

**PartoMa**

## A Pocket Guide for Best Possible Safe and Respectful Childbirth Care



Approved by Zanzibar Ministry of Health

© 2018 The PartoMa Study, University of  
Copenhagen. All Rights Reserved.

The guidelines represent achievable essential care at the low-resource referral hospital of Zanzibar, where each birth attendant takes care of 3 or more women in childbirth simultaneously.

**PartoMa Homepage:** [publichealth.ku.dk/partoma](http://publichealth.ku.dk/partoma)

**PartoMa Background Document:** In-depth information on the development process, implementation and evaluation is available at the PartoMa homepage.

**PartoMa Practice-Based Training:** Case stories are available in the background document.

**PartoMa Core Development Team:** Nanna Maaløe, Tarek Meguid, Natasha Housseine, Birgitte Bruun Nielsen, Jos van Roosmalen

**Reviewers:** PartoMa Pocket Guide 2.0 is internally reviewed by 40 Zanzibari birth attendants, and externally peer-reviewed by a panel of 11 specialists in obstetrics, midwifery, neonatology and epidemiology.

**Supporters:** Zanzibar Ministry of Health and University of Copenhagen

**References:** World Health Organization's 'Managing Complications in Pregnancy and Childbirth: A Guide for Midwives and Doctors' (2017) is used as main frame, but supplemented by other guidelines and evidence reviews. References are listed in the background document. They have been adjusted to what is realistic at Mnazi Mmoja Hospital. Mnemonics for shoulder dystocia and vacuum extraction are adapted with permission from ALSO guidelines (Copyright: © American Academy of Family Physicians. All Rights Reserved).

**Photos:** Tarek Meguid, Natasha Housseine, Jurre Rompa. Identifiable people have given oral consent.

**Illustrations:** Randi Iversen. Reprinted with permission from Munksgaard Publishing.

**Graphics:** Nanna Maaløe.

© 2018 *The PartoMa Study, University of Copenhagen. All Rights Reserved. Requests for permission to reproduce or translate should be addressed by email to: [techtrans@adm.ku.dk](mailto:techtrans@adm.ku.dk).*

All reasonable precautions have been taken to verify the information contained in this publication, and both text and graphical presentations are internationally peer-reviewed. PartoMa guidelines are primarily developed to guide health providers in providing best possible care in the low-resourced referral hospital of Zanzibar, Mnazi Mmoja Hospital. The material is being distributed without warranty of any kind, and responsibility for interpretation and use of the material lies with the reader.

## INDEX

<b>Safe and respectful care</b>	page 1
<b>Partograph and PartoMa use</b>	page 2
<b>Routine maternity care</b>	
Assessments during labour	page 3
Post-delivery care	page 4
<b>Partograph decision-support</b>	
FHR, liquor	page 5
Latent phase, PROM, labour induction	page 6
Cervix, contractions	page 7
High BP, urine protein	page 8
Low BP, high pulse, high temperature	page 9
<b>Obstetric maneuvers</b>	
Vaginal breech delivery	page 10
Second twin, shoulder dystocia	page 11
Vacuum extraction	page 12
<b>Caesarean section decision-support</b>	page 13
<b>Vaginal bleeding</b>	
Before birth (APH)	page 14
After birth (PPH)	page 15
<b>Neonatal resuscitation</b>	page 16

## ABBREVIATIONS

<b>APH</b>	antepartum haemorrhage (bleeding)
<b>ARM</b>	artificial rupture of membranes
<b>BP</b>	blood pressure
<b>Bpm</b>	beats per minute
<b>CS</b>	caesarean section
<b>FHR</b>	foetal heart rate
<b>GCS</b>	Glasgow Coma Scale
<b>HIV</b>	human immunodeficiency virus
<b>Hr</b>	hour
<b>IM</b>	intramuscular
<b>IV</b>	intravenous
<b>Min</b>	minutes
<b>MmHg</b>	millimetres of mercury
<b>PPH</b>	postpartum haemorrhage (bleeding)
<b>PROM</b>	pre-labour rupture of membranes
<b>PV</b>	per vaginal examination
<b>RR</b>	respiratory rate
<b>Sec</b>	seconds
<b>SRM</b>	spontaneous rupture of membranes
<b>Temp</b>	temperature
<b>TR</b>	transfer
<b>UTI</b>	urinary tract infection

⚠️ *These are not all aspects of safe and respectful care, but represent key expectations*



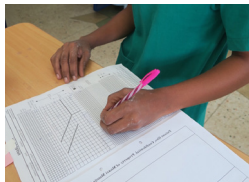
### **Caring support and kind communication**

Treat every woman with respect and empathy, and involve in care decisions.



### **Teamwork**

If uncertainty, discuss with colleagues.  
If emergency, call for help.



### **Timely and complete partograph use**

How is mother?  
How is baby?  
How is progress?



### **Clinical guidelines**

Provide evidence-based care for every woman.  
If in doubt, discuss with colleagues.



### **Encourage eating and drinking freely**



### **Encourage ambulation**

Position is the woman's choice, and upright position is encouraged.



### **Urination**

Encourage spontaneous urination every 2 hrs during childbirth.



### **Privacy and confidentiality**



### **Baby skin-to-skin on mother's chest**

Immediately after birth for all babies without complications.



### **Encourage early breastfeeding**

Start within 1 hr after birth.



### **Cleanliness**

Clean birthing area.  
Always clean hands (*handrub with alcohol-based solution is best*).



### **Birth companion of choice**

Throughout labour and childbirth.

## **PAIN RELIEF**

### **Routine pain relief for all childbirths**

For most women, this is enough to cope with pain:

- Respectful caring support
- Ambulation

### **If distressed by pain**

- Assess FHR, contractions, PV (*cervical dilatation*) (*if pain between contractions, see page 14*)
- Encourage ambulation (*walking or most comfortable position*)
- Encourage breathing techniques

### **If severely distressed by pain AND more than 4 hrs to birth**

Offer medication:

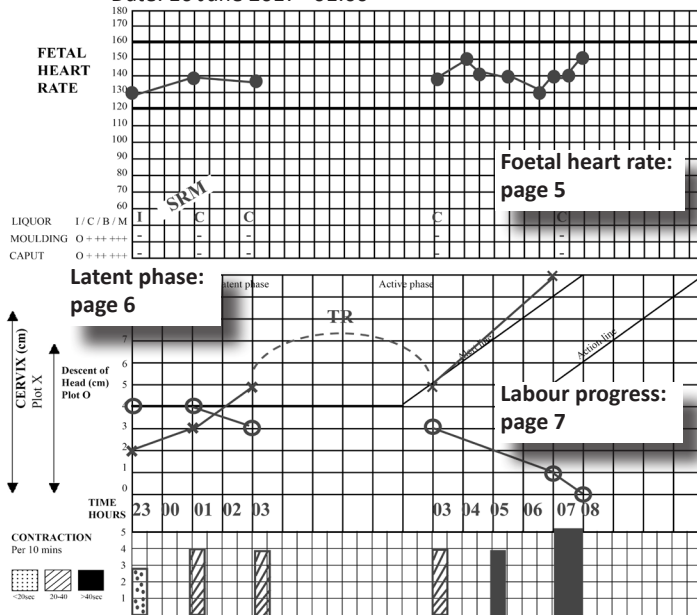
- IM Morphine 0.1 mg per kg body weight

If needed, Morphine may be repeated after 4 hrs

**⚠ DANGER:** *If Morphine is given within 4 hrs before birth, baby may suffer from poor breathing at birth (page 16). Antidote: IV Naloxone 0.1 mg/kg body weight.*

## CORRECTLY USED PARTOGRAPH (the composite partograph, which is applied in Zanzibar)

Date: 16 June 2017 01:00

**When to use the partograph**

The partograph must be used for ALL women in labour, and also in second stage.

