

# EARLY ESSENTIAL NEWBORN CARE

Clinical practice pocket guide



*Second edition*



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## FOREWORD

Newborn deaths account for close to half of under-5 child mortality in the Western Pacific Region. Most are preventable with simple and cost-effective interventions. The *Action Plan for Healthy Newborn Infants in the Western Pacific Region (2014–2020)*, developed by the WHO Regional Office for the Western Pacific and UNICEF’s East Asia and Pacific Regional Office in 2013, identifies key actions Member States and development partners can take to improve the quality of childbirth and newborn care, focusing on Early Essential Newborn Care (EENC).

Since 2013, nine Member States in the Region have initiated and scaled up EENC, resulting in significant improvements in practices including immediate and prolonged skin-to-skin contact, early and exclusive breastfeeding, and Kangaroo Mother Care for preterm- and low-birthweight babies. Critical to this success have been new approaches to improving care using clinical coaching and regular collection and use of data. Scaling up EENC embodies the principles that are central to *For the Future*, our vision of making the Western Pacific the healthiest and safest region in the world. This vision places country priorities, systems-based thinking and “grounds up” solutions at the forefront of all we do.

The first edition of the *Early Essential Newborn Care: Clinical Practice Pocket Guide* was published in 2014, providing practical, step-by-step guidance on WHO-recommended care for mothers and newborn infants during labour through the early postnatal period. The Pocket Guide has since become an important resource both regionally and globally, with many countries adapting and translating it for local use.

This second edition has been updated to reflect the latest WHO recommendations and practical guidance to support health workers.

With our collective will and sustained efforts, together we can realize the vision for every newborn infant to have a healthy start to life.



Takeshi Kasai, MD, Ph.D.  
Regional Director

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Special gratitude is owed to Kalusugan ng Mag-Ina (KMI), Philippines and its President, Dr Maria Asuncion Silvestre who incorporated the changes and prepared the first draft of the *Clinical Practice Pocket Guide*; and to Ms Anne Guilloux who was responsible for layout, formatting and final editing.



## ABBREVIATIONS

ART	antiretroviral therapy
BCG	bacille Calmette-Guérin ( <i>vaccine</i> )
BP	blood pressure
EENC	Early Essential Newborn Care
Hb	haemoglobin
HR	heart rate
ID	intradermally
IM	intramuscular
IMCI	Integrated Management of Childhood Illness
IU	International Unit
IV	intravenous
KMC	Kangaroo Mother Care
LBW	low birthweight
mmHg	millimetres of mercury
NGT	nasogastric tube
PR	pulse rate
pPROM	preterm pre-labour rupture of membranes
RPR	rapid plasma reagin
RR	respiratory rate
SSC	skin-to-skin contact

VLBW	very low birthweight
UNICEF	United Nations Children's Fund
VDRL	Venereal Research Disease Laboratory
WHO	World Health Organization

The International System of Units (SI) gives standard units for the measurement of:

– degree Celsius	.....	°C
– hour	.....	h
› minute	.....	min
› second	.....	s
– gram	.....	g
› centigram	.....	cg
› milligram	.....	mg
› microgram	.....	µg
– metre	.....	m
› centimetre	.....	cm
› millimetre	.....	mm
– litre	.....	L
› centilitre	.....	cL
› millilitre	.....	mL
› microlitre	.....	µL
– international unit	.....	IU

# RATIONALE, PURPOSE AND INTENDED USERS

## Rationale

Approximately every two minutes, a neonate dies in the World Health Organization (WHO) Western Pacific Region. The majority of newborn deaths occurs within the first few days of birth, mostly from preventable causes. The high mortality and morbidity rates in newborns are often related to inappropriate hospital practices that occur throughout the Region. The first edition of the *Early Essential Newborn Care Clinical Practice Pocket Guide* was developed by the WHO Regional Office for the Western Pacific in 2014 to support countries in introducing and scaling up Early Essential Newborn Care (EENC).

This second edition incorporates new WHO evidence-based guidelines on labour, delivery and immediate postpartum care.

## Purpose

This Guide is intended to provide health professionals with a portable summary of globally accepted evidence-based guidelines for essential newborn care focusing on the first hours and days of life.

## Intended users

This step-by-step Guide can be used in all health-care settings by skilled birth attendants (midwives, nurses and doctors) who care for newborns.

These standard practices should be the foundation of care in both normal and emergency contexts.





# DEVELOPMENT OF THE “EARLY ESSENTIAL NEWBORN CARE” POCKET GUIDE

The text and clinical algorithms of the 2022 EENC Pocket Guide have been updated using recent WHO recommendations on maternal health: guidelines approved by the WHO Guidelines Review Committee (<https://apps.who.int/iris/handle/10665/259268>).

## *Organization of the Clinical Practice Pocket Guide for Early Essential Newborn Care in the Western Pacific Region*

This Guide is organized sequentially from preparing the delivery area through childbirth and postnatal care, including:

- ▶ 1. Preparing for a birth:  
Intrapartum care for a positive childbirth experience
- ▶ 2. Immediate newborn care: the first 90 minutes
- ▶ 3. Care from the first 90 minutes to 6 hours
- ▶ 4. Care prior to discharge (after the first 90 minutes)
- ▶ 5. Care from discharge to 6 weeks
- ▶ 6. Additional care
  - A. Newborn resuscitation
  - B. Care of a small baby (or twin)
  - C. Dealing with feeding problems
- ▶ 7. Setting up the environment for good neonatal care
  - A. Preparing for shifts
  - B. After every delivery
  - C. Standard precautions
- ▶ 8. Equipment and supplies maintenance checklist

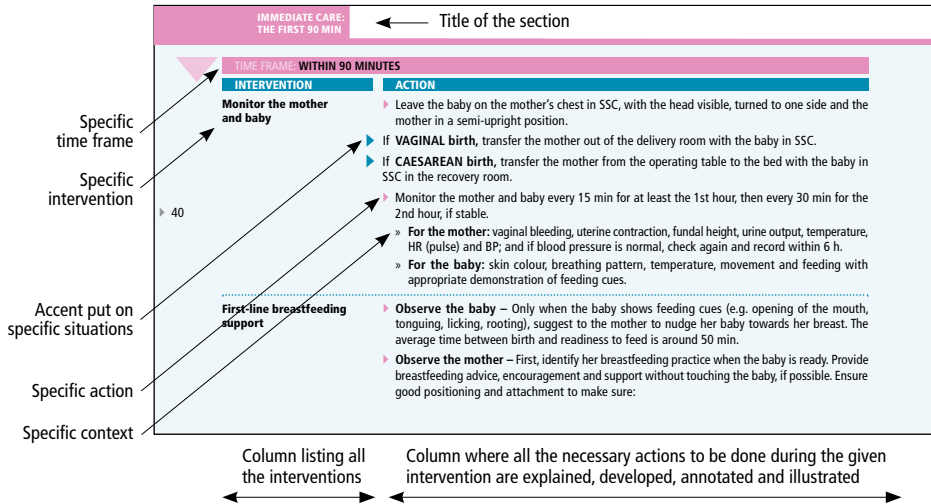
*The eight sections have a specific colour tab for easy reference, and can be divided into different time frames.*

## HOW TO USE THE GUIDE

This *Clinical Practice Pocket Guide* is organized chronologically.

It guides health workers through the standard precautions for essential newborn care practices, beginning at the intra-partum period – with the process of preparing the delivery area – and emphasizing care practices in the first hours and days of a newborn’s life.

On each page, the colour tab defines the overall time frame you are in, unless otherwise specified when the time frame is divided.



# 1. Preparing for a birth

## FIRST STAGE OF LABOUR: INTERVENTIONS

*From page 6 to page 21*

- ▶ **Algorithm 1: Preparing for a birth** 4
- ▶ **Conduct an initial assessment** 6
- ▶ **Confirm active first stage of labour** 7
- ▶ **Provide general care** 7
- ▶ **Provide acute care if needed** 8
- ▶ **Manage elevated blood pressure** 10
  - Classification and diagnosis of pregnancy-associated hypertension* 12
  - Magnesium sulfate regimens for severe (pre-) eclampsia* 14
- ▶ **Give magnesium sulfate for fetal neuroprotection** 16
- ▶ **Give corticosteroids to reduce complications of prematurity** 16
- ▶ **Prevent or treat infection** 17
- ▶ **Manage unsatisfactory progress of labour** 18

## SECOND STAGE OF LABOUR: INTERVENTIONS

*From page 22 to page 26*

- ▶ **Prepare to deliver the baby** 23
- ▶ **Support delivery of the baby (perineal phase)** 24
- ▶ **Manage prolonged expulsive phase** 25

## Intrapartum care for a positive childbirth experience<sup>1</sup>

### Throughout labour and birth:

- ▶ Provide respectful care to the woman that maintains her dignity, privacy and confidentiality.
- ▶ Ensure her freedom from harm and mistreatment.
- ▶ Enable informed choice and continuous support.
- ▶ Use simple and culturally acceptable language.
- ▶ Allow companion(s) of choice for all women.

1. World Health Organization (WHO) recommendations: Intrapartum care for a positive childbirth experience. Geneva: World Health Organization; 2018 (<https://apps.who.int/iris/handle/10665/260178>).

## DEFINITIONS: FIRST STAGES OF LABOUR

### – LATENT FIRST STAGE OF LABOUR

The latent first stage of labour is a period characterized by painful uterine contractions and variable changes of the cervix, including some degree of effacement and slower progression of dilatation up to 5 cm for the first and subsequent labours.

Women should be informed that the duration of the latent first stage can vary widely from one woman to another.

### – ACTIVE FIRST STAGE OF LABOUR

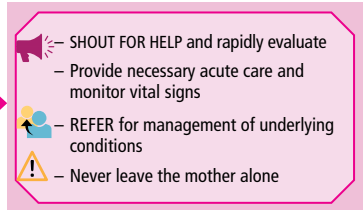
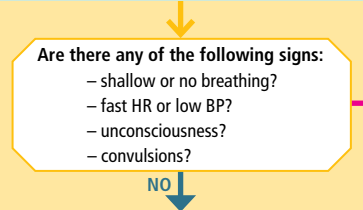
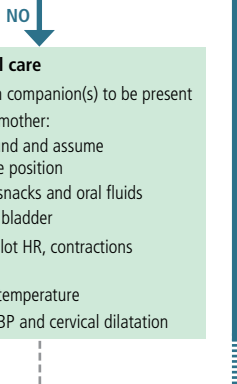
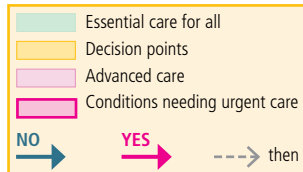
The active first stage of labour is a period characterized by regular painful uterine contractions, a substantial degree of cervical effacement and more rapid cervical dilatation from 5 cm until full dilatation for first and subsequent labours. The duration of the active first stage usually does not extend beyond 12 h in first labours and 10 h in subsequent labours.

For pregnant women with spontaneous labour, the cervical dilatation rate threshold of 1 cm per hour during active first stage (as depicted by the partograph alert line) cannot identify normal labour progression. A slower than 1 cm per hour cervical dilatation rate alone should not be an indication for obstetric intervention.

Labour may not naturally accelerate until a cervical dilatation threshold of 5 cm is reached. The use of medical interventions to accelerate labour and birth (such as oxytocin augmentation or caesarean section) before this threshold is not recommended, provided fetal and maternal conditions are reassuring.

# Algorithm 1: Preparing for a birth

- \* Introduce yourself to the mother
- \* Obtain her pregnancy history and birth plan
- \* Check her lab results (e.g. Hb, syphilis, hep B, HIV)
- \* Identify her companion(s) of choice
- \* Perform proper handwashing
- \* Check her BP, HR, RR, temperature and skin for pallor
- \* Assess fetal HR
- \* Assess presence of labour and stage. **DO NOT** do a vaginal exam if there is vaginal bleeding
- \* Fill out WHO partograph if cervix  $\geq 5$  cm dilated



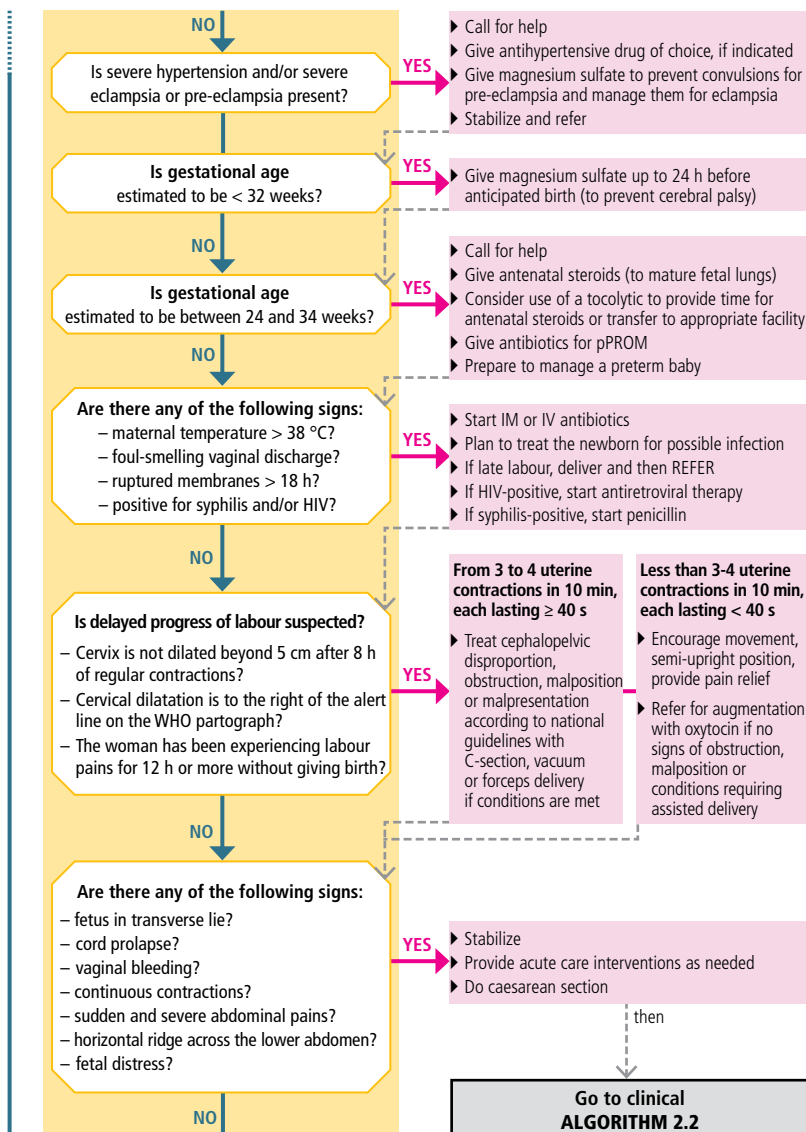
### Prepare for the birth

- \* Ensure that the delivery room temperature is between 25 and 28 °C
- \* Ensure the mother's privacy
- \* Introduce yourself to the mother and her companion(s)
- \* Perform proper handwashing
- \* Arrange instruments and other needs PLUS 0.5% chlorine solution in a basin for decontamination
- \* Place a dry cloth on the mother's abdomen or within easy reach
- \* Prepare the newborn resuscitation equipment and area

