37 weeks?

- NO
  - Known multiples?
    - NO
      - Is birth imminent?
        - NO
          - Booked obstetric unit.
        - YES
          - Request Midwife and second vehicle/Paramedic.
    - YES
      - Nearest obstetric unit.
  - YES
    - Nearest obstetric unit.

- YES
  - Nearest obstetric unit.
Appendix 2 – Delivery Flowchart

Is birth imminent?

YES

Are you still on scene?

YES

Remain on scene and request Midwife and second vehicle/Paramedic.

NO

Prepare for delivery.

Manage delivery as per delivery procedure.

NO

Are there any complications?

YES

Transport to booked obstetric unit.

If on scene await arrival of Midwife.

• If en-route, transport to nearest obstetric unit once baby is born.
• Request Control to inform obstetric unit.

• Transport to nearest Obstetric unit
• appropriate treatment and alert call.

Park vehicle safely.