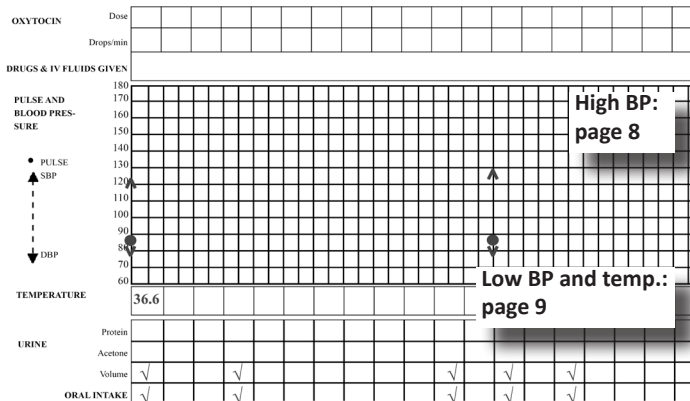
**First recording in active phase**

Active phase of labour starts when cervix is dilated 4-5 cm AND regular painful contractions.

If the woman is admitted in active phase, start by plotting cervical dilatation on the Alert line. Only use the latent area of the partograph if the woman is admitted in latent phase.

**When to re-assess**

Please see routine assessments during latent and active phase of labour on page 3.



### 3 diagnostic questions

Each assessment of a woman in labour requires analysis of the partograph as a whole by:

1. Is mother in a good condition?
2. Is baby in a good condition?
3. Is progress as expected?

### Actions needed

On pages 5-9, partograph decision-support is presented.

**!** *In all cases of uncertainty, consult senior colleagues AND obstetric text books*

### PartoMa COLOUR CODES

**UNCOMPLICATED** Routine assessments and supportive care

**WARNING** Attention and treatment

**DANGER** IMMEDIATE ACTION!

### PartoMa SYMBOLS

**!** This exclamation mark means special attention

**\*** This asterisk indicates that there is more information further down on the same page in a grey field

## FOR UNCOMPLICATED BIRTH:

**ON ADMISSION**

**History: Obstetric risks in previous or present pregnancy/childbirth?** For example:

- Vaginal bleeding (*APH or PPH, page 14-15*)
- Previous CS (*trial of scar, page 13*)
- Maternal age and parity  
*Parity 5 or more has increased risk of complications (low Apgar score, placenta praevia, uterine rupture)*
- Twin pregnancy (*page 11*)
- Maternal illness  
*For example hypertension (page 8), obesity, anaemia, diabetes, HIV*
- Concerns for the baby  
*For example preterm labour, meconium (page 5) PROM (page 6), breech (page 10)*

**Assess: FHR, Pulse, BP, Temp, Contractions, Lie, Presentation, Descent, PV**

**Start partograph for all women in labour (page 2)**

**⚠** *When preterm birth is expected, it is unclear whether corticosteroids do more harm than good in low resource settings*

**LATENT PHASE**

*Regular painful contractions, cervix less than 4-5 cm*

**Every 4 hrs AND when changes occur:**

*(for example SRM or increasing contractions)*

FHR, Pulse, BP, Abdominal exam (*lie, presentation*), contractions, PV

**⚠** *WHO guidelines (2018) recommend not to start active phase before 5 cm cervical dilatation*

**FIRST STAGE, ACTIVE PHASE**

*Cervix 4-9 cm AND regular painful contractions*

**Every ½ hr (every 1 hr as a minimum):** FHR

**Every 2 hrs:** Urine output (*spontaneously is best*)

**Every 4 hrs:** Contractions, PV, Pulse, BP

**SECOND STAGE, ACTIVE PHASE**

*Cervix fully dilated (10 cm)*

**Monitor FHR closely:**

Before pushing: Every 15 min

When pushing: After every contraction

**Contractions, PV:** Every ½ hr

**Pulse, BP:** Assess if 4 hrs since last assessment

**⚠** *Empty bladder before pushing (spontaneous is best)*



## FOETAL HEART RATE (FHR)

Auscultate with Doppler ultrasound or Pinard foetal stethoscope at the end of a contraction for 1 min.

⚠ *Confirm that it is FHR, and not maternal pulse*

⚠ *In second stage of labour, always have delivery set and ambu bag ready (page 16)*

## PER VAGINAL EXAMINATION (PV)

⚠ *No PV if abnormal vaginal bleeding and position of the placenta is unknown (page 14)*

What to assess:

1. Cervical dilatation

*Do not stretch cervix more open than it is*

2. State of cervix

*Effacement, thin/thick, rigid/soft, oedematous*

3. State of membranes (*intact or ruptured*)

4. Descent of presenting part

*Vaginally in relation to ischial spines (station 0)*

*(descent can also be assessed abdominally, in fifths of head palpable above brim)*

5. Presentation and position

6. If membranes have ruptured, assess:

Colour of liquor, moulding and caput

## CONTRACTIONS

Contractions are assessed prior to every vaginal examination, by palpating the abdomen for 10 min and carefully registering frequency and duration of each uterine tightening.

Strong contractions: 3-5 contractions per 10 min,  
each lasting more than 40 sec

## BLOOD PRESSURE (BP)

Assess BP every 4 hrs during labour.

Woman should sit upright for BP assessment, no crossed legs.

No physical activity for 5 min prior to BP.

Measure twice:

- If readings no more than 5 mmHg apart, accept measure

- If readings more than 5 mmHg apart, repeat until 2 readings are within 5 mmHg from each other

If abnormal BP, see pages 8 and 9.