### At perineal bulging prior to delivery

- \* Perform proper handwashing
- \* Put on two sets of sterile gloves (if there is a sole birth attendant)
- \* Encourage position of mother's choice including side-lying and upright positions
- \* Encourage the mother to follow her own urge to push
- \* Support the perineum
- \* DO NOT apply manual fundal pressure
- \* DO NOT perform routine episiotomy

then  
Go to clinical  
**ALGORITHM 2.1**



# 1. Preparing for a birth

TIME FRAME: ACTIVE FIRST STAGE OF LABOUR (10–12 HOURS)

## INTERVENTION

### Conduct an initial assessment

## ACTION

- ▶ Introduce yourself to the woman.
- ▶ Obtain her pregnancy history and birth plan.
- ▶ Obtain informed consent for all procedures.
- ▶ Check results of the woman's laboratory tests, including haemoglobin, syphilis – rapid plasma reagin (RPR) or Venereal Disease Research Laboratory (VDRL) – and HIV test results.
- ▶ Identify her companion(s) of choice.
- ▶ Perform proper handwashing.
- ▶ Use gloves and other protective and sterile equipment according to national standards.
- ▶ Examine the woman, check for pallor and take her blood pressure (BP), heart rate (HR), respiratory rate (RR), temperature and urine.
- ▶ Assess fetal HR.



### Confirm active first stage of labour

See NOTES, page 21

- ▶ **IF there is no vaginal bleeding**, wash your hands, put on sterile gloves and do an internal exam:
  - ▶ Determine whether the cervix is  $\geq 5$  cm dilated.
  - ▶ Fill out partograph.<sup>a</sup>
  - ▶ Perform digital vaginal examination at intervals of 4 h for routine assessment of the active first stage of labour in low-risk women. The mother's or baby's condition may warrant more frequent examinations.
    - » Restrict the frequency and total number of vaginal examinations where there are risk factors for infection (e.g. prolonged rupture of membranes and long duration of labour).

### Provide general care

- ▶ Encourage birth companion to be present.
- ▶ Encourage the woman:
  - » to move around and assume a comfortable position,
  - » to eat and drink as needed, and
  - » to empty her bladder frequently.
- ▶ Every 30 min, plot HR, contractions and fetal HR.
- ▶ Every 2 h, plot temperature.
- ▶ Every 4 h, plot BP and cervical dilatation.

INTERVENTION

Provide general care  
*(continued)*

ACTION

- ▶ DO NOT do routine perineal/pubic shaving prior to giving birth. Allow the woman to decide whether to shave or not, and advise her to do so wherever and by whomever she is most comfortable with (e.g. at home shortly before the time of labour and birth).

Provide acute care,  
if needed

- ▶ **IF the woman is not breathing**, has shallow breathing, has a fast pulse and low BP, vaginal bleeding or is unconscious or convulsing:



- ▶ SHOUT FOR HELP. Urgently mobilize all available staff.
- ▶ Rapidly evaluate the woman's general condition.
- ▶ Monitor vital signs (pulse, blood pressure, respiration, temperature).
- ▶ If the woman is not breathing or her breathing is shallow:
  - » check airway and intubate if required, and
  - » if she is not breathing, assist ventilation using an Ambu bag and mask or endotracheal tube, and give oxygen at 4–6 L/min.

- ▶ **IF the woman is breathing**, give oxygen at 1–3 L/min by mask or nasal cannula:

- ▶ START an intravenous (IV) infusion (two, if possible) using a large-bore (16-gauge or largest available) cannula or needle.



NEVER LEAVE  
THE WOMAN ALONE

Provide acute care,  
if needed *(continued)*

- ▶ Collect blood for haemoglobin, do immediate cross-match and bedside clotting tests.
- ▶ Catheterize the bladder; monitor fluid intake and output.



- ▶ REFER for management of underlying conditions.

▶ **IF the woman is unconscious:**

- » position her on her left side,
- » check pupils, and
- » check for neck rigidity.

▶ **IF the woman is convulsing:**

- » position her on her left side to reduce the risk of aspiration of secretions, vomit and blood,
- » protect her from injuries (fall), but do not restrain, and
- » **if eclampsia is diagnosed**, give magnesium sulfate.

▶ **IF there is vaginal bleeding:**

- ▶ DO NOT do a vaginal examination. Exclude placenta praevia, abruption placentae or ruptured uterus, and manage underlying condition.

INTERVENTION

Manage elevated  
blood pressure

See NOTES, page 21

See NOTES, page 21

See NOTES, page 21

See NOTES, page 21

ACTION


- ▶ **IF non-severe pre-eclampsia:** two readings of systolic BP 140–159 mmHg and/or diastolic BP 90–109 mmHg 4 h apart and proteinuria 2+ with no other symptoms or signs:
  - » monitor blood pressure and urine output,
  - » monitor for danger signs of severe pre-eclampsia,<sup>b</sup> and
  - » induce or augment labour.
  
- ▶ **IF severe pre-eclampsia:** two readings of systolic BP  $\geq$  160 mmHg, and/or diastolic BP  $\geq$  110 mmHg and proteinuria 2+ and/or symptoms and signs.<sup>b</sup>  
**or**
- IF eclampsia** (signs and symptoms of severe pre-eclampsia plus convulsions):<sup>b</sup>
  - ▶ START an IV infusion.
  - ▶ Administer magnesium sulfate (see pages 14–16).
  - ▶ Monitor vital signs hourly (pulse, BP, respiration and pulse oximetry), reflexes, fetal HR.
  - ▶ Give antihypertensive drugs if BP remains high.<sup>c</sup>
  - ▶ Catheterize the bladder to monitor urine output.
  - ▶ Keep a strict fluid balance chart to prevent fluid overload.
    - » If urine output is less than 30 mL/h: withhold magnesium sulfate and infuse IV fluids (normal saline or Ringer's lactate) at 1 L in 8 h.

## Manage elevated blood pressure

(continued)



NEVER LEAVE  
THE WOMAN ALONE

- ▶ Monitor for pulmonary oedema (increased respiratory rate and/or work of breathing, rales).
- ▶ Auscultate the lung bases hourly for rales indicating pulmonary oedema.
  - » If rales are heard, withhold fluids and administer furosemide 40 mg IV once.
- ▶ Assess clotting status with a bedside clotting test. Failure of a clot to form after 7 min or a soft clot that breaks down easily suggests coagulopathy.
  - » Monitor carefully.
- ▶ **Expedite the birth:**
  - » If vaginal birth is not anticipated within 12 h (eclampsia) or 24 h (severe pre-eclampsia), perform caesarean section.
  - » If there are fetal HR abnormalities (between 100 and 180 beats/min), perform caesarean section.
- ▶  **Consider referral for tertiary care if:**
  - » severe pre-eclampsia and maternal and fetal well-being cannot be adequately monitored,
  - » full dose of magnesium sulfate or antihypertensives cannot be given,
  - » uncontrolled hypertension despite treatment,
  - » urgent caesarean section cannot be performed,
  - » HELLP-syndrome (haemolysis, elevated liver enzymes and low platelets) coagulopathy,
  - » persistent coma > 24 h after a convulsion, or
  - » oliguria that persists for 48 h after giving birth.

**CLASSIFICATION AND DIAGNOSIS OF PREGNANCY-ASSOCIATED HYPERTENSION** <sup>d</sup> (see Notes on page 21)

**GESTATIONAL  
HYPERTENSION**

- ▶ Two readings taken 4 h apart after 20 weeks of gestation:
    - » systolic BP  $\geq$  140 mmHg, but  $<$  160 mmHg, and/or
    - » diastolic BP  $\geq$  90 mmHg, but  $<$  110 mmHg.
- No proteinuria, no features of pre-eclampsia.

**PRE-ECLAMPSIA**

- ▶ Two readings taken 4 h apart after 20 weeks of gestation:
    - » systolic BP  $\geq$  140 mmHg, but  $<$  160 mmHg, and/or
    - » diastolic BP  $\geq$  90 mmHg, but  $<$  110 mmHg.
- Proteinuria 2+ on dipstick.

**SEVERE  
PRE-ECLAMPSIA**

- ▶ Systolic BP  $\geq$  160 mmHg and/or diastolic BP  $\geq$  100 mmHg after 20 weeks of gestation.  
Proteinuria 2+ on dipstick.
- ▶ Sometimes present are:
  - » headache (increasing frequency, unrelieved by regular analgesics),
  - » vision changes (e.g. blurred vision),
  - » oliguria (passing less than 400 mL urine in 24 h),
  - » upper abdominal pain (epigastric pain or pain in right upper quadrant),
  - » difficulty breathing (rales on auscultation of lungs due to fluid in lungs),



## SEVERE PRE-ECLAMPSIA

*(continued)*

- » nausea and vomiting, or
- » hyperreflexia or clonus.
- ▶ In facilities with laboratory capacity:
  - » liver enzymes (transaminases) more than twice the normal range;
  - » serum creatinine higher than 1.1 mg/dL or a doubling, or higher, of the baseline serum creatinine concentration in the absence of other renal disease; or
  - » platelets < 100 000 cells/ $\mu$ L ( $100 \times 10^9/L$ ).

## ECLAMPSIA

- ▶ Convulsions
- ▶ Systolic BP  $\geq 140$  mmHg or diastolic BP  $\geq 90$  mmHg after 20 weeks of gestation.
- ▶ May also present with coma and other symptoms and signs of severe pre-eclampsia.

## CHRONIC HYPERTENSION

- ▶ Systolic BP  $\geq 140$  mmHg and/or diastolic BP  $\geq 90$  mmHg before 20 weeks of gestation.

## CHRONIC HYPERTENSION WITH SUPERIMPOSED PRE-ECLAMPSIA

- ▶ Systolic BP  $\geq 140$  mmHg and/or diastolic BP  $\geq 90$  mmHg before 20 weeks of gestation.
- ▶ After 20 weeks:
  - » proteinuria 2+ on dipstick, and
  - » presence of any pre-eclampsia features.

## MAGNESIUM SULFATE REGIMENS FOR SEVERE PRE-ECLAMPSIA AND ECLAMPSIA

### INTRAMUSCULAR (IM) REGIMEN

#### ▶ **LOADING DOSE (IV and IM)**

- » Give 4 g of 20% magnesium sulfate solution IV over 5 min.
- » Follow promptly with 10 g of 50% magnesium sulfate solution.
- » Give 5 g into each buttock as a deep IM injection with 1 mL of 2% lidocaine in the same syringe.
- » If convulsions recur after 15 min: give 2 g of 50% magnesium sulfate solution IV over 5 min. Ensure aseptic technique when giving magnesium sulfate deep IM injection. Advise the woman that she will feel warm as the magnesium sulfate is given.

#### ▶ **MAINTENANCE DOSE (IM)**

- » Give 5 g of 50% magnesium sulfate solution with 1 mL of 2% lidocaine in the same syringe by deep IM injection into alternate buttocks, every 4 h.
- » Continue treatment for 24 h after birth or the last convulsion, whichever occurs last.



## INTRAVENOUS (IV) REGIMEN

### NOTE

Intravenous administration can be considered, preferably using an infusion pump, if available.

### NOTE

1 g = 10 mL of 10% solution

### ▶ **LOADING DOSE (IV)**

- » Give 4 g of 50% magnesium sulfate solution IV.
- » If convulsions recur after 15 min: give 2 g of 50% magnesium sulfate solution IV over 5 min.

### ▶ **MAINTENANCE DOSE (IV)**

- » Give intravenous infusion 1 g/h.
- » Continue treatment for 24 h after birth or the last convulsion, whichever occurs last.

### **Closely monitor the woman for signs of magnesium toxicity.**

#### ▶ Withhold or delay the dose of magnesium sulfate if:

- » respiratory rate falls below 16 breaths/min,
- » patellar reflexes are absent, or
- » urinary output falls below 30 mL per hour over preceding 4 h.

#### ▶ Keep antidote ready. In case of apnoea:

- » assist ventilation (bag and mask, anaesthesia apparatus, intubation), and
- » give calcium gluconate 1 g IV slowly over 3 min, until respiration begins to counteract the effect of magnesium sulfate.

INTERVENTION

**Give magnesium sulfate for fetal neuroprotection (< 32 weeks)**

- ▶ **IF** the gestational age is estimated to be < 32 weeks:
  - ▶ START magnesium sulfate up to 24 h prior to birth using any of the following dosing regimens:
    - » IV 4 g over 20 min, then 1 g/h until delivery or for 24 h, whichever comes first,
    - » IV 4 g over 30 min or IV bolus of 4 g given as single dose, or
    - » IV 6 g over 20–30 min, followed by IV maintenance of 2 g/h.

**Give corticosteroids to reduce complications of prematurity (24–34 weeks)**

- ▶ **IF** the gestational age is estimated to be 24–34 weeks:
  - ▶ START antenatal steroids on all women, including those with preterm pre-labour rupture of membranes (pPROM), hypertensive disorders, gestational diabetes and multiple births, if the following conditions are met:
    - » gestational age can be assessed accurately;
    - » preterm birth is considered imminent (likely to occur within 7 days of starting treatment, including within the next 24 h);
    - » there is no clinical evidence of maternal infection;
    - » adequate childbirth care is available (including ability to recognize and manage preterm labour and birth); and
    - » adequate preterm care is available (including resuscitation, thermal care, feeding support, infection treatment and safe oxygen use).
  - ▶ **GIVE:** – betamethasone 12 mg IM every 24 h for 2 days (2 doses = 24 mg), or  
– dexamethasone 6 mg IM every 12 h for 2 days (4 doses = 24 mg).



For the two interventions above,  
See: *WHO recommendations on interventions to improve preterm birth outcomes*. Geneva: World Health Organization; 2015.

## Prevent or treat infection

See: *WHO recommendations for prevention and treatment of maternal peripartum infections*. Geneva: World Health Organization; 2015.

- ▶ **IF** any of the following are present:
  - » maternal temperature > 38 °C,
  - » foul-smelling vaginal discharge, or
  - » ruptured membranes > 18 h.
- ▶ Collect appropriate samples (blood, urine, amniotic fluid, pus) for microbial culture, if facilities are available.
- ▶ START ampicillin 2 g IV every 6 h PLUS gentamicin 5 mg/kg body weight IV every 24 h:
  - » if the woman gives birth vaginally, continue treatment for 24–48 h after symptoms and signs of infection have subsided; or
  - » if the woman has a caesarean delivery, cleanse the vagina with povidone-iodine before the procedure.
- ▶ Plan to screen and manage the newborn for possible infection after birth.
- ▶ **IF there is confirmed Group B streptococcus** colonization:
  - ▶ START ampicillin 2 g IV every 6 h until birth (even if antibiotics were given previously).
- ▶ **IF positive for syphilis test** (RPR or VDRL):
  - ▶ GIVE benzathine benzylpenicillin 1.8 g IM as two injections at separate sites.

INTERVENTION

Prevent or treat infection  
(continued)

ACTION

- ▶ Plan to treat newborn:
  - » *Asymptomatic* – Plan to give the baby 37.5 mg/kg body weight (50 000 IU/kg body weight) of benzathine benzylpenicillin in a single IM dose.
  - » *Symptomatic* – Plan to give the baby procaine benzylpenicillin 50 000 IU/kg as a single dose daily for 10 days or benzylpenicillin 50 000 IU/kg every 12 h, IM or IV, for the first 7 days of life, and then every 8 h for a further 3 days.
  - » Careful examination and follow-up of the newborn.
- ▶ Counsel to treat the partner and refer to sexually transmitted infection clinic.
- ▶ **IF positive for HIV:**
  - ▶ START or continue antiretroviral therapy (ART).
  - ▶ Plan to screen and manage both mother and newborn according to the national HIV protocol.

---

**Manage unsatisfactory  
progress of labour**

See: *Managing complications in pregnancy and childbirth: a guide for midwives and doctors, 2nd ed.* Geneva: World Health Organization; 2017.

- ▶ **IF** any of the following are present:
  - » the cervix is not dilated beyond 5 cm after 8 h of regular contractions,
  - » the cervical dilatation is to the right of the alert line on the partograph, or
  - » the woman has been experiencing labour pains for 12 h or more without giving birth (prolonged labour).

**Manage unsatisfactory  
progress of labour**  
(continued)

- ▶ Carefully explain the situation to the woman, be sensitive to her feelings; support if anxious or fearful.
- ▶ Evaluate the woman's general condition.
- ▶ Check the fetal HR, and
  - » if less than 100 or more than 180 beats per minute, suspect fetal distress, or
  - » if it cannot be heard, suspect fetal death.
- ▶ Test urine for ketones. If ketotic, encourage the woman to eat or drink or treat with IV fluids.
- ▶ Provide general methods of labour support to improve contractions and accelerate progress.
- ▶ **IF** contractions are efficient (three or more contractions in 10 min, each lasting more than 40 s), suspect:
  - a. Cephalopelvic disproportion,
  - b. Obstruction, malposition (e.g. occiput posterior, occiput transverse), or
  - c. Malpresentation (e.g. face, brow, breech, compound, transverse lie).
  - a. **If cephalopelvic disproportion is confirmed, and**
    - › the fetus is alive → perform a caesarean section,
    - › the fetus is dead → perform a craniotomy, or
    - › the operator is not proficient in craniotomy → perform a caesarean section.

INTERVENTION

Manage unsatisfactory  
progress of labour  
(continued)

ACTION

b. If obstruction is confirmed, and

- › the fetus is alive, the cervix is fully dilated and the fetal head is not more than station 2/5 above the symphysis pubis, or the leading bony edge of the fetal head is at 0 station or below → assist the birth of the baby using an obstetric vacuum;
- › the fetus is alive and the cervix is not fully dilated or if the fetal head is too high for vacuum-assisted birth → perform a caesarean section; or
- › the fetus is dead → perform a craniotomy. If the operator is not proficient in craniotomy, perform a caesarean section.

c. If malposition, malpresentation and macrosomia are present,

- › Refer to *Managing Complications in Pregnancy and Childbirth* for guidelines specific to each condition.

▶ **IF** there are no signs of cephalopelvic disproportion or obstruction and the membranes are intact, augment labour using oxytocin.

▶ **IF** uterine contractions are inefficient (less than three contractions in 10 min, each lasting less than 40 s), suspect inadequate uterine activity:

- » REFER for augmentation of labour using oxytocin.



## NOTES

- a. Partograph should be based on the most recent WHO-recommended partograph guidelines. The active phase of the first stage of labour has been redefined to start at  $\geq 5$  cm of cervical dilatation.

Data collected include: amniotic fluid, blood pressure, cervical dilatation, fetal heart rate, hours in active labour, hours since ruptured membranes (if ruptured  $> 18$  h, start antibiotics), pulse rate, rapid assessment, temperature, urine voided, uterine contractions, vaginal bleeding, and other problems.

- b. Headache (increasing frequency, unrelieved by regular analgesics); vision changes (e.g. blurred vision); oliguria (passing less than 400 mL urine in 24 h); upper abdominal pain (epigastric pain or pain in right upper quadrant); difficulty breathing (due to fluid in lungs); nausea and vomiting; hyperreflexia or clonus. In facilities with laboratory capacity: liver enzymes (transaminases) more than twice the normal range; serum creatinine higher than 1.1 mg/dL or a doubling or higher of the baseline serum creatinine concentration in the absence of other renal disease; or platelets less than 100 000 cells/ $\mu\text{L}$  ( $100 \times 10^9/\text{L}$ ).

- c. The drug and route of administration should be based primarily on the prescribing clinician's experience with the drug, its cost and local availability, while ensuring that the medication has no adverse fetal effects. Reasonable choices include: hydralazine, alpha methyl dopa, beta blockers (including labetalol) and nifedipine.

Angiotensin-converting enzyme inhibitors, angiotensin receptor blockers and sodium nitroprusside should be avoided due to safety concerns. See: *WHO recommendations for drug treatment for severe hypertension in pregnancy*. Geneva: World Health Organization; 2018 (<https://apps.who.int/iris/handle/10665/277234>).

- d. See: *Managing complications in pregnancy and childbirth: a guide for midwives and doctors*, 2nd ed. Geneva: World Health Organization; 2017 (<https://apps.who.int/iris/handle/10665/255760>).

## INTERVENTIONS FOR THE SECOND STAGE OF LABOUR (BETWEEN 2 AND 3 H)

- ▶ Prepare to deliver the baby
- ▶ Support delivery of the baby (perineal phase)
- ▶ Manage prolonged expulsive phase

▶ 22

### DEFINITION

#### – SECOND STAGE OF LABOUR

The second stage of labour is the period between full cervical dilatation and birth of the baby, during which the woman has an involuntary urge to bear down, as a result of expulsive uterine contractions.

Women should be informed that the duration of the second stage varies from one woman to another. First births are usually completed within 3 h, whereas in subsequent births are usually completed within 2 h.



**TIME FRAME: SECOND STAGE OF LABOUR (2–3 HOURS)**

**INTERVENTION**

**ACTION**

**Prepare to deliver the baby**

- ▶ Ensure privacy.
- ▶ Ensure that delivery area is between 25 and 28 °C using a non-mercury room thermometer.
- ▶ Test whether the delivery area is free of drafts by hanging a piece of tissue paper, and eliminate drafts if present, such as turning off fans and/or air-conditioning units.
- ▶ Introduce yourself to the mother and her companion of choice, or support person.
- ▶ Encourage the mother to assume a position of her choice, including upright and side positions.
- ▶ Review with the mother what care to expect for herself and her baby postpartum.
- ▶ Wash hands with clean water and soap (see pages 108–109).
- ▶ Place a dry cloth on her abdomen or in easy reach.
- ▶ Prepare the following:
  - » clean linen or towel(s),
  - » baby hat,
  - » syringe,
  - » 10 IU ampoule of oxytocin, and
  - » basin with 0.5% chlorine solution for decontamination (see page 110).

INTERVENTION

Prepare to deliver the baby  
(continued)

ACTION

- ▶ Open the delivery kit containing sterile umbilical clamp or tie, instrument clamp and scissors. Do not touch the sterile items.
- ▶ Prepare newborn resuscitation area by:
  - » placing a cleared flat, firm surface within 2 m of the delivery bed;
  - » turning on the resuscitation warmer (if available); and
  - » checking that resuscitation equipment including bag, size 0 and 1 masks, stethoscope and a suction device (preferably single use) are within reach, clean and functional.

▶ 24

**Support delivery of the baby**  
(perineal phase)

- ▶ Perform proper handwashing (see pages 108–109).
- ▶ Put on sterile gloves.

NOTE If there is a lone birth attendant, put on two pairs of sterile gloves; if there is a team, the gloves of the health worker handling the cord should be sterile.

- ▶ Encourage and support the mother to follow her own urge to push, when she is in the expulsive phase of the second stage of labour.
- ▶ Encourage the mother to assume a position of her choice, including upright and side positions.
- ▶ Provide good perineal support with controlled delivery of the head.
- ▶ **DO NOT** apply manual fundal pressure to facilitate childbirth.

▶ **DO NOT perform routine episiotomy.**

- » Routine or liberal use of episiotomy is NOT recommended for women undergoing spontaneous vaginal birth.

**Episiotomy should be considered only in the case of:**

- » complicated vaginal delivery (breech, shoulder dystocia, vacuum or forceps extraction),
- » scarring in the female genitalia or poorly healed third- or fourth-degree tears, or
- » fetal distress.

**Manage prolonged expulsive phase**

See: *Managing complications in pregnancy and childbirth: a guide for midwives and doctors*, 2nd ed. Geneva: World Health Organization; 2017.


- ▶ **IF** the cervix is fully dilated and the woman has the urge to push, but there is no descent:
  - ▶ encourage spontaneous maternal “pushing” during contractions (do not take deep breaths and hold them while pushing [closed-glottis pushing]);
  - ▶ assist the mother to stand up and move around if possible, and to assume a position of her choice, including upright and side-lying positions; and
  - ▶ augment labour with oxytocin if malpresentation and obvious obstruction have been excluded.

NOTE Inefficient contractions are less common in a multigravida than in a primigravida. Rule out disproportion in a multigravida before augmenting with oxytocin.

INTERVENTION

Manage prolonged  
expulsive phase  
*(continued)*

ACTION

- ▶ **IF** the cervix is fully dilated and there is no descent after augmentation:
  - ▶ assist the birth of the baby using an obstetric vacuum if:
    - » term fetus is in vertex presentation, or
    - » fetal head is not more than station 2/5 above the symphysis pubis or the leading bony edge of the fetal head is at 0 station or lower;
  - ▶ assist with a forceps delivery if:
    - » term fetus is in vertex presentation (e.g. occiput anterior or occiput posterior position), or
    - » fetal head is at +2 or +3 station or 0/5 and is palpable above the symphysis pubis;
  - ▶ provide emotional support and encouragement; and
  - ▶  REFER for caesarean section if the fetal head is too high for vacuum or forceps-assisted birth.



## 2. Immediate newborn care: the first 90 minutes

### WITHIN THE FIRST 90 MINUTES AFTER BIRTH: INTERVENTIONS

- ▶ **Algorithm 2.1: Essential newborn care in vaginal deliveries** 28
- ▶ **Algorithm 2.2: Essential newborn care in caesarean deliveries** 30
- ▶ **Establish time of birth** 32
- ▶ **Dry and provide warmth** 32
- ▶ **Inject oxytocin into the mother's arm or thigh** 35
- ▶ **Assist with multiple births** 36
- ▶ **Delay clamping and cutting the cord until pulsations have stopped** 36
- ▶ **Monitoring the mother and baby** 37
- ▶ **First-line breastfeeding support** 37
- ▶ **Provide additional care for a small baby (or twin)** 41

## Algorithm 2.1: Essential newborn care in vaginal deliveries

BIRTH

- \* Deliver the baby onto the dry sterile cloth draped over the mother's abdomen
- \* Call out time of birth and sex of the baby
- \* Dry the baby within 5 s after birth:
  - wipe the eyes, mouth and nose, face, head, back, front, arms and legs thoroughly
  - check breathing while drying
- \* Remove the wet cloth
- \* Position the baby prone on the mother's abdomen/chest and begin SSC
- \* Cover the baby with the second dry cloth and hat
- \* DO NOT do routine suctioning

30 S

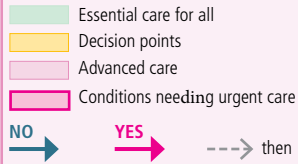
Is the baby gasping or not breathing?

NO

YES

1 MIN

- \* Continue SSC on the mother's abdomen/chest
- \* Check for a second baby and inform the mother
- \* Inject oxytocin 10 IU IM into the mother's deltoid or lateral thigh
- \* Remove soiled first pair of gloves (if lone attendant)
- \* Clamp and cut the cord after pulsations stop, between 1 and 3 min after birth
- \* DO NOT separate stable babies for examination, oxygen or suction



Newborn resuscitation

- clamp and cut cord
- start bag and mask ventilation within 1 min of birth

then

Go to clinical  
ALGORITHM 3

90 min

- \* Maintain uninterrupted SSC for  $\geq 90$  min unless baby has respiratory distress or there is a maternal emergency
- \* Counsel the mother on breastfeeding cues, attachment and positioning
- \* Monitor the baby (breathing pattern, warmth, skin colour) and mother (bleeding, uterine tone, HR, BP, urine output, temperature), every 15 min for the first hour and every 30 min for the second hour

Does the baby have signs of illness?