## FOR UNCOMPLICATED BIRTH:

**AFTER BIRTH OF BABY**

Mother: **Active management of third stage**  
*(IM Oxytocin 10 units, controlled cord traction, uterine massage)*

Baby: **Not crying or not breathing?** *(page 16)*  
**Apgar score\*** *(after 1 min and 5 min)*  
**Cord clamping** *(if baby is well, delay 2 min)*  
**Skin-to-skin with mother** *(for at least 1 hr)*  
**Breastfeeding** *(should start within 1 hr)*

**AFTER DELIVERY OF PLACENTA**

Mother: **Vaginal bleeding above 500 ml?** *(page 15)*  
**Perineal/genital trauma?** *(rectal exam)*  
**Placenta and membranes complete?**

**1 HR AFTER BIRTH**

Baby: **Head-to-toe examination**  
*Exclude malformations (for instance cleft palate, spina bifida, anorectal malformation)*  
**IM Vitamin K 1 mg**  
*(if weight less than 1500g, give 0.5 mg)*

**EVERY 30 MIN IN THE FIRST 2 HRS AFTER BIRTH**

Mother: **General condition**  
**Pulse, BP**  
**Uterus firmly contracted?** *(fundal height)*  
**Vaginal blood loss** *(PPH, page 15)*  
**Bladder full?** *(encourage urination)*

Baby: **Breathing, colour and temperature,**  
**Cord bleeding?**  
*(teach mother to also observe)*

**BEFORE DISCHARGE**

Mother: **Pulse, BP**  
**Vaginal discharge** *(blood loss and lochia)*  
**Ensure urination**  
**Give instructions\*\***

Baby: **General condition**  
**Birth weight**  
**Assure good breastfeeding**

**⚠** *Keep baby skin-to-skin on mother's chest as much as possible. Mother and baby should not be separated if at all possible*

## \*APGAR SCORE

	0	1	2
<b>Appearance</b>	Blue/pale all over	Blue/pale limbs and pink body	Pink body and limbs
<b>Pulse (bpm)</b>	Absent	less than 100	100 or more
<b>Grimace</b>	No response to stimulation	Grimace when stimulated	Cry when stimulated
<b>Activity</b>	None	Some flexion	All limbs flexed
<b>Respiration</b>	Absent	Weak	Strong

**⚠** 5 min Apgar score less than 7 indicates asphyxia and the baby needs close monitoring

## \*\* INSTRUCTIONS TO MOTHER

### 1. Danger signs for mother

- severe bleeding
- fever
- severe pain
- difficult or fast breathing

### 2. Danger signs for baby

- inactivity
- not feeding
- difficult or fast breathing

### 3. Advice on breastfeeding

### 4. Advice on good hygiene for mother and baby

### 5. Family planning

## FOETAL HEART RATE (FHR)

⚠ *Pushing is the most dangerous time for baby:  
FHR at the end of each contraction*

**FHR**  
*bpm*

**Abnormal FHR** (*continuous FHR more than 180 bpm*)  
Suspect foetal distress and/or maternal infection: Pulse, BP, Temp (*fever: page 9*)  
Intrauterine resuscitation\*, FHR every 15 min  
If no improvement after 1 hr: Immediate delivery by vacuum extraction (*page 12*) or CS (*page 13*)

180

**Non-reassuring FHR** (*continuous FHR 161-180 bpm*)

170

Assess Pulse, BP, Temp      Intrauterine resuscitation\*      FHR every 15 min

160

150

**Normal FHR** (*FHR 110-160 bpm*)

140

First stage of active labour: FHR every 30 min

130

Second stage: FHR every 15 min when descending to pelvic floor  
FHR at the end of every contraction when pushing

120

110

100

**Non-reassuring FHR** (*FHR 100-109 bpm*)      Intrauterine resuscitation\*      FHR every 15 min

90

80

**Foetal distress** (*FHR less than 100 bpm*)

70

Intrauterine resuscitation\*

After 5 min: If FHR still below 100 bpm: Immediate delivery by vacuum extraction or CS (*pages 12-13*)

If FHR not heard, quickly confirm absent FHR\*\*

## LIQUOR (amniotic fluid)

### Clear (C)

Reassuring.

No specific actions to be taken.

### Meconium (M)

Can be a sign of foetal distress:

- Assess FHR every 15-30 min

⚠️ *At delivery with meconium: Immediate suction of mouth and nose if signs of obstruction or weak baby. Do not suction if baby is nicely crying or breathing*

### Vaginal bleeding (B)

See page 14.

⚠️ *No PV before placenta praevia is ruled out (by ultrasound, or in theatre ready for CS)*

## \* INTRAUTERINE RESUSCITATION

- Woman on left side  
*(if no improvement, then right side)*

- Stop oxytocin if administered  
- Assess Pulse, BP, FHR, PV, Temp

⚠️ *Always ensure that it is FHR and not maternal pulse, by checking FHR and maternal radial pulse at the same time*

## \*\* FHR NOT HEARD

### Confirmation of absent FHR:

Ask colleague to reassess FHR *(with Doppler)* and perform ultrasound

### If confirmed intrauterine foetal death, plan for vaginal birth:

- Induce *(page 6)* or augment *(page 7)* labour if necessary  
- Craniotomy *(if obstructed labour and cervix fully dilated)*  
- Observe for signs of infection and treat *(page 9)*  
- Provide emotional support *(page 1)*

⚠️ *CS after foetal death is dangerous for the mother, and must only be performed as last option, or if severe maternal compromise (for example uterine rupture, page 14)*

## LATENT PHASE OF LABOUR

*(Cervix less than 4-5 cm, painful uterine contractions and variable changes of the cervix)*

**Latent phase less than 12 hrs**

Assess every 4 hrs if admitted (*page 3*)

Signs of infection? (*page 9*)

Rupture of membranes, PROM (*speculum exam*)?\*

Need for pain relief? (*page 1*)

**Latent phase more than 12 hrs**

Check for urinary tract infection (*dipstick*)

If poor progress in latent phase, consider either rest with pain relief (*page 1*) or induction of labour\*\*

**⚠** *Prolonged latent phase is often confused with false labour where contractions cease after a while.*

\* PRE-LABOUR RUPTURE OF MEMBRANES (PROM) **⚠** *Limit PVs due to risk of infection. If FEVER, see page 9*

**37 weeks gestation or more:**PROM less than 18 hrs in total:

Routine assessments and supportive care in hospital

PROM more than 18 hrs in total:

Start antibiotics, for example (*if not allergic*):

Oral Erythromycin 250mg every 6 hrs for 10 days  
(*or until birth*)

Plan for delivery within 12 hrs

Induce\*\* or augment (*page 7*) if necessary

**Less than 37 weeks gestation: (Preterm PROM)**

Start antibiotics, for instance (*if not allergic*):

Oral Erythromycin 250 mg 4 times a day  
for maximum 10 days or until active labour

Expectant management in hospital, with close observation. Induce labour at 37 weeks gestation

Induce immediately if high risk, for instance severe hypertension (*page 8*) or fever (*page 9*).

## \*\* INDUCTION OF LABOUR (artificial stimulation of the uterus to start labour)

### Indication:

Delivery needed soon.

For example due to PROM (page 6), Intrauterine foetal death (page 5), Abruptio placenta (page 14), Severe pre-eclampsia (page 8), fever (page 9)

⚠ Always keep mother ready for CS during induction

### Examine cervix and calculate the score:

Cervix:	0	1	2	3
Dilatation (cm)	Closed	1-2	3-4	5 or more
Length (cm)	5 or more	3-4	1-2	Less than 1
Consistency	Firm	Average	Soft	Effaced
Position	Posterior	Mid	Anterior	Effaced

Score 5 or less (*cervix unfavourable*):

Induce by Misoprostol **OR** Balloon and Oxytocin

Score 6 or more (*latent phase in progress*):

ARM if possible and Oxytocin (page 7)

⚠ If previous CS (page 13) or parity 5 or more, do **not** use misoprostol

⚠ If history of bleeding **OR** PROM **OR** obvious vaginal infection, do **not** use Balloon catheter

### MISOPROSTOL

**Dose:** Tabl. Misoprostol 25 microgram ORAL (dissolve one 200 microgram tablet in 200 ml of water and administer 25 ml of that solution as a single dose)

⚠ Fat-free diet. Otherwise no effect.

**Every 1 hr:** FHR and contractions

**After 2 hrs:** PV and repeat Misoprostol if required:

If score 5 or less: Repeat Misoprostol

If score 6 or more OR membranes ruptured:

Stop Misoprostol and consider Oxytocin (page 7)

**After 12 hrs:** If no progress and delivery needed fast, consider CS. Otherwise, repeat Misoprostol regimen for 12 hrs (*immediately or the following day*)

### BALLOON AND OXYTOCIN

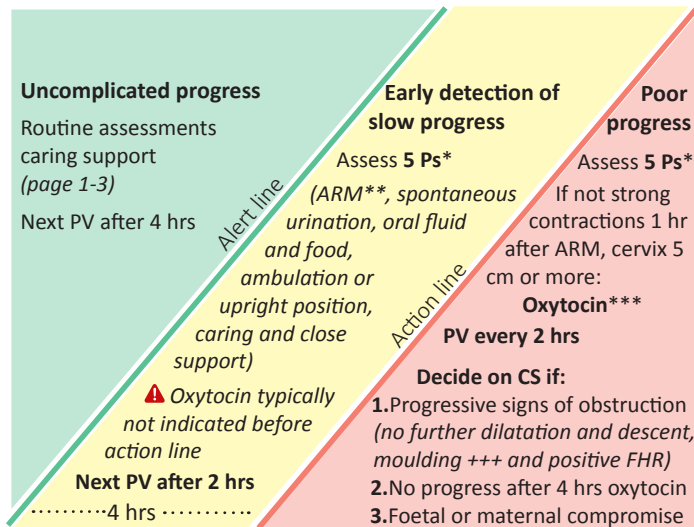
#### 1. Balloon catheter (or foley catheter):

- Gently introduce balloon catheter through cervix (*inflatable bulb must be beyond internal cervical os*)
- Inflate bulb with 30–50 mL of water
- Leave catheter in place for 12-24 hrs or until contractions begin or membranes rupture

#### 2. When catheter is removed or falls out:

ARM and start oxytocin (page 7)

## ACTIVE FIRST STAGE OF LABOUR

*(Cervix 4-5 cm or more AND regular painful contractions)*

⚠ WHO (2018) recommends not to start active phase before 5 cm

## SECOND STAGE OF LABOUR

*(Cervix fully dilated)*

**Duration less than 1 hr AND Pushing less than 30 min**

Caring and continuous support  
ARM if membranes still intact\*\*

⚠ Never leave woman alone and monitor FHR closely (page 5)

**Duration 1-2 hrs OR Pushing 30-60 min**

Exclude malposition

If presenting part not visible at vulva, consider 5 Ps\* and oxytocin augmentation\*\*\*

PV every 15-30 min

**Duration more than 2 hrs OR Pushing more than 1 hr**

⚠ For nulliparous, normal second stage can last up to 3 hrs

Vacuum extraction if possible (page 12). CS as last resort.



## \* 5 Ps - why poor progress?

### **Power:**

If less than 4 strong contractions per 10 min, enhance labour:

- ARM\*\*
- Oral fluid and food intake
- Ambulation, upright position
- Oxytocin augmentation\*\*\*

### **Passenger:**

- Malposition or malpresentation?
- Foetal weight (*large baby?*)

### **Pass urine:**

- Encourage spontaneous emptying every 2 hrs
- Catheterize as last resort

### **Psyche:**

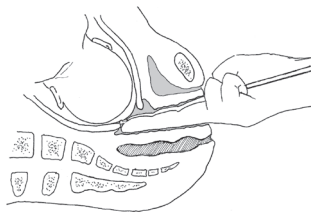
- Reduce anxiety (*page 1*)

### **Pelvis:**

- Severely contracted pelvis?

## \*\* ARM

1. Foetal head engaged in pelvis?
2. On back, legs bent, feet together, knees apart
3. Place two fingers against membranes and GENTLY rupture membranes with clamp



4. After rupture, fingers remain in place (*umbilical cord prolapse?*)
5. Remove fingers slowly, note colour of liquor (*page 5*)
6. FHR after contraction

⚠ *If HIV positive, wait till action line is crossed or cervix 7 cm dilated*

## \*\*\* OXYTOCIN AUGMENTATION

**Indications:** No previous scar, and less than 4 contractions per 10 min, each lasting less than 40 sec.

Latent phase: 12 hrs or more OR induction (*page 6*)

Active first stage: Action line crossed, cervix 5 cm or more, membranes ruptured for 1 hr

Second stage: 1 hr or more OR pushing 30 min or more

**Start dose:** IV Oxytocin 2.5 units in 500 ml Normal Saline or Ringer's Lactate, 10 drops per min

**Every 15 min:** FHR, contractions, Oxytocin drops per min

**Every 30 min:** Increase by 5-10 drops per min until 4 contractions in 10 min, each lasting more than 40 sec. Maintain this rate until delivery. Maximum 60 drops/min.

**Stop Oxytocin:** If more than 5 contractions in 10 min

## HYPERTENSION AND PRE-ECLAMPSIA / ECLAMPSIA

⚠️ *Guidelines only involve treatment during childbirth*

↑ **Systolic BP**  
**160 or more**  
 and/or  
 ↓ **Diastolic BP**  
**110 or more**  
 (mmHg)

**SEVERE Hypertension / Pre-eclampsia\*:**

**Medication (SLOWLY)** (*use specific treatment sheet*):  
 Antihypertensive\*\* AND Anticonvulsant\*\*\*

**Strict fluid balance:**

- Catheterize bladder (*fluid intake-output, proteinuria*)
- Urine output less than 30mL/hr: Stop Magnesium Sulphate. Start IV Ringer's Lactate 1L in 8 hrs
- Be careful with IV fluid (*risk of pulmonary oedema*)

**Plan for delivery within 12-24 hrs of admission:**

- Vaginal delivery is preferable. Induce (*page 6*) or augment (*page 7*) if necessary

**Assess every 30 min** (*use specific observation sheet*):

- Pulse, BP, RR, Temp, FHR, GCS, signs of organ failure or Magnesium Sulphate toxicity (*assess lungs, urine output, urine dipstick, patellar reflexes*)

**Convulsions (eclampsia):**

⚠️ *Convulsions are always treated as eclampsia until other diagnosis is confirmed*

- 1. CALL FOR HELP**
- 2. Airway and Breathing**
- 3. Position on left side and protect from injuries**
- 4. Insert IV lines**
- 5. Magnesium Sulphate SLOWLY\*\***
- 6. Oxygen if available**  
(*mask or nasal*)

← Additional management as for severe hypertensive disorders

↑ **Systolic BP**  
**140-159**  
 and/or  
 ↓ **Diastolic BP**  
**90-109**  
 (mmHg)