YES

Examine the baby and manage urgent conditions

NO

After the baby has detached from breast:

- \* examine the baby  
(breathing well, pink, warm)
- \* weigh the baby and record

Does the baby have any of the following:

- Birthweight less than 1500 g?
- Any danger sign?
- Feeding difficulty?

YES

Manage urgent conditions

NO

- \* Repeat handwashing
- \* Do eye care and a thorough physical examination
- \* Inject Vitamin K, hepatitis B vaccine IM and bacille Calmette-Guérin (BCG) vaccine ID (intradermally)

Does the baby have other problems?

YES

Manage other problems

NO

- \* Provide routine postnatal care
- \* Postpone bathing until  $> 24$  h after birth
- \* Re-examine the baby

then

Does the baby have any of the following:

- RR  $\geq 60$  breaths/min or severe chest in-drawing?
- Temperature  $\geq 38$  °C or  $< 35.5$  °C?
- Inability to breastfeed or stopped feeding well?
- Movement only when stimulated?
- Convulsions?
- Any jaundice?

YES

Manage urgent conditions

NO

24 h

- \* Re-examine the baby, provide counselling and discharge
- \* DO NOT discharge before 24 h after birth

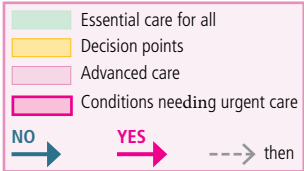
## Algorithm 2.2: Essential newborn care in caesarean deliveries



- \* Cover the thighs of the mother with a sterile surgical cloth
- \* Place a second sterile cloth and baby hat within easy reach
- \* Deliver the baby onto the dry sterile cloth draped over the mother's thighs
- \* Call out time of birth and sex of the baby
- \* Start drying the baby within 5 s after birth:
  - wipe the eyes, mouth and nose, face, head, back, front, arms and legs thoroughly
  - check breathing while drying
- \* Remove the wet cloth
- \* Cover the baby with the second dry cloth and hat
- \* DO NOT do routine suctioning

Is the baby gasping or not breathing?

- \* Clamp and cut the cord after pulsations stop, between 1 and 3 min after birth
- \* Transfer the baby to the mother's chest (behind anesthesia screen)
- \* Do not separate stable babies for examination, oxygen or suction
- \* Position the baby prone in SSC on mother's chest and cover
- \* Inject oxytocin 10 IU IM into the mother's deltoid
- \* Maintain uninterrupted SSC for  $\geq 90$  min unless the baby has respiratory distress or there is a maternal emergency

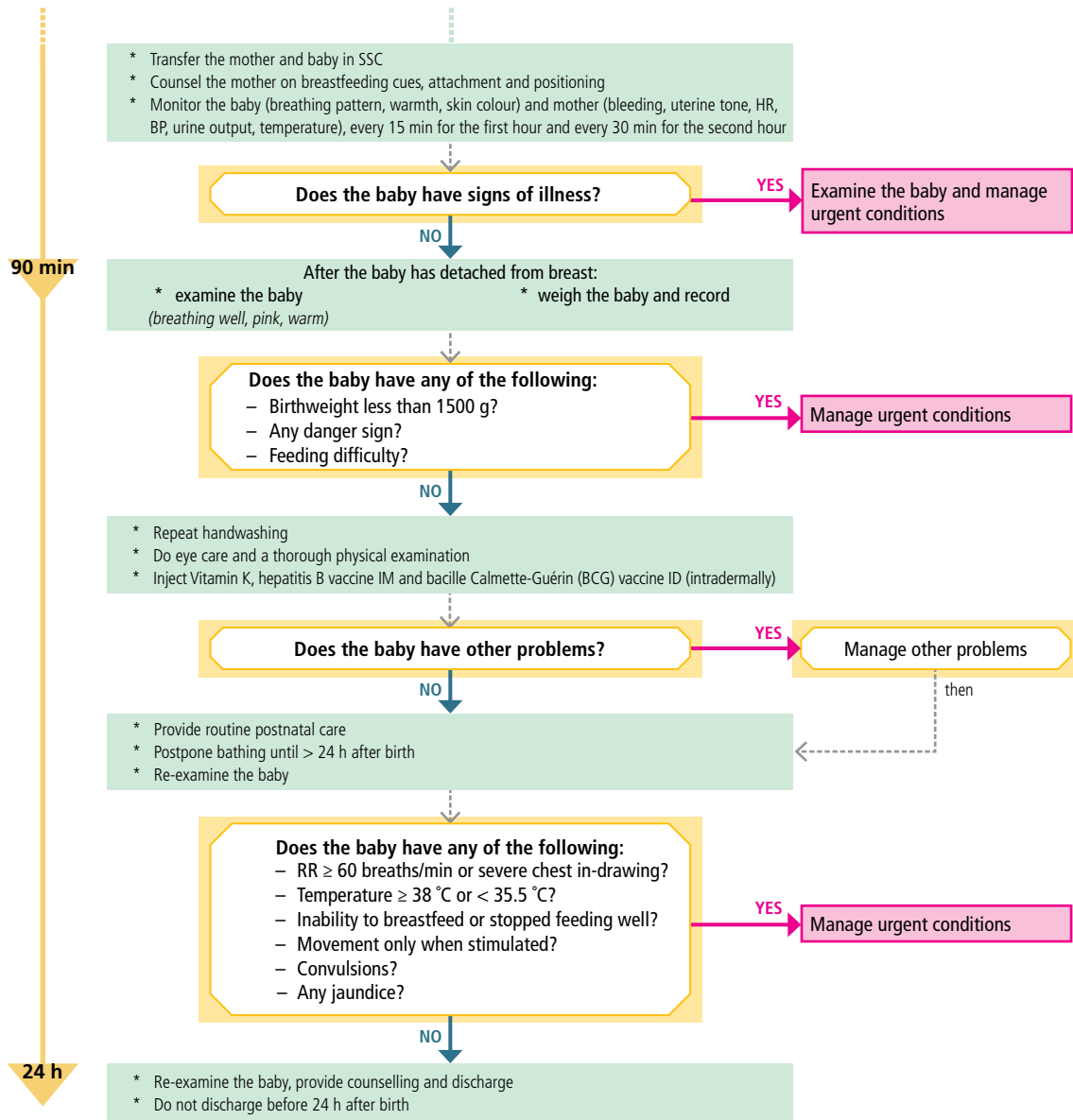


**Newborn resuscitation**  
– clamp and cut cord  
– start bag and mask ventilation within 1 min of birth

then  
**Go to clinical ALGORITHM 3**







## 2. Immediate newborn care: the first 90 minutes

TIME FRAME: WITHIN THE FIRST 90 MINUTES AFTER BIRTH

### INTERVENTION

### ACTION

#### Establish time of birth

- ▶ Call out time of birth to the hour, minute and second and call out the sex of the baby.

#### Dry and provide warmth

##### For a VAGINAL birth:

- ▶ Deliver the baby onto the dry cloth draped over the mother's abdomen.
- ▶ Dry the baby (starting within the first 5 s after birth and continuing for 30 s) as follows:
  - » use a clean, dry cloth to thoroughly dry the baby,
  - » wipe the eyes, mouth and nose, face, head, back, front, arms and legs, and
  - » do a quick check of the baby's breathing while drying (see page 74).
- ▶ Remove wet cloth and place baby in skin-to-skin contact (SSC) with the mother.
- ▶ Cover the baby and mother with a clean warm cloth.
- ▶ Cover the baby's head with a baby hat.

**Dry and provide warmth**  
(continued)

**For a CAESAREAN birth:**

- ▶ Cover the thighs of the woman with a sterilized surgical cloth and place a second sterilized cloth and baby hat within easy reach (consider placing the cloth after uterine incision to avoid wetting the cloth).
- ▶ Deliver the baby onto the dry sterile cloth draped over the woman's thighs.
- ▶ Call out time of birth to the hour, minute and second, and call out the sex of the baby.
- ▶ Dry the baby (starting within the first 5 s after birth and continuing for 30 s), as follows:
  - » use a clean, dry cloth to thoroughly dry the baby,
  - » wipe the eyes, mouth and nose, face, head, back, front, arms and legs, and
  - » do a quick check of the baby's breathing while drying (see page 74).
- ▶ Remove the wet cloth.
- ▶ Cover the baby with a dry sterile cloth and baby hat.

NOTES **DO NOT** do routine suctioning.

**DO NOT** suction unless the mouth/nose is/are blocked.

**DO NOT** suction meconium, unless the baby is not vigorous.

**INTERVENTION**

Dry and provide warmth  
(continued)

**ACTION**

- ▶ **IF** after thorough drying and stimulation (as close to 30 s as possible), the newborn is gasping or is not breathing:

**START positive pressure ventilation.**



- » CALL FOR HELP.
- » Clamp and cut the cord with sterile scissors and wearing sterile gloves.
- » Transfer the baby to a warm, firm surface.
- » Inform the mother in a gentle tone that the baby has difficulty breathing and that you will help the baby to breathe.
- » START ventilation (see pages 74–80).

- ▶ **IF** the newborn is breathing or crying:

**For a VAGINAL birth, continue skin-to-skin contact (SSC):**

- ▶ If baby is breathing normally or crying, avoid manipulation such as routine suctioning that may cause trauma or introduce infection. Postpone routine procedures like weighing and measurements.
- ▶ Continue SSC with the baby prone on the mother's abdomen or chest. Turn the baby's head to one side.
- ▶ Keep the newborn's back covered with a blanket and head with a baby hat.
- ▶ Explain to the mother in a gentle manner that her newborn will not be separated from her because it will improve the health of the mother and baby, and allow the baby to breastfeed and be kept warm.

**Dry and provide warmth**  
(continued)

**For a CAESAREAN birth (from 1 min onwards):**

- ▶ Clamp and cut the cord after cord pulsations have stopped (1–3 min), as for vaginal delivery.
- ▶ Transfer the covered baby to the mother's chest behind the anaesthesia screen.
- ▶ Do not separate stable babies for routine examination, oxygen or suction.
- ▶ Position the baby prone on the mother's chest, begin SSC and cover.

NOTES **DO NOT** separate the baby from the mother unless baby exhibits severe chest in-drawing, gasping or apnoea, or severe malformation; or mother needs urgent medical stabilization, e.g. emergent hysterectomy.

**DO NOT** wipe off the vernix, if present.

**DO NOT** bathe the baby during the first 24 h of life.

If an identification band is used, place it on the baby's ankle.

If the baby must be separated from the mother, clamp and cut the cord and put the baby on a warm surface in a safe place close to the mother.

---

**Inject oxytocin into  
the mother's arm or thigh**

- ▶ Explain to the mother that you will be injecting her with a medicine to make her uterus contract and protect her from excessive bleeding.
- ▶ After checking for a second baby, inject oxytocin 10 IU IM into the mother's deltoid or lateral thigh.
- ▶ A trained second health worker, if available, could inject the oxytocin IM.
- ▶ Put soiled instruments into a decontaminating solution.

## INTERVENTION

### Assist with multiple births

- ▶ If there is another baby or babies, delay administration of oxytocin and get help.
- ▶ Deliver the next baby.
- ▶ Manage as in a multifetal pregnancy.

### Delay clamping and cutting the cord until pulsations have stopped

#### For both VAGINAL and CAESAREAN births:

- ▶ Ensure gloves are sterile when touching or handling the cord.
  - » If there is a single health worker using double sterile gloves: remove the soiled set of gloves immediately prior to touching/handling the cord.
  - » If another health worker is present: they should wash their hands and use sterile gloves.
- ▶ Clamp and cut the cord after cord pulsations have stopped (at 1–3 min), as follows:
  - » apply a sterile plastic clamp or tie around the cord at 2 cm from the umbilical base,
  - » drain the cord of blood by stripping away from the baby,
  - » apply the second clamp at 5 cm from the umbilical base (which is 3 cm from the first clamp),
  - » cut close to the first clamp or tie using sterile scissors, and
  - » apply a second tie if there is oozing blood.
- ▶ Put soiled instruments into a decontaminating solution.

## Monitor the mother and baby

- ▶ Leave the baby on the mother's chest in SSC, with the head visible, turned to one side and the mother in a semi-upright position.

**For a VAGINAL birth**, transfer the mother out of the delivery room with the baby in SSC.

**For a CAESAREAN birth**, transfer the mother from the operating table to the bed with the baby in SSC and transfer together to the recovery room.

- ▶ Monitor the mother and baby every 15 min for at least the first hour, then every 30 min for the second hour, if stable.
  - » **For the mother:** BP, fundal height, HR (pulse), urine output, temperature, uterine contraction and vaginal bleeding; if blood pressure is normal, check again and record within 6 h.
  - » **For the baby:** breathing pattern, feeding with appropriate demonstration of feeding cues, movement, skin colour and temperature.

## First-line breastfeeding support

- ▶ **Observe the baby** – Only when the baby shows feeding cues (e.g. opening of the mouth, tonguing, licking, rooting), suggest to the mother to nudge her baby towards her breast. The average time between birth and readiness to feed is around 50 min.
- ▶ **Observe the mother** – First, identify her breastfeeding practice when the baby is ready. Then, provide breastfeeding advice, encourage and support without touching the baby, if possible. Ensure good positioning and attachment to make sure:
  - » the baby's neck is not flexed or twisted;
  - » the baby is facing her breast, with the baby's nose opposite her nipple and the baby's chin touching her breast;

## INTERVENTION

First-line breastfeeding support (continued)

## ACTION

- » the mother holds the baby's body close to her body;
  - » the mother supports the baby's whole body, not just the neck and shoulders;
  - » the mother waits until her baby's mouth is opened wide; and
  - » then moves the baby onto her breast, aiming the infant's lower lip well below the nipple.
- ▶ Look for signs of good attachment and suckling, including:
- » mouth wide open with the lower lip turned outwards,
  - » baby's chin touching the mother's breast, and
  - » slow and deep suckling, with some pauses.

## NOTES

See: *Guideline: updates on HIV and infant feeding*. Geneva: World Health Organization; 2016.

See: *Consolidated guidelines on the use of ART for treating and preventing HIV infection, 2nd ed*. Geneva: World Health Organization; 2016.

**Breastfeeding is a learned behaviour for both the baby and the mother.** The baby will make several attempts to breastfeed before being successful. Health workers should avoid interfering with this process (e.g. manipulating the baby's head and/or body).

**Mothers living with HIV** should breastfeed for at least 12 months and may continue breastfeeding for up to 24 months or longer (similar to the general population) while being fully supported for ART adherence. In settings where health services provide and support lifelong ART, including adherence counselling, and promote and support breastfeeding among women living with HIV, the duration of breastfeeding should not be restricted.



First-line breastfeeding support (continued)



NEVER LEAVE THE MOTHER AND BABY ALONE

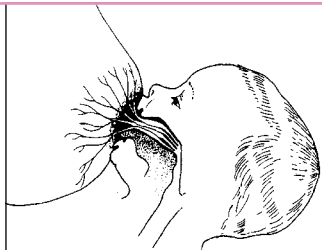
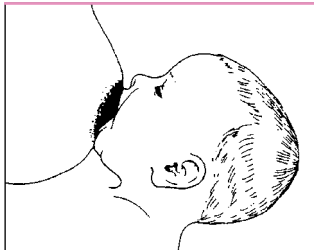
- ▶ Counsel the mother that her baby's stomach is small at birth and will get larger each day with regular feeding. Virtually all mothers have adequate volumes of breast milk for their baby and make more with increased feeding.
- ▶ **IF** attachment or suckling is not good:
  - ▶ try again, and reassess;
  - ▶ **DO NOT** leave the mother and baby alone;
  - ▶ continue to monitor the mother and newborn every 15 min for at least the first hour and every 30 min for the second hour; and
  - ▶ monitor breathing and warmth.
- ▶ **IF** the baby has signs of illness or does not show readiness to feed, i.e. feeding cues within the first 90 min:
  - ▶ **EXAMINE** the baby, and
  - ▶ **MANAGE** urgent conditions.

NOTES **DO NOT** touch the newborn, unless there is a medical indication.  
**DO NOT** give sugar water, formula or other liquids.  
**DO NOT** give bottles or pacifiers.  
**DO NOT** throw away the colostrum.

*If the mother is HIV-positive, take measures to prevent mother-to-child transmission. Counsel and test.*

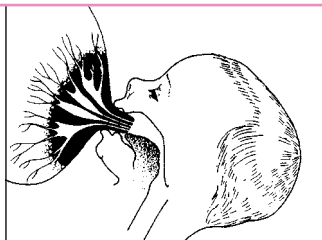
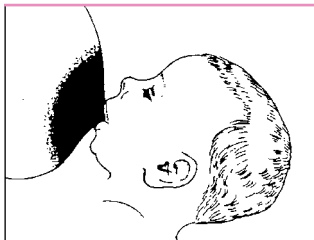
DIAGRAMS OF INFANT'S MOUTH  
SHOWING GOOD AND POOR  
ATTACHMENT TO THE BREAST

Good attachment to the breast



© WHO

Bad attachment to the breast



© WHO

Source: Relactation: A review of experience and recommendations for practice. Geneva: World Health Organization; 1998.

## INTERVENTION

### **Provide additional care for small babies or those born preterm**

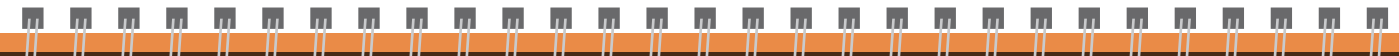
See: *Pocket book of hospital care for children: guidelines for the management of common childhood illnesses, 2nd ed.* Geneva: World Health Organization; 2013.

## ACTION

- ▶ For a visibly small newborn or a newborn born > 1 month early:
  - » encourage the mother to keep the small newborn in SSC with her as much as possible,
  - » provide extra blankets to keep the baby warm,
  - » **DO NOT bathe the baby**, and
  - » use a diaper and ensure hygiene by wiping with a warm damp cloth, but only after 24 h.
- ▶ **IF** the mother cannot keep the baby in SSC because of complications:
  - » wrap the baby in a clean, dry, warm cloth,
  - » encourage another family member to keep the baby in SSC or place in a cot, if not possible,
  - » cover with a blanket, or
  - » use a radiant warmer if the room is below 28 °C.
- ▶ Prepare a very small baby (less than 1500 g or a baby born more than 2 months early) for referral.
- ▶ Keep the baby in SSC or in an incubator while waiting for referral (see Additional care for a small baby, page 50).

NOTE Low-birthweight (LBW) neonates who do not have complications **should be maintained in SSC** with the mother or other family member immediately after birth and after drying them thoroughly to prevent neonatal hypothermia, including during referral.

IMMEDIATE CARE:  
THE FIRST 90 MIN



# 3. Care from the first 90 minutes to 6 hours

## CARE FROM THE FIRST 90 MINUTES TO 6 HOURS: INTERVENTIONS

- ▶ **Examine the baby** 44
- ▶ **Help the mother to breastfeed** 47
- ▶ **Continue to monitor the mother** 47
- ▶ **Give vitamin K prophylaxis** 48
- ▶ **Inject birth doses of hepatitis B and bacille Calmette-Guérin (BCG) vaccinations** 48
- ▶ **Do eye care** 49
- ▶ **Dry cord care** 49
- ▶ **Provide additional care for a small baby (or twin)** 50

▶ 43

### 3. Care from the first 90 minutes to 6 hours

#### TIME FRAME: CARE FROM THE FIRST 90 MINUTES TO 6 HOURS

#### INTERVENTION

##### Examine the baby

Inform the mother of examination findings.  
Reassure her as necessary.

#### NOTE

The normal breathing rate of a newborn is 30–60 breaths/min.

#### NOTE

The normal axillary temperature is 35.5–37.9 °C.

#### ACTION

- ▶ After the baby has detached from the breast:
  - » wash hands,
  - » thoroughly examine the baby,
  - » put an identification band around the ankle, and
  - » weigh the baby and record.
- ▶ Explain to the mother that you will be examining her baby and checking for birth injuries and/or malformations, especially those that need additional care or early referral.
- ▶ Check for breathing difficulties, including:
  - » grunting,
  - » chest in-drawing, and
  - » fast or slow respiratory rate.
- ▶ Check the baby's temperature.
- ▶ Check the baby's eyes for redness, swelling or pus draining.

**Examine the baby**  
(continued)

- ▶ Check the baby's umbilical stump for oozing blood.
- ▶ Check for abdominal distention.
- ▶ Look at the head, trunk and all limbs of the baby. Check for possible birth injuries, including:
  - » bumps on one or both sides of the head,
  - » bruises, swelling on the buttocks,
  - » abnormal position of legs (after breech extraction),
  - » asymmetrical arm movement, and
  - » arm that does not move.
- ▶ **IF** any of the birth injuries described above are present:
  - » explain to parents that most of these are likely to disappear in a week or two and do not need special treatment (some specific conditions such as brachial plexus palsy may require ongoing physical or occupational therapy);
  - » gently handle the limb that is not moving; and
  - » do not force the legs into a different position.
- ▶ Look for signs of fracture, including:
  - » swelling, or
  - » baby crying when that body part is touched.

## INTERVENTION

Examine the baby  
*(continued)*

## ACTION



▶ **IF** fracture is suspected:

- ▶ REFER to appropriate specialist care (in the same facility or another facility).
- ▶ Look for malformations:
  - » club foot (talipes),
  - » odd or unusual appearance,
  - » open tissue on head, abdomen or back,
  - » no anal opening, or
  - » any other abnormal appearance.



▶ **IF** any of these malformations are present:

- ▶ REFER to appropriate specialist care (in the same facility or another facility); and
  - » cover any open tissue with sterile gauze and keep warm, before referral; and
  - » if the baby has an abdominal malformation or no anal opening, place a nasogastric tube (NGT) (8G) on open drainage during referral and transport to minimize the risk of abdominal distension or bloating, while maintaining SSC.
- ▶ Document carefully and report as required by the national birth defect surveillance programme.
- ▶ Look at the baby's skin for cuts or abrasions.
- ▶ Examine the baby's mouth for cleft palate or lip.



**Examine the baby**  
(continued)

- ▶ **IF** the baby weighs less than 1500 g or looks very small, and
  - » is not feeding well, or
  - » has any danger signs:
- ▶ **MANAGE** urgent conditions as follows:
  - » **START** resuscitation if necessary (see pages 74, 76–77),
  - » rewarm and keep warm during referral for additional care in SSC when possible,
  - » give first dose of IM ampicillin and gentamicin,
  - » stop any bleeding, and
  - » give oxygen, if available.



- ▶ **REFER** for special treatment and/or evaluation if available.

- ▶ **IF** the baby has other problems:
  - ▶ **MANAGE** other problems accordingly.

---

**Help the mother  
to breastfeed**

- ▶ If not successful, teach her alternative feeding methods (see pages 93–102).

---

**Continue to monitor  
the mother**

- ▶ Check and record measurements for a second BP and urine void within 6 h after birth.

See: *WHO recommendations on postnatal care of the mother and newborn*. Geneva: World Health Organization; 2014.

## INTERVENTION

**Give vitamin K prophylaxis and inject birth doses of:**  
– hepatitis B and  
– bacille Calmette-Guérin (BCG) vaccinations

## ACTION

- ▶ Wash hands (see pages 108–109).
- ▶ Explain to the mother that you will be injecting:
  - » vitamin K to prevent bleeding;
  - » hepatitis B vaccine to prevent her baby from catching an infection of the liver that can cause cancer later in life; and
  - » BCG vaccine to prevent serious infections due to tuberculosis.
- ▶ Explain to her that there may be soreness at the injection site or other minor side effects, but that these are uncommon, and that the benefits of getting the injections far outweigh the risks.
- ▶ Inject a single dose of vitamin K 1 mg IM.
- ▶ Inject hepatitis B vaccine IM and BCG intradermally, as per national guidelines.
- ▶ Ensure that there is no excessive bleeding before you leave the newborn and mother.
- ▶ Wash hands.
- ▶ Record the injections on the chart/baby record.

NOTE Neonates requiring surgical procedures, those with birth trauma, are preterm, and/or exposed in utero to maternal medication known to interfere with vitamin K are at especially high risk of bleeding and must be given vitamin K 1 mg IM.

### Do eye care

- ▶ Explain to the mother that you will be putting an ointment or drops into her baby's eyes to prevent infection. Reassure her that this is a routine procedure.
- ▶ Administer erythromycin or tetracycline ointment, or 2.5% povidone-iodine drops to both eyes, according to national guidelines. Apply from the inner corner of each eye, outwards.
- ▶ **DO NOT** wash away the eye antimicrobial.

### Dry cord care

#### NOTE

DO NOT bandage the stump or abdomen. Avoid touching the stump unnecessarily.

- ▶ Wash hands (see pages 108–109).
- ▶ Instruct the mother to:
  - » cover cord stump loosely with clean clothes,
  - » fold the diaper below the stump,
  - » put nothing on the stump,
  - » wash stump with clean water and soap, only if it is soiled, and dry it thoroughly with a clean cloth,
  - » seek care if the umbilicus is red or draining pus,
  - » treat local umbilical infection three times a day,
  - » wash hands with clean water and soap,
  - » gently wash off pus and crusts with boiled and cooled water, and then soap,
  - » dry the area with a clean cloth, and
  - » wash hands.



- ▶ REFER urgently to the hospital if pus or redness worsens or does not improve in 2 days.

INTERVENTION

Provide additional care for a small baby (or twin)



ACTION

- ▶ IF the newborn is delivered:
  - ▶ 2 months early or weighs less than 1500 g,
    - » REFER to a specialized hospital.
  - ▶ 1 to 2 months early or weighs between 1500 and 2500 g (or is visibly small when a scale is not available),
    - » see Additional care for a small newborn, page 41.

▶ 50

NOTES

Encourage the mother to keep her small baby in SSC.

Encourage expression of breast milk and feeding by cup, spoon or NGT, depending on weight and ability to suck and swallow.

If the mother cannot keep the baby in SSC because of complications, another family member (grandmother or father) should be instructed on how to do so.

If the mother cannot keep the baby in SSC because of complications, wrap the baby in a clean, dry, warm cloth and place in a cot. Cover with a blanket. Use a radiant warmer if the room is less than 25–28 °C or the baby is small.

**DO NOT bathe the small baby.** Keep the baby clean by wiping with a warm damp cloth, but only after 24 h.

Measure the newborn's temperature every 6 h.

# 4. Care prior to discharge (after the first 90 minutes)

## CARE PRIOR TO DISCHARGE (AFTER THE FIRST 90 MINUTES): INTERVENTIONS

- ▶ Advise on staying in the facility 52
- ▶ Support unrestricted on-demand breastfeeding day and night 52
- ▶ Ensure warmth of the baby 53
- ▶ Washing and bathing (hygiene) 53
- ▶ Sleeping 54
- ▶ Ask the mother if she has any concerns 54
- ▶ Look for danger signs 54
- ▶ Look for signs of jaundice 56
- ▶ Look for signs of local infections 56
- ▶ Check the baby for HIV infection 59
- ▶ Discharge instructions 60
- ▶ Schedule postnatal contacts 61

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## 4. Care prior to discharge (after the first 90 minutes)

TIME FRAME: CARE PRIOR TO DISCHARGE (AFTER THE FIRST 90 MINUTES)

### INTERVENTION

**Advise on staying  
in the facility**

### ACTION

- ▶ After an uncomplicated vaginal birth, advise the mother that she and her healthy newborn should receive care in the birthing facility for at least 24 h.
- ▶ Ask the mother if she has any concerns regarding her baby or herself.