**MILD-MODERATE Hypertension / Pre-eclampsia\*:**

Ask and observe for symptoms of organ failure\*  
 Assess lungs, urine output, proteinuria, patellar reflexes  
 Reassess Pulse and BP every hr  
 FHR every 30 min

## \* DIAGNOSING PRE-ECLAMPSIA

### **MILD-MODERATE pre-eclampsia:**

Hypertension on 2 consecutive readings **AND**  
Proteinuria 2+ or more (*dipstick*)

### **SEVERE pre-eclampsia:**

Pre-eclampsia **AND**

Severe hypertension **OR** Symptoms of organ failure:

Persistent severe headache, Blurred vision,  
Persistent upper abdominal pain, Low urine  
production (*less than 30 ml/hr*), Breathlessness

## \*\* ANTIHYPERTENSIVE

### **HYDRALAZINE:**

**Dose:** IV 5 mg bolus **SLOWLY** over 10 min

**Repeat:** IV 5 mg bolus every 20 min until SBP less  
than 160 mmHg

**Maximum dose:** 20 mg per 24 hrs

If this regimen fails to control BP, consider sublingual  
nifedipine, IV labetalol or IV hydralazine infusion

⚠ *Diastolic BP should not fall below 80 mmHg*

⚠ *Observe closely: Hydralazine may cause low BP  
and foetal distress*

## \*\*\* ANTICONVULSANT

### **MAGNESIUM SULPHATE (50% solution):**

#### **Loading dose**

IV 4 g in 200 mL Normal Saline **SLOWLY** over 10 min  
In each buttock: IM 5 g **AND** 1 mL 2% Lignocaine in  
same syringe

#### **Maintenance dose:**

IM 5g **AND** 1mL 2% Lignocaine every 4 hrs, alternate  
buttocks

**Duration:** Continue dose for 24 HRS AFTER BIRTH OR  
LAST CONVULSION, whichever occurs last

#### **If convulsions while on maintenance dose:**

IV 2 g in 100 mL Normal Saline **SLOWLY** over 10 min

#### **Check for signs of toxicity before each dose:**

- Patellar reflexes diminished or absent
- RR less than 12 breaths per min

⚠ *Urinary output less than 30 ml per hr increases risk  
of Magnesium Sulphate toxicity*

**In case of toxicity:** Stop Magnesium Sulphate.

If RR less than 12 breaths per min:

IV Calcium Gluconate 1 gram (10 ml of 10% solution)  
over 3 min (immediately if heart arrest). Bag-mask  
ventilation if necessary.

## LOW BP OR LOW/HIGH PULSE RATE

↑ Systolic BP  
less than  
100 mmHg  
↓

or  
● Pulse more than  
110 bpm

or  
● Pulse less than  
60 bpm

**Immediate danger signs:**

- Systolic BP less than 90 mmHg (*SHOCK*)
- Unconscious *Convulsions* (page 8), severe bleeding (pages 14-15), sepsis\*
- Cardiac arrest: **START CARDIAC MASSAGE VENTILATION** (consider perimortem CS)

**Stabilizing care** (Airways, Breathing, Circulation)**Stop bleeding if any**

**Oxygen** if available (*by mask or nasal cannulae*)

**Elevate legs**

**Vital signs every 15 min:** Pulse, BP, RR, temp, vaginal blood loss, FHR, urine output

**Collect blood:** Haemoglobin, blood group, cross-match and clotting-test

**2 IV lines** (*wide bore cannula*): IV Normal Saline or Ringer's Lactate 2L in 20-40 min

**Catheterize bladder** (*fluid intake-output*)

**Find and manage cause:**

- |  |            |
|--|------------|
| 1. Bleeding ( <i>APH or PPH: page 14-15</i> )    | 4. Trauma  |
| 2. Magnesium Sulphate toxicity ( <i>page 8</i> ) | 5. Cardiac |
| 3. Sepsis*                                       | 6. Other   |

● Pulse 100-110  
bpm  
or FHR more than  
160 bpm

**Consider maternal infection OR dehydration OR bleeding?**

- Pulse, BP, RR, Temp, FHR every 15-30 min
- PV (*blood loss, foul smelling vaginal discharge*)
- Uterine pain?    - Sufficient fluid intake?

## HIGH TEMPERATURE DURING CHILDBIRTH (fever)

**Temp 38°C or more**

⚠️ *Chorioamnionitis causes risk of neonatal sepsis and maternal death*

**Start broad spectrum intravenous antibiotics until delivery, for instance (if not allergic):**

IV Ampicillin 2g every 6 hrs AND IV Gentamicin 5 mg per kg once daily

**Tablet Paracetamol 1 gram every 6 hrs**

**Pulse, BP, RR, FHR every 15-30 min. Temp hourly**

**Consider diagnosis and order relevant tests: (adjust treatment accordingly)**

For example: Foul-smelling watery discharge, uterine tenderness (*chorioamnionitis*)

Urinary dipstick testing (*UTI*), Flank pain (*Acute pyelonephritis*),

Auscultation of lungs (*Pneumonia*), Malaria, Sepsis\*

**Plan for delivery within 12 hrs:** Induce (*page 6*) or augment (*page 7*) if necessary

**Observation of the baby for 24 hrs after birth:** Feeding, pulse, RR and temp

## \* MATERNAL SEPSIS

⚠️ *Call for HELP and consider referral to the Intensive Care Unit*

### Symptoms:

Slurred speech or confusion, Extrême shivering or muscle pain (fever), Passing NO urine all day, Severe breathlessness, It feels like you are going to die, Skin mottled or discolored

### Management:

- Stabilizing care: Airways (*oxygen*), Breathing, Circulation
- IMMEDIATE identification of the cause (*remember blood cultures*)
- IMMEDIATE treatment of infection (*broad spectrum IV antibiotics*)
- IV lines (*wide bore cannula*): IV Normal Saline or Ringer's Lactate 2L in 20-40 min
- Every 15 min: Pulse, BP, RR, FHR
- Strict fluid balance (*urine output*)
- Assess lactate

⚠ *The following obstetric manoeuvres need hands-on training with supervision. These notes cannot replace that.*

## VAGINAL BREECH DELIVERY

### Recommendable if:

- Previous vaginal delivery **AND**
- No previous caesarean section **AND**
- No footling breech **AND**
- Estimated birthweight below 4 kilogram **AND**
- A health provider experienced with the procedure present

### Management of first stage of labour:

Routine management as for cephalic presentation (*page 3*), but FHR every 30 min.

Avoid Oxytocin augmentation in first stage of labour. If action line is crossed (*page 7*), decide on CS.

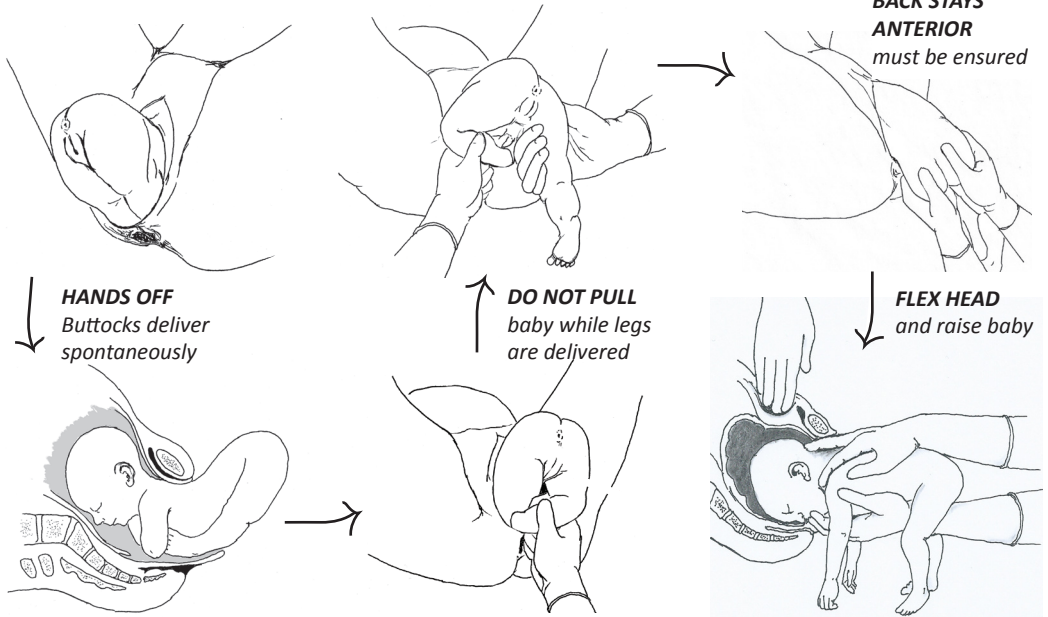
### Management of second stage of labour:\*

⚠ *Maximum 2 hrs duration of second stage*

- 1. Oxytocin augmentation should be ready** if contractions not strong in second stage (*page 7*)
- 2. Buttocks deliver spontaneously**
- 3.** If legs not delivered spontaneously, deliver one leg at a time: Push behind knee to bend leg, grasp ankle, deliver foot and leg.
- 4. Hold baby by the hips** with thumbs along spine. Do not pull. No pressing on abdomen.
- 5. Allow arms to disengage spontaneously** one by one. After first arm, lift baby's belly towards mother's belly to enable second arm to deliver.
- 6. Let the head descend to pelvic floor for maximum 30 seconds** before assisting delivery of the head.
- 7. Deliver head:** Lay baby's face down with length of its body over your hand and arm. Place fingers on baby's cheekbones to **flex head**. Fingers of the other hand help to flex head from the occiput. Raise baby, until mouth and nose are free.

\* VAGINAL BREECH DELIVERY - OBSTETRIC MANEUVERS

▲ **Maximum 3 min duration** from baby's umbilicus is visible to delivery of the head



⚠️ *The following obstetric manœuvres need hands-on training with supervision. These notes cannot replace that.*

## DELIVERY OF SECOND TWIN

### Immediately after first baby is born:

- Palpate abdomen to determine lie
- Correct to longitudinal lie by hands on abdomen  
(assistant holds baby in position until delivery)
- Check FHR

- PV:**
- Cord prolapsed?
  - Membranes ruptured?
  - Presentation?

### Leave clamp on mother's end of umbilical cord

⚠️ *Do not deliver placenta until last baby is born*

**Oxytocin infusion should be ready** for augmentation if contractions are not strong (page 7)

**If breech**, Vaginal breech delivery (page 10)

**ARM** if membranes are intact and baby well engaged (page 7)

**FHR** at the end of each contraction

⚠️ **If immediate delivery needed:** Internal podalic version with breech delivery, or vacuum extraction. CS is last option and should be done IMMEDIATELY

## SHOULDER DYSTOCIA (HELPER mnemonic)

- H** Call for HELP! Always at least **3 health providers**
- E** Evaluate if episiotomy is needed
- L** Legs up\* (McRoberts: 2 people push flexed knees firmly onto chest by flexion of hips)
- P** Suprapubic Pressure\* downwards to assist delivery of baby's shoulder
- E** Enter vagina and do rotational maneuvers:\*
  - apply pressure to baby's anterior shoulder in direction of sternum
  - if not working, apply pressure to baby's posterior shoulder in direction of sternum
- R** Remove the baby's posterior arm\*
  - grasp arm at humerus, keep arm flexed at elbow and sweep arm across baby's chest
- R** Roll patient to her hands and knees and repeat **E** and **R**

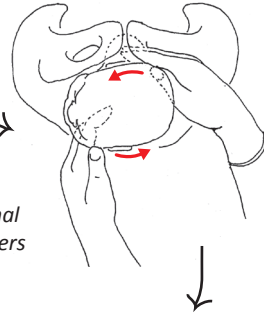
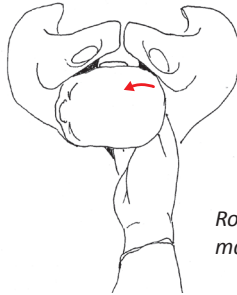
⚠️ *Do not apply fundal pressure. This will further impact the shoulder*



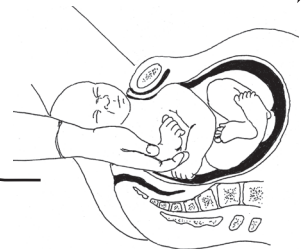
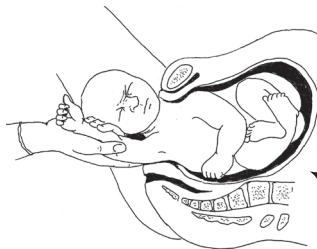
\* SHOULDER DYSTOCIA - OBSTETRIC MANEUVERS



*Legs up and suprapubic pressure*



*Rotational maneuvers*



*Remove baby's posterior arm*

## VACUUM EXTRACTION

**Most important indications:**

Foetal distress in second stage of labour (*page 5*)

Poor progress in second stage of labour (*page 7*)

Maternal exhaustion

**⚠** *If the procedure is not possible or fails, CS should be performed IMMEDIATELY*

**Required beforehand:**

1. Cervix fully dilated
2. Vertex presentation, membranes ruptured
2. Foetal head at or below ischial spines (*PV: stations 0, +1, +2, +3. Abdominal: levels 2/5, 1/5, 0/5*)
3. Gestational age 34 weeks or more
4. Birth attendant trained in vacuum extraction

**The A-J approach to vacuum extraction:**

**A** Ask for help

Address the patient

*(inform that you need patient to cooperate and keep pushing when there is contraction)*

Abdominal Palpation (*descent of head*)

**B** Bladder is empty?

**C** Cervix must be fully dilated

Contractions are needed (*Oxytocin needed? Page 7*)

**D** Determine position of the head assess Descent

*(locate the posterior triangular fontanel)*

**E** Equipment ready?

*(delivery tray, towels, neonatal resuscitator, vacuum extractor)*

**F** Flexion point\* must be located

Feel for vaginal tissue between cup and foetal skull to avoid perineal trauma (*before and after suction*)

**G** Gentle, steady traction during contractions\*\*

**H** HALT traction between contractions

HALT and STOP if: - 3 pop-offs  
- 3 pulls with no progress  
- After 20 min of use

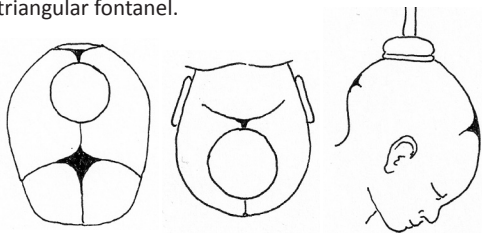
**I** Intact perineum! Protect perineum with one hand when head is delivered.