▶ 52  
**Support unrestricted  
on-demand breastfeeding  
day and night**

- ▶ Keep the baby in the room with the mother, in her bed or where feeding cues can be seen. Rooming-in is best. **DO NOT separate them.**
- ▶ Support exclusive breastfeeding on demand, day and night.
- ▶ Assess every baby for breastfeeding before planning for discharge. Ask the mother to alert you if she has difficulty breastfeeding.
- ▶ Praise any mother who is breastfeeding and encourage her to continue exclusively.
- ▶ Define that exclusive breastfeeding means no other food or water except for breast milk.
- ▶ Explain that exclusive breastfeeding is the only feeding that protects her baby against serious illness.

Support unrestricted demand breastfeeding day and night  
(continued)

- ▶ **IF** the breast is engorged, express a small amount of breast milk before starting breastfeeding to soften the areola area so that it is easier for the baby to attach.

NOTES

- DO NOT** give bottles or pacifiers.
- DO NOT** give sugar water, formula or other liquids.
- DO NOT** discharge if baby is not feeding well.

---

**Ensure warmth of the baby**

- ▶ Ensure the room is warm (between 25 and 28 °C) and draft-free.
- ▶ Explain to the mother that keeping the baby warm is important for the baby to remain healthy.
- ▶ Keep the baby in SSC with the mother, as much as possible.
- ▶ **DO NOT bathe the baby during the first 24 h of life.**
- ▶ Dress the baby or wrap in a soft, dry, clean cloth. Cover the head with a baby hat for the first few days, especially if the baby is small.
- ▶ **IF** a thermometer is not available, assess warmth every 4 h by touching the baby's feet. If the feet are cold, use SSC, add an extra blanket and reassess.

---

**Washing and bathing (hygiene)**

- ▶ Wash your hands (see pages 108–109).
- ▶ Wipe the baby's face with a warm damp cloth daily.
- ▶ Wash the buttocks when soiled. Dry thoroughly.

**INTERVENTION**

**Washing and bathing**  
(continued)

- ▶ Postpone bathing until after 24 h (after checking the baby's temperature). Ensure that the room is warm and draft-free, and use warm water for bathing. Thoroughly dry the baby, then dress and cover the baby after the bath.
- ▶ **IF** the baby is small, ensure that the room is warm when changing, wiping or bathing him/her.

**Sleeping**

- ▶ Let the baby sleep on his/her back or side.
- ▶ Keep the baby away from smoke and from people smoking.
- ▶ In malaria settings, ensure mother and baby are sleeping under treated bed net.

**Ask the mother if she has any concerns**

- ▶ Re-examine the baby whenever the mother raises a concern or if a danger sign is noted and before discharge.

**Look for danger signs**

See: *Integrated management of childhood illness: management of the sick young infant aged up to 2 months*. IMCI chart booklet. Geneva, World Health Organization; 2019, and

- ▶ Look for danger signs, including any of the following:
  - » not able to feed at all or not feeding well,
  - » convulsions,
  - » severe chest in-drawing,
  - » high body temperature ( $> 38.0\text{ }^{\circ}\text{C}$ ),
  - » low body temperature ( $< 35.5\text{ }^{\circ}\text{C}$ ),
  - » movement only when stimulated or no movement at all, or
  - » fast breathing ( $\geq 60$  breaths/min in babies less than 7 days old).



*Pocket book of hospital care for children, 2017 ed.* Geneva: World Health Organization; 2017.

▶ **IF** one or more of the above is present, consider possible serious bacterial infection or very severe disease:

- ▶ Give first dose of IM antibiotics: ampicillin (or penicillin) and gentamicin.
- ▶ Treat to prevent low blood sugar by breastfeeding, giving expressed breast milk or sugar water orally or by NGT.
- ▶ ADMIT or REFER URGENTLY to next level of hospital care.\*
- ▶ Give oxygen by nasal prongs or nasal catheter if cyanosed or in severe respiratory distress.
- ▶ Give bag and mask ventilation (see pages 76–77) with oxygen (or room air if oxygen is not available) if respiratory rate is too slow.
- ▶ Give phenobarbital if convulsing.
- ▶ Give vitamin K, if not given before.
- ▶ Monitor the baby frequently.
- ▶ Advise the mother on how to keep her baby warm on the way to the hospital, if referral to another facility is required.



\* If referral is not possible, manage the sick young infant as described in the national referral care guidelines or in the WHO *Pocket book of hospital care for children* (<https://apps.who.int/iris/handle/10665/258716>).

## INTERVENTION

## Look for signs of jaundice

## ACTION

## LOOK AT THE SKIN: is it yellow?

- ▶ Observe in good daylight. Jaundice will look more severe if observed in artificial light and may be missed in poor light.
- ▶ REFER urgently if jaundice is present:
  - » on face of a baby less than 24 h old, or
  - » on palms and soles of a baby at any age.
- ▶ **IF** jaundice appeared after 24 h of age, and palms and soles are not yellow:
  - » advise the mother to give home care,
  - » advise the mother to return immediately if the baby's palms and soles appear yellow, and
  - » encourage breastfeeding.
- ▶ **IF** feeding difficulty is present, support the mother to express breast milk and give expressed breast milk by cup.

Look for signs  
of local infection:

- eyes
- umbilicus
- skin
- baby's mouth

## LOOK AT THE EYES: are they swollen and draining pus?

- ▶ **IF** so, consider gonococcal eye infection, and
  - » give single dose of appropriate antibiotic for eye infection,
  - » teach the mother to treat the eyes,
  - » follow up in 2 days, and if pus or swelling worsens or does not improve, REFER urgently, and
  - » assess and treat the mother and her partner for possible gonorrhoea.



**Look for signs of local infection:**

- eyes
- umbilicus
- skin
- baby's mouth

*(continued)*

**LOOK AT THE UMBILICUS: what has been applied to the umbilicus?**

- ▶ Advise the mother on dry cord care (see page 49).

**Is there redness, pus draining or hardness of the skin around the umbilicus?**

- ▶ **IF** the redness extends to less than 1 cm beyond the umbilicus:

- ▶ **TREAT** as a local infection of the umbilicus:
  - » Give oral amoxicillin for 5 days.
  - » Teach the mother to treat the local infection with gentian violet.
  - » If there is no improvement in 2 days, or if it gets worse,
  - » **REFER** the baby urgently.



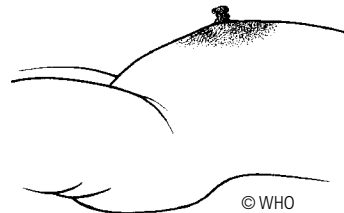
- ▶ **IF** the redness extends to more than 1 cm beyond the umbilicus, there is pus draining or hardness of the skin:

- ▶ **TREAT** as a severe infection of the umbilicus:
  - » Give the first dose of IM ampicillin and gentamicin.
  - » **REFER** the baby urgently.



- ▶ **IF** the umbilicus is draining pus:

- ▶ **CONSIDER** possible serious illness:
  - » Give the first dose of IM ampicillin and gentamicin.
  - » **REFER** the baby urgently.



## INTERVENTION

### Look for signs of local infection:

- eyes
  - umbilicus
  - skin
  - baby's mouth
- (continued)*

## ACTION

LOOK AT THE **SKIN**, especially around the neck, armpits, inguinal area:

### – Are there pustules?



▶ **IF** there are more than 10 pustules (or bullae):

▶ Consider possible serious infection. REFER for evaluation.



**IF** there are less than 10 pustules:

▶ Consider local skin infection:

» Teach the mother to treat skin infection.



» Follow up in 2 days: if pustules worsen or do not improve in 2 days or more, REFER urgently.

### – Is there fluctuant swelling?



» Consider abscess or cellulitis. REFER for evaluation.

LOOK INTO THE BABY'S **MOUTH**: are whitish lesions present?

▶ Consider oral thrush due to a yeast infection.

▶ Remember to observe a breastfeed session:

» Examine the mother's breasts for signs of yeast infection.

▶ Treat and teach the mother how to treat at home.

## Check the baby for HIV infection

### HIV INFECTION UNLIKELY

- ▶ Negative HIV test for the mother or negative virological test for the baby.

### CONFIRMED HIV INFECTION



- ▶ The baby has a confirmed virological test:
  - » Give cotrimoxazole prophylaxis from 4 to 6 weeks.
  - » REFER or give antiretroviral treatment (ART) and HIV care.
  - » REFER or start the mother on antiretroviral medicines if not on treatment.
  - » Advise the mother on home care.
  - » Follow up as per national guidelines.

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### HIV-EXPOSED: POSSIBLE HIV INFECTION



- ▶ The baby has a positive serological test, or
- ▶ The mother is HIV-positive AND the baby who is breastfeeding has a negative virological test, or
- ▶ The mother is HIV-positive, and the baby is not yet tested:
  - » Give cotrimoxazole prophylaxis from 4 to 6 weeks.
  - » START or continue antiretroviral prophylaxis according to risk assessment.
  - » Conduct a virological test for the baby.
  - » REFER or START the mother on antiretroviral medicines if not on treatment.

**INTERVENTION**

Check the baby  
for HIV infection  
(continued)

**ACTION**

**HIV INFECTION STATUS UNKNOWN**

- » Advise the mother on home care. Follow up regularly as per national guidelines.
- » Initiate HIV testing and counselling.
- » Conduct HIV test for the mother and if positive, a virological test for the baby.
- » Conduct virological test for the baby if the mother is not available.

**Discharge instructions**

- ▶ Do a thorough examination prior to discharge.
- ▶ Provide counselling.
- ▶ Discharge no earlier than 24 h after birth.
- ▶ Promote birth registration and timely vaccinations, according to national guidelines.
- ▶ Counsel the mother on prompt recognition of the following danger signs.  
Instruct her to go to hospital immediately if the baby has:
  - » stopped feeding well,
  - » convulsions,
  - » fast breathing (breathing rate  $\geq 60$  / min),
  - » severe chest in-drawing,
  - » no spontaneous movement,
  - » fever/high body temperature ( $> 38^{\circ}\text{C}$ ),
  - » low body temperature ( $< 35.5^{\circ}\text{C}$ ),
  - » any jaundice in the first 24 h of life, or
  - » yellow palms and soles at any age.
- ▶ The family should be encouraged to seek health care early if they identify any of the above danger signs in between postnatal care visits.
- ▶ Advise newborn screening tests, as per national guidelines.

### **Schedule postnatal**

#### **contacts:**

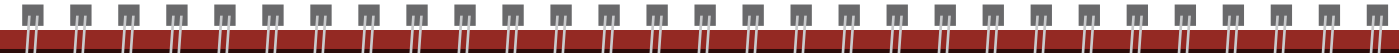
- within 24 h
- between 48 and 72 h
- between 7 and 14 days
- at 6 weeks

#### NOTE

An extra contact for home births between 24 and 48 h is desirable.

- ▶ All babies should be examined within 24 h of birth, between 48 and 72 h, and between 7 and 14 days. The final postnatal contact is recommended at 6 weeks (which includes immunizations for the baby and family planning for the mother).
- ▶ Schedule additional follow-up visits as follows:
  - » after 2 days, if with breastfeeding difficulty, LBW in first week of life, red umbilicus, skin infection, eye infection, thrush or other problems; or
  - » after 7 days, if LBW baby was discharged at more than 1 week of age and gaining weight adequately.
- ▶ For babies born at home in high mortality settings and with limited access to health facilities, schedule at least four home visits:
  - » first visit within 24 h of birth,
  - » second visit on Day 3 (from 48 to 72 h),
  - » third visit between 7 and 14 days, and
  - » last postnatal contact at 6 weeks.
- ▶ These postnatal contacts can be done by midwives, other skilled providers or well-trained and supervised community health workers.

CARE PRIOR  
TO DISCHARGE





# 5. Care from discharge to 6 weeks

## CARE FROM DISCHARGE TO 6 WEEKS: INTERVENTIONS

- ▶ **Support unrestricted exclusive breastfeeding on demand (day and night)** 64
- ▶ **Ensure warmth for the baby** 67
- ▶ **Assessment of the baby** 68
- ▶ **Assessment of the mother** 69

▶ 63

## 5. Care from discharge to 6 weeks

TIME FRAME: CARE FROM DISCHARGE TO 6 WEEKS

### INTERVENTION

**Support unrestricted exclusive breastfeeding on demand (day and night)**

### ACTION

- ▶ All babies – whether term or preterm, whether LBW or not, whether in high-, middle- or low-resource settings – should be given breast milk exclusively from birth until 6 months of life.
- ▶ Counsel all mothers and provide support for exclusive breastfeeding at each postnatal contact.
- ▶ Provide intensive support for exclusive breastfeeding for mothers who delivered by caesarean section or prematurely.
- ▶ Ask the mother exactly what the baby was fed in the past 24 h before the visit, including inappropriate use of water, vitamins, local foods and liquids, formula, and the use of bottles and pacifiers. Ask also about stooling and wet diapers.
- ▶ Praise any mother who is breastfeeding and encourage her to continue exclusive breastfeeding.
- ▶ Do not scold any mother who is not breastfeeding; instead, understand why and provide practical support, information and encouragement to address barriers to practice.
- ▶ Explain that exclusive breastfeeding is the only food that protects her baby against serious illness. Define that exclusive breastfeeding means no other food or liquid (e.g. water) except for breast milk and essential medications prescribed by health providers.