During last contraction: Hold back head with the other hand, and ask mother to push gently

**J** When reachable Jaw: Release vacuum, remove cup

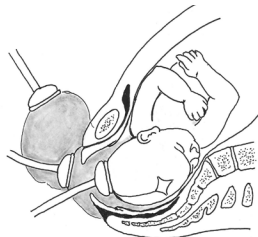
## \* FLEXION POINT

Place the edge of the cup at the tip of the posterior triangular fontanel.



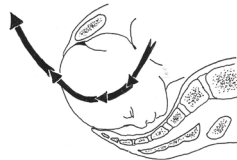
⚠ *To avoid vaginal and perineal trauma, and minor trauma to the head of the baby: Feel for vaginal tissue between cup and foetal skull, and protect perineum*

## \*\* TRACTION

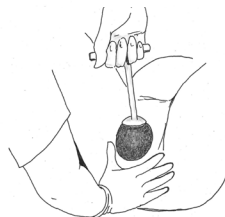


Axis for traction changes according to the pelvic curve.

⚠ *Gentle, steady traction during contractions. **No rocking pulls***



For first contractions downward traction. During following contractions more upward.



One hand protects perineum while completing delivery. During last contraction, ask mother to push gently and hold back head with other hand.

## DECIDING ON EMERGENCY CS - *a few notes*

### Most common indications for CS

- Foetal distress (*see specific criteria on page 5*)
- Prolonged labour (*see specific criteria on page 7*)
- 2 or more previous CSs

### In second stage of labour

Vacuum extraction should always be considered before deciding on CS (*page 12*).

### Contraindications for CS

If the woman is medically unstable (*for example severe hypertension*), the maternal condition is stabilized first, and delivery considered only for obstetric indications.

CS after foetal death is generally unnecessary and dangerous for the mother, and must only be performed as last option, or if severe maternal compromise.

**⚠** Check FHR just before starting surgery, and reconsider CS's indication if foetal death

### Maximum time from decision to delivery by CS



**If foetal or maternal compromise:**

**30 minutes**

*(for example foetal distress, cord prolapse with pulsating cord, severe bleeding)*



**If no maternal or foetal compromise, but early delivery is needed:**


**75 minutes**

*(for example poor progress of labour, 2 or more previous CSs, placenta previa without heavy bleeding)*

## VAGINAL BIRTH AFTER CS (trial of scar)

### Plan for vaginal birth when

Only 1 previous low segment CS **AND**  
no previous uterine rupture **AND**  
current pregnancy singleton, cephalic presentation

 *FHR abnormalities might be the first sign of impending uterine scar rupture (page 5)*

### Special management

Due to risk of scar rupture:

- 2 IV lines
- Urinary catheter
- FHR every 15-30 min throughout active labour
- Follow labour progress closely
- Do **not** use Misoprostol or Oxytocin

BLEEDING IN LATE PREGNANCY OR DURING CHILBIRTH ⚠️ APH also causes increased risk of PPH (page 15)

### 1. Check maternal vital signs: Pulse, BP, Temp

See page 9 if:

- Systolic BP less than 100 mmHg OR
- Pulse less than 60 bpm OR
- Pulse more than 110 bpm

### 2. Blood type, X-match and haemoglobin

### 3. Determine the cause and manage accordingly\*

- Blood volume?
- (if heavy bleeding, see also page 9)
- Pain?
- FHR?
- Ultrasound to rule out placenta previa

⚠️ No PV before placenta praevia is ruled out (by ultrasound or gentle speculum exam)

### 4. Measure blood loss and replace accordingly:

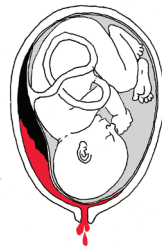
2-3 times estimated blood loss

⚠️ Early blood replacement saves lives

### Abruptio placenta\*



Concealed bleeding



Vaginal bleeding

### Placenta praevia\*



Partial



Complete

### **ABRUPTIO PLACENTA**

*(placenta separates too early)*

#### **Typical symptoms:**

- Vaginal bleeding  
*(might be hidden in uterus)*
- Intermittent or constant abdominal pain
- Tender uterus
- Low/absent FHR

#### **Heavy bleeding OR foetal distress:**

**DELIVER IMMEDIATELY**

Vacuum extraction (*page 12*), otherwise CS.

#### **Mild-moderate bleeding AND**

**FHR normal:**

Vaginal delivery within 12 hrs  
FHR every 15-30 min  
Induce (*page 6*) or augment (*page 7*) if necessary.

### **PLACENTA PRAEVIA**

*(placenta covers internal os of cervix)*

#### **Typical symptoms:**

- Bleeding
- No pain
- Relaxed uterus
- Foetus not in pelvis
- Normal foetal condition

#### **If 37 weeks gestation or more OR heavy bleeding:**

**DELIVER IMMEDIATELY**

If internal cervical os not covered, consider vaginal delivery.  
Otherwise CS.

#### **If premature AND mild bleeding AND normal FHR:**

Expectant management, admitted in hospital with close observation

### **RUPTURED UTERUS**

#### **Typical early symptoms:**

- Low/absent FHR
- High maternal pulse
- Blood in urine
- Tender abdomen
- Vaginal bleeding  
*(might be in peritoneal cavity)*

#### **Typical late symptoms:**

- Abdominal distension (*free fluid*)
- Abnormal shape of uterus
- Loss of station  
*(foetal head goes up)*
- Shock

#### **Resuscitate and restore blood volume:**

Crystalloids 2-3 litres fast

#### **THEATRE IMMEDIATELY:**

Laparotomy (*uterine repair or hysterectomy*)

BLEEDING AFTER BIRTH (*exceeding 500 ml, or less if severe anaemia*)

### 1 PERSON AT UTERUS:

- Rub-up contraction by **CONTINUAL UTERUS MASSAGE**
- **Catheterise bladder**  
(*leave catheter in place*)
- If uterus still atonic, apply **BIMANUAL COMPRESSION** or aortic compression.\*\*
- Review bleeding cause by **the 4 Ts\***
- **If bleeding continues: Transfer early to theater**  
(*with bimanual or aortic compression*)\*\*  
Examination under anesthesia:  
suture tears, balloon tamponade,  
laparotomy (*B-lynch' brace suture, hysterectomy*)

### 1 PERSON AT HEAD:

- Lie woman flat
- Check **airways and breathing**
- Give oxygen if available
- Talk to patient, reassure

**⚠ CALL for HELP!** Always be at least 3 health providers

### 1 PERSON AT ARMS:

- **2 IV lines** (*large bore cannula into each elbow pit*) and **X-match**
- **Order 6 units of whole blood**
- Start **IV-fluids** (*2L Normal Saline or Ringer's Lactate*)
- Give **3 drugs** at once to reverse atony (*not in sequence*):  
**IV Oxytocin** 20 IU in 500 ml Normal Saline, 250 ml per hr  
**IV Tranexamic acid** 1 gram slowly (*can be repeated after 30 min*)  
**Rectal Misoprostol** 800 microgram
- Check **pulse, BP**
- **Blood transfusion** AND IV fluids if blood loss 1 L or more
- If still bleeding, and BP below 140/90 mmHg: SLOW bolus of **IV Ergometrine** 0.2 mg (*can be repeated after 15 min*)



**TONE:**

Atony of uterus is the most common cause

**TISSUE:**

Is placenta complete?

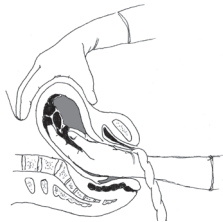
Always do intrauterine palpation if bleeding exceeds 1000 ml

**TRAUMA:**

Tears, episiotomy, ruptured uterus

**THROMBIN:**

Coagulation problems secondary to severe bleeding



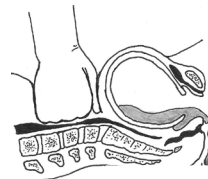
Manual removal of placenta

⚠ After bleeding stops:  
**24 hrs of close observation**

⚠ *Keep compression until bleeding stops*



Bimanual compression



Aortic compression



⚠ *Palpate femoral pulse to assess effect of aortic compression: Femoral pulse must disappear*

NEONATAL RESUSCITATION ⚠️ *Always have ambu bag ready before delivery*

**CALL for HELP!** Always be at least **2 health providers**

### All newborns

- Dry and warmth

### If baby not crying

- If obvious obstruction of airways: QUICKLY and gently clean or suction mouth and nose (*do not spend more than 10 sec on this*)
- Stimulate by rubbing the baby's back
- Is baby breathing?

### If baby not breathing

- **START BAG-MASK VENTILATION IMMEDIATELY, WITHIN THE FIRST 1 MIN AFTER BIRTH \***

- **If baby's heart rate is 60 bpm or more:**  
Continue ventilation until normal breathing
- **If baby's heart rate is less than 60 bpm:**  
Give cycles of 1 EFFECTIVE breath for every 3 chest compressions. Reassess heart rate every 1-2 min

### ⚠️ THE GOLDEN MINUTE

*The first 60 seconds of life is the most important for saving the baby*  
*If not breathing, bag-mask ventilation must be started within the first minute*

⚠️ *Only suction if obvious obstruction of airways. Suction should never delay bag-mask ventilation*

⚠️ *How is the mother? Mothers of asphyxiated babies are at increased risk of PPH (page 15)*

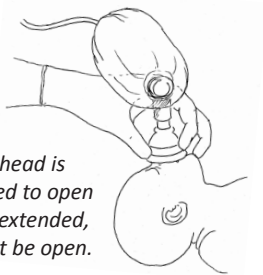


## \* BAG-MASK VENTILATION AND HEART RATE

⚠ *Bag-mask ventilation needs hands-on training with supervision. These notes cannot replace that*

### 1 person ventilate:

- Remember to position the baby's neck for adequate airway
- 40 breaths per minute
- Use air, not ox



*Position of the head is slightly extended to open airways. If too extended, airways will not be open.*

### 1 person assess baby's heart rate:

- Palpate the umbilical stump or auscultate heart
- If heart rate is increasing, the bag-mask ventilation is working

## \*\* AFTER SUCCESSFULL RESUSCITATION

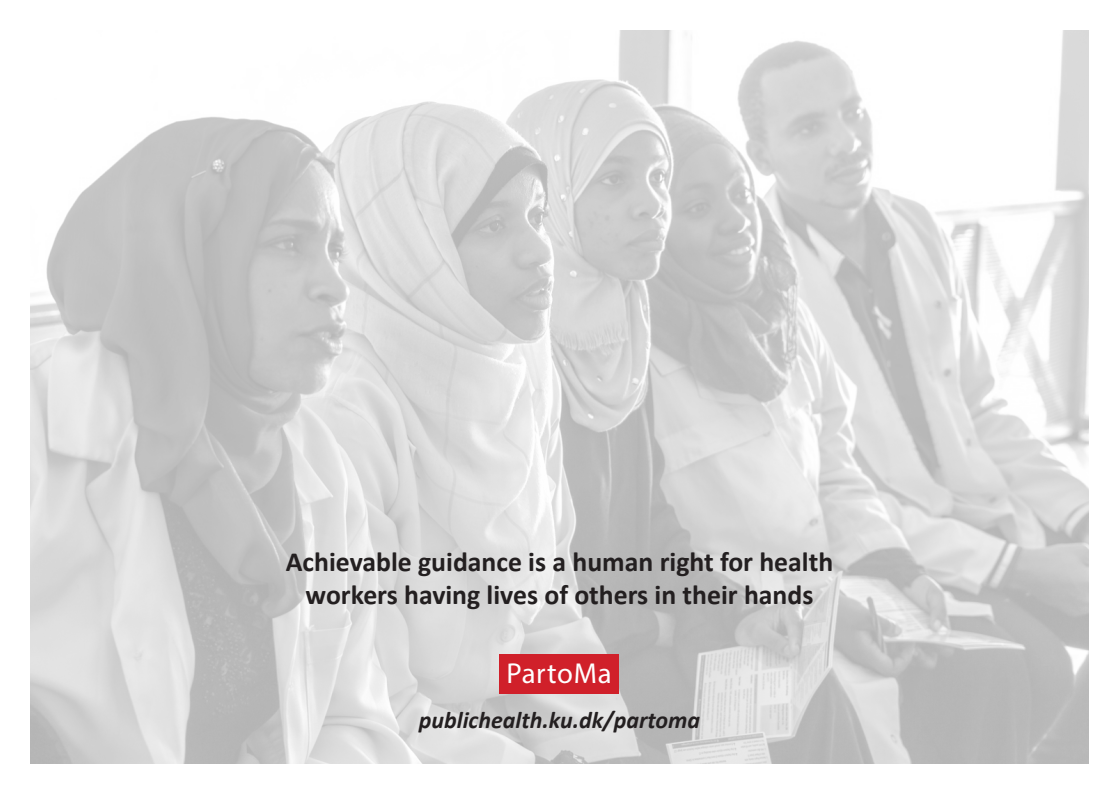
⚠ *For all babies admitted to Neonatal Intensive Care Unit, a handover sheet should be filled in*

After successful resuscitation of an asphyxiated baby, the baby is at risk for hypothermia and hypoglycemia. Therefore:

**1. Skin-to-skin with mother** (page 4)

**2. Assure good breastfeeding**

If not, give cupfeeding  
or insert nasogastric tube (NGT)



**Achievable guidance is a human right for health workers having lives of others in their hands**

**PartoMa**

*[publichealth.ku.dk/partoma](http://publichealth.ku.dk/partoma)*