Support unrestricted  
exclusive breastfeeding  
on demand (day and night)  
*(continued)*

- ▶ Reassure the mother that she has enough breast milk for her baby's needs.
- ▶ Advise the mother:
  - » to keep the baby in the room with her, in her bed or within easy reach; and
  - » to exclusively breastfeed on demand, day and night (> 8 times in 24 h, except in the first day of life when the baby sleeps a lot).
- ▶ Observe a breastfeed, if possible. Support the mother so she is comfortable. Ensure that the mother has a good position and is well attached without pain.
- ▶ Ask the mother to alert you if she has breastfeeding difficulty, pain or fever.
- ▶ Observe, treat, give practical support and advise if nipple(s) is/are sore or fissured, and the baby is not well attached. In addition to the above:
  - » reassess after two feeds (within the same day);
  - » advise the mother to smear breast milk over the sore nipple(s) after a breastfeed;
  - » check the baby's mouth for thrush and treat baby and mother; and
  - » if not better, teach the mother how to express breast milk from the affected breast and feed the baby by cup until breast(s) is/are better.
- ▶ **IF** the mother's breasts are swollen:
  - ▶ but the milk is dripping:
    - » reassure the mother that this is normal breast fullness and it will improve with frequent breastfeeding in 36–72 h;

## INTERVENTION

Support unrestricted,  
exclusive breastfeeding  
on demand (day and night)  
*(continued)*

## ACTION

- ▶ but the milk is not dripping, the mother's temperature is  $< 38^{\circ}\text{C}$  and the baby can suckle but is not well attached:
  - » apply warm compresses or warm shower, massage neck and back, lightly massage the breast, stimulate nipple skin and help mother to relax; and
  - » apply cold compresses after feeding, hold the baby skin to skin, help with attachment and allow to suckle frequently.
  - » In addition to the above:
    - advise the mother to breastfeed more frequently;
    - reassess after two feeds (within the same day); and
    - if not better, teach and help the mother to express enough breast milk to relieve the discomfort.
- ▶ **IF** the mother's breasts are painful, with patchy redness, and the mother's temperature is  $> 38^{\circ}\text{C}$ :
  - » treat and advise for mastitis:
    - support counselling; and
    - effective milk removal through improved attachment, adequate and frequent breastfeeding and milk expression;
  - » give cloxacillin 500 mg every 6 h for 10 days;
  - » give paracetamol for severe pain;
  - » reassess in 2 days; and
  - » REFER to a hospital, if no improvement or worse.



NOTES **DO NOT** give sugar water, formula or other liquids to the baby.  
**DO NOT** give bottles or pacifiers.

**Ensure warmth  
for the baby**

- ▶ Explain to the mother that babies need an additional one or two layers for ambient temperature compared to older children or adults. Bonnets or caps are recommended.
- ▶ Keep the room or part of the room warm, especially in a cold climate.
- ▶ **DO NOT** separate the mother and baby. Keep them together in a room, both night and day. Instruct the mother to:
  - » dress or wrap the baby up during the day, and
  - » let the baby sleep with the mother or within easy reach to facilitate breastfeeding at night.

▶ 67

NOTES **DO NOT** put the baby on any cold or wet surface.  
**DO NOT** swaddle/wrap the baby too tightly.  
**DO NOT** leave the baby in direct sunlight.  
Ensure additional warmth for the small baby.

For the management of preterm (< 37 weeks) or LBW (1500–2500 g) babies, see pages 84–92.

## INTERVENTION

### Assessment of the baby

See: *Integrated management of childhood illness: management of the sick young infant aged up to 2 months*. IMCI chart booklet. Geneva: World Health Organization; 2019.

## ACTION



- ▶ Assess the baby for danger signs at every contact, including:
  - » stopped feeding well,
  - » convulsions,
  - » fast breathing (breathing rate  $\geq 60$ /min),
  - » severe chest in-drawing,
  - » no spontaneous movement,
  - » fever/high body temperature ( $> 38^\circ\text{C}$ ),
  - » low body temperature ( $< 35.5^\circ\text{C}$ ),
  - » any jaundice in the first 24 h of life, or
  - » yellow palms and soles at any age.
- ▶ Counsel the mother on danger signs and advise to go to a hospital promptly if her baby has any danger signs.



**IF** danger signs are present:

- ▶ REFER or ADMIT the baby urgently to hospital. After emergency treatment:
  - » explain the need for referral to the mother/father,
  - » organize safe transportation,
  - » always send the mother with the baby if possible,
  - » send referral note with the baby, and
  - » inform the referral centre by radio or telephone, if possible.

## Assessment of the mother

- ▶ Assess all postpartum mothers regularly for the following:
  - » vaginal bleeding,
  - » uterine contraction,
  - » fundal height,
  - » temperature,
  - » heart rate, and
  - » anaemia.
- ▶ At each subsequent postnatal contact, ask about the mother's general well-being, mental health and symptoms suggestive of complications, including:
  - » excessive bleeding,
  - » headache,
  - » fits,
  - » fever,
  - » feeling very weak,
  - » breathing difficulties,
  - » foul-smelling discharge,
  - » painful urination,
  - » severe abdominal or perineal pain, or
  - » anxiety or depression.
-  ▶ If the mother has any of these symptoms, REFER her to a health facility.
- ▶ Advise all mothers about recovery after giving birth and about reporting any health concerns.
-  ▶ Ask if breast or nipples are swollen, red or tender. Manage breastfeeding problems, if possible. If not, REFER to a health facility for care.
- ▶ At each postnatal visit, counsel on:
  - » breastfeeding,
  - » hygiene, especially handwashing,
  - » birth spacing,
  - » nutrition,
  - » safe sex, including use of condoms,
  - » early walking, gentle exercise and rest, and
  - » iron supplementation.

**FROM DISCHARGE  
TO 6 WEEKS**





# 6. Additional care

## A. NEWBORN RESUSCITATION 72

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# Algorithm 3: Newborn resuscitation

Essential care for all  
Decision points  
Advanced care  
Conditions needing urgent care  
→ NO     → YES     - - - then

BIRTH  
30 S  
1 MIN

**Immediate newborn care**

- \* Immediate and thorough drying with quick check of breathing
- \* Skin-to-skin contact covered with blanket and bonnet

**Is the baby gasping or not breathing?**

Maintain skin-to-skin contact with the mother and monitor the mother and baby

**RESUSCITATION**

- \* Call for help and explain gently to the mother that her baby needs help to breathe
- \* Clamp/cut the cord long, using sterile scissors and gloves
- \* Transfer the baby to newborn resuscitation area
- \* Position head and neck
- \* Only suction mouth and nose of non-breathing babies born through meconium
- \* Start bag/mask ventilation with air using size 0 or 1 mask
- \* Ventilate at a breathing rate of 40/min

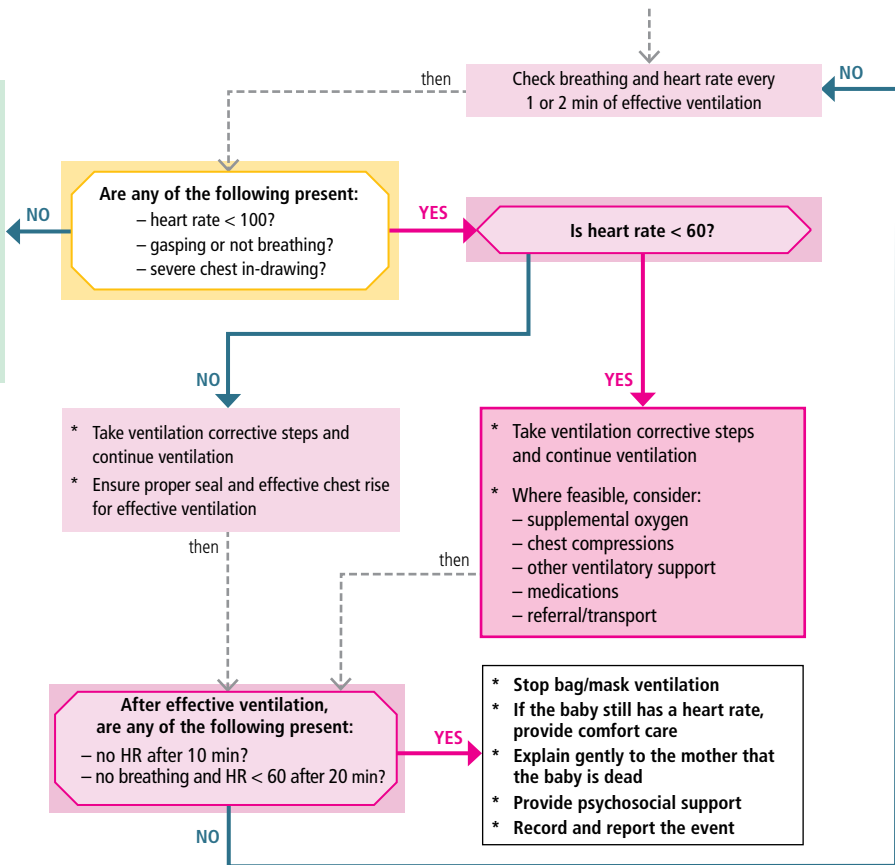
**Go to clinical ALGORITHMS 2.1 or 2.2**

then *If at any time the baby starts breathing or crying and has no severe chest in-drawing, stop ventilation and observe to ensure that the baby continues to breathe well.*



**Post-resuscitation care**

- \* Stop ventilation
- \* Return baby to mother's chest
- \* Do routine care (see "Immediate newborn care")
- \* Record the event
- \* Monitor baby for breathing difficulties, signs of asphyxia
- \* Monitor mother for bleeding, breathing and blood pressure problems



- VENTILATION CORRECTIVE STEPS**
1. Check position of head.  
*Is it positioned correctly? Is contact with the soft tissue of the infant's neck being avoided?*
  2. Check for adequate mask seal.  
*Is it tightly sealed?*
  3. Check that adequate pressure is being used.  
*Is the bag being squeezed hard enough?*
  4. Check for blocked airway.  
*Is the airway clear of secretions?*
  5. Recheck resuscitator bag.  
*Is the resuscitator working properly?*

## A. NEWBORN RESUSCITATION

**IF baby is gasping or not breathing after thorough drying and stimulation (for as close as possible to 30 s):**

- ▶ Call for help and explain gently to the mother that her baby needs help to breathe.
- ▶ Clamp and cut the cord immediately to allow effective ventilation to be performed.
- ▶ Transfer the baby to the resuscitation area (a dry, clean and warm surface).
- ▶ Keep the baby wrapped or under a heat source, if available.
- ▶ Consider immediate referral at any point, where feasible.

## INTERVENTION

**Open airway**

See: *Guidelines on basic newborn resuscitation*. Geneva: World Health Organization; 2012.

## ACTION

- ▶ Position the head so it is slightly extended.
- ▶ Suction only non-breathing babies born through meconium by introducing suction/tube:
  - » first, into the baby's mouth 5 cm from the lips and suck while withdrawing;
  - » second, 3 cm into each nostril and suck while withdrawing;
  - » repeat once, if necessary, taking no more than a total of 20 s; and
  - » do tracheal suctioning to remove meconium only where tracheal obstruction is suspected and where feasible.

NOTE **DO NOT** do routine suctioning of the mouth and nose of:

- › breathing babies with clear or meconium-stained amniotic fluid, or
- › non-breathing babies with clear amniotic fluid.

**Begin positive  
pressure ventilation**  
(as quickly as possible)

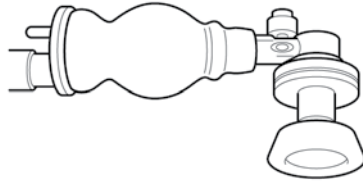
- ▶ START bag and mask ventilation with room air within 1 min after birth:
  - » for babies < 32 weeks, it is preferable to start with 30% oxygen, where feasible.
- ▶ Place mask to cover chin, mouth and nose to achieve a seal.

NOTE **DO NOT** cover the eyes.

- ▶ Squeeze bag attached to the mask with two fingers or whole hand, according to bag size, two or three times. Observe rise of chest.
- ▶ **IF** chest is not rising:
  - » first, reposition the baby's head.
- ▶ **IF** chest is still not rising:
  - » check for adequate mask seal.
- ▶ **IF** chest is still not rising:
  - » squeeze bag harder.
- ▶ **IF** chest is still not rising:
  - » look for airway obstruction, consider suction to remove blockage.
- ▶ **IF** chest is still not rising:
  - » recheck resuscitator bag. Is the resuscitator working properly?
- ▶ **IF** chest is rising:
  - » ventilate at a breathing rate of 40/min until baby starts crying or breathing.

RESUSCITATION BAG AND POSITIONING OF THE MASK

NEONATAL SELF-INFLATING  
RESUSCITATION BAG WITH  
ROUND MASK



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FITTING MASK OVER FACE

RIGHT



right size and right  
position of the mask

WRONG



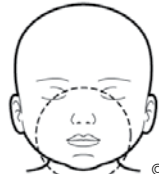
mask held too low

WRONG



mask too small

WRONG



mask too large

© WHO

## RESUSCITATION BAG AND POSITIONING OF THE MASK *(continued)*

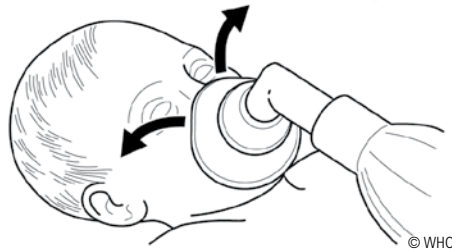
### VENTILATING A NEONATE WITH BAG AND MASK

Lift the chin with the third finger of the hand holding the mask.  
DO NOT hyperextend the neck.



### INADEQUATE SEAL

If you hear air escaping from the mask, form a better seal.  
The most common leak is between the nose and the cheeks.



**INTERVENTION**

Begin positive  
pressure ventilation  
*(continued)*

**ACTION**

- ▶ Check breathing and check HR every 1 to 2 min of ventilation:
  - » Assess chest rise.
  - » Assess HR:
    - if HR is less than 100/min → take ventilation corrective steps (see below); or
    - if HR is less than 60/min → where feasible give supplemental oxygen, chest compressions, other ventilatory support and medications.
  
- ▶ **IF** baby fails to improve, follow ventilation corrective steps (see below).

**VENTILATION  
CORRECTIVE STEPS**

- 1. Check position of head.**  
*Is it positioned correctly? Is contact with the soft tissue of the infant's neck being avoided?*
- 2. Check for adequate mask seal.**  
*Is it tightly sealed?*
- 3. Is adequate pressure being used?**  
*Is the bag being squeezed hard enough?*
- 4. Check for blocked airway.**  
*Is the airway clear of secretions?*
- 5. Recheck resuscitator bag.**  
*Is the resuscitator working properly?*





**Begin positive  
pressure ventilation**  
*(continued)*

- ▶ At any time, if the baby starts breathing or crying and has no chest in-drawing, stop ventilating. Observe to ensure that the baby continues to breathe well. Then:
  - » return the baby to the mother's chest on SSC and continue care, while monitoring breathing and warmth; and
  - » explain the baby's condition to the mother.
  
- ▶ **IF** the baby is gasping or not breathing, or has severe chest in-drawing:
  - » continue bag/mask ventilation;
  - » continue assessing at regular intervals while transporting; and
  - » where feasible, consider supplemental oxygen, chest compressions, other ventilatory support and medications.
  
- ▶ **IF** after 10 min of effective ventilation, the HR remains zero:
  - » STOP bag/mask ventilation;
  - » explain to the mother in a gentle tone that the baby is dead;
  - » give supportive care; and
  - » record and report the event.
  
- ▶ **IF** after 20 min of effective ventilation, the baby does not start to breathe or gasp and HR is < 60/min:
  - » STOP bag/mask ventilation;

**INTERVENTION**

Begin positive  
pressure ventilation  
*(continued)*

**ACTION**

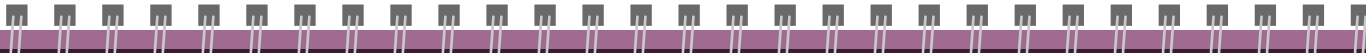
- » explain to the mother in a gentle tone that despite all attempts, you were unable to help her baby breathe;
- » provide comfort care, including warmth and psychosocial support; and
- » record and report the event.

NOTES While ventilating, REFER and explain to the mother what happened, what you are doing and why.  
Ventilate, if needed, during transport.

Record the event on the referral form and labour record and ensure death is reported.

All parents should be given the opportunity to hold their baby before and at the end of life.

All parents should be provided with compassionate bereavement care, including psychosocial and bereavement support, appropriate steps to preserve the newborn's memory and support to mothers to manage breast-milk supply.



## B. CARE FOR A SMALL BABY (OR TWIN)

Baby is preterm, 1–2 months early, weighs between 1500 and 2500 g, or is visibly small (when no scale available)

▶ *Algorithm 4: Optimal feeding of the clinically stable baby weighing less than 2500 g*

- ▶ Warmth
- ▶ Feeding support
- ▶ Kangaroo Mother Care (KMC)
- ▶ Discharge planning

# Algorithm 4: Optimal feeding of the clinically stable baby weighing less than 2500 g

- \* Maintain SSC and initiate continuous KMC
- \* Room the mother and baby together
- \* Encourage mother to watch for feeding cues and nudge the baby towards breast
- \* Provide breastfeeding counselling and support
- \* Assess breastfeeding at least once per day

**REFER to NICU**  
Provide intensive breastfeeding counselling

**Does the baby weigh < 1500 g?**

*(weighs between 1500 and 2499 g)*

**Does the baby weigh < 1000 g?**

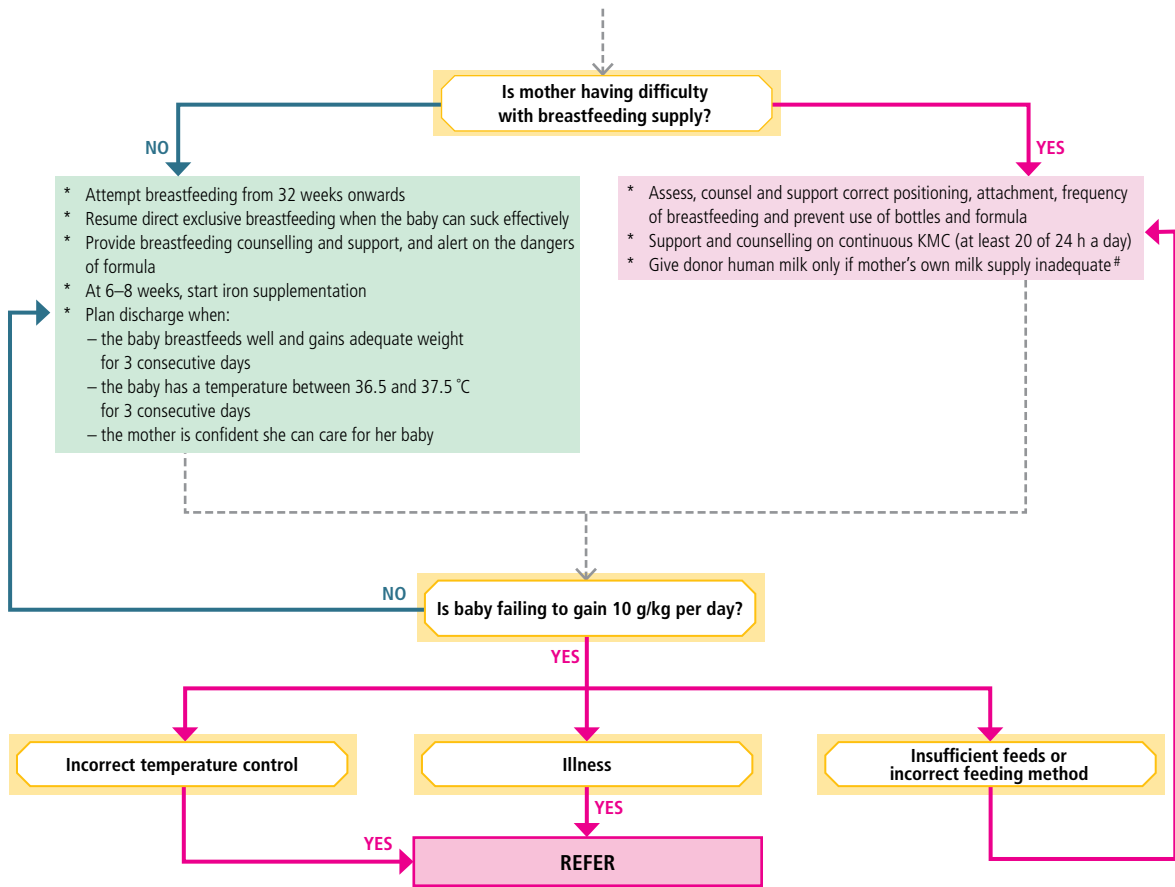
*(weighs between 1000 and 1499 g)*

- \* Continue KMC and assess breastfeeding daily – If breastfeeding is not tolerated, begin enteral feeding with colostrum or expressed breast milk
- \* Feed via oro- or naso-gastric bolus feeds, then cup/spoon feeding when tolerated

- then
- \* Increase enteral feeds according to weight and day of life (mL/kg per day) to Day 7
  - \* Weigh the baby daily and record

- then
- \* Increase enteral feeds according to weight and day of life (mL/kg per day) to Day 7
  - \* Weigh the baby daily and record
  - \* Only discontinue KMC if mother or baby are unstable, with danger signs
  - \* Start vitamin D, calcium and phosphorus supplements when full feeds are tolerated
  - \* Begin iron supplements at 2 weeks of age





# Breastmilk substitutes should only be used as a last resort after all efforts have been made to improve the mother’s own supply or to use donor milk. Breastmilk substitutes increase the risk of necrotizing enterocolitis, pneumonia, diarrhoea, meningitis and death.

	Essential care for all
	Decision points
	Advanced care
	Conditions needing urgent care
NO	YES
→	→ then

## B. CARE FOR A SMALL BABY (OR TWIN)

## INTERVENTION

## ACTION

**Warmth**

- ▶ Ensure additional warmth for a small baby by:
  - » maintaining the delivery and postnatal care rooms at 25–28 °C, and draft-free;
  - » ensuring all vigorous breathing babies receive immediate and uninterrupted SSC for at least 90 min after birth;
  - » maintaining the baby in SSC with the mother using Kangaroo Mother Care (KMC) (see pages 87–91); and
  - » providing extra blankets for the mother and baby, plus bonnet and socks for the baby.

NOTE **DO NOT bathe a small baby.** Keep the baby clean by wiping with a damp cloth, but only after 24 h.

**Feeding support**

See: *Pocket book of hospital care for children: guidelines for the management of common childhood illnesses*, 2nd ed. Geneva: World Health Organization; 2013.

- ▶ LBW babies, including preterms, especially those with a very low birthweight (VLBW) – less than 1500 g but greater than 1000 g – should be fed with the mother’s own milk.
  - » Put LBW infants, who can breastfeed, to the mother’s breast as soon as possible after birth when they are clinically stable. They should be exclusively breastfed until 6 months of age.
  - » LBW infants who are unable to breastfeed can be fed with alternative oral feeding methods (either by cup; palladai, which is a cup with a beak; spoon; or NGT if the baby cannot suck and swallow). The mother should be supported to hand-express and store breast milk for her baby.
  - » LBW infants who are fully or mostly fed by an alternative oral feeding method should be fed based on infants’ hunger cues, except when the infant remains asleep beyond 3 h since the last feed.

## Feeding support (continued)

See: *Guidelines on optimal feeding of low birth-weight infants in low- and middle-income countries*. Geneva: World Health Organization; 2011.

### NOTE

Recommendation for settings where safe and affordable milk-banking facilities are available or can be set up.

## ► Hierarchy of other feeding options:

- » Ensure that all mothers and babies continue to receive intensive breastfeeding support and encouragement for breastfeeding and expressing breast milk, even when alternative feeding options are required.
- » LBW infants, including those with VLBW, who cannot be fed mother's own milk, should be fed donor human milk.
- » LBW infants, including those with VLBW, who cannot be fed mother's own milk or donor human milk, should be fed standard infant formula from the time of discharge until 6 months of age (recommendation for resource-limited settings).
- » VLBW infants, who cannot be fed mother's own milk or donor human milk, should be given preterm infant formula if they fail to gain weight despite adequate feeding with standard infant formula.
- **START VLBW infants on expressed breast milk at 70–90 mL/kg per day via enteral feeds (either by cup or spoon feeding) or naso- or oro-gastric tube feeds (by bolus intermittent feeding) starting from the first hours of life, with the remaining fluid requirement met by intravenous fluids:**
  - » increase feed volumes by up to 30 mL/kg per day with careful monitoring for feeding intolerance;
  - » if mother's own milk supply is not increasing fast enough for the above, give donor's human milk to the baby and provide intensive support to increase mother's milk supply; and
  - » reduce IV fluids as oral fluids are increased.

## INTERVENTION

Feeding support  
*(continued)*

## ACTION

- ▶ VLBW babies being fed breast milk should be given the following supplements:
  - » vitamin D (400–1000 IU per day) until 6 months of age;
  - » daily calcium (120–140 mg/kg per day) and phosphorus (60–90 mg/kg per day) during the first months of life; and
  - » iron (2–4 mg/kg per day) starting at 2 weeks of life with full enteral feeding until 6 months of age.

NOTE The following supplements are NOT recommended at the current time:

- Bovine milk-based human milk fortifier. VLBW babies who fail to gain weight despite adequate breast-milk feeding should be given human milk fortifiers, preferably those that are human milk-based.
- Daily oral vitamin A supplementation for LBW infants who are fed mother's own milk or donor human milk.
- Routine zinc supplementation for LBW infants who are fed mother's own milk or donor human milk.
- ▶ Give special support for breastfeeding by:
  - » encouraging the mother to breastfeed every 2–3 h; and
  - » assessing breastfeeding daily, including positioning, attachment, suckling, duration and frequency of feeds, and baby satisfaction.
- ▶ Weigh the baby daily, and record on a growth chart.



### Feeding support (continued)

- ▶ When the mother and baby are separated, or if the baby is not sucking effectively, use alternative feeding methods (by cup or spoon), and feed these LBW babies based on baby's hunger cues, but at no longer than 3-h intervals.

NOTE Refer to: *Dealing with feeding problems*, see pages 93–102.

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### Kangaroo Mother Care (KMC)

- ▶ KMC has three main components:
  1. skin-to-skin contact (SSC) for at least 20 h per day, as continuous as possible, between the mother (or relatives) and her baby;
  2. exclusive breastfeeding by the baby sucking or by feeding with the mother's own breast milk; and
  3. close monitoring for illness.
- ▶ Before starting KMC ensure that:
  - » the baby has normal vital signs, no danger signs, is vigorous and breathing on its own or stable on continuous positive airway pressure, with oxygen < 30%, including babies receiving phototherapy or intravenous therapy;
  - » the baby is free of life-threatening conditions;
  - » the parents are coached on how to monitor for danger signs, and practise effective infection prevention and control for KMC; and
  - » the baby can be adequately monitored by health-care workers.

**INTERVENTION**

Kangaroo Mother Care  
(KMC) *(continued)*

**ACTION**

- ▶ Explain KMC to the mother, including:
  - » continuous SSC,
  - » positioning her baby,
  - » attaching her baby for breastfeeding,
  - » expressing her milk,
  - » caring for her baby, including changing the diaper in KMC position,
  - » monitoring her baby's warmth, breathing and looking for signs of illness,
  - » continuing her daily activities, and
  - » preparing a KMC binder to hold the baby firmly against the mother's chest (see pages 90–91).
- ▶ The management of life-threatening conditions takes priority over KMC, although SSC is still beneficial until KMC is possible.

NOTES KMC can begin immediately after birth provided the mother and baby are clinically stable. The initial assessment of the baby can be completed with the baby in SSC on the mother. KMC can be practised before the newborn is able to coordinate sucking and swallowing. Other methods of feeding, such as feeding by naso- or oro-gastric tube or later by cup, can be used until the baby can breastfeed directly.

- 
- ▶ **IF** KMC is not possible,
    - ▶ Wrap the baby in a clean, dry, warm cloth and place in a crib; cover with a blanket; use a radiant warmer if the room is not warm or the baby is small.

## PREPARING A KMC BINDER TO HOLD THE BABY

- Choose a locally available, reasonably priced fabric or cloth.
- The cloth should have some elasticity, so that it will snugly hold the baby while ensuring safety.
- Cut the cloth into strips, 0.8–0.9 m long and 0.4–0.5 m wide.
- Sew the ends of each cloth strip together to form a loop.
- Test binders with mothers and preterm babies to establish correct average size – adjust the fabric and length to ensure an adequate fit for the average mother.

NOTE A KMC binder holds the baby firmly against the mother's chest and allows her to stand and walk with the baby in place. A binder allows the baby to be easily shifted for breastfeeding and expressing breast milk while keeping the baby in SSC contact. Conventional wraps make it more difficult to move the baby for feeding in the KMC position. The use of a shirt only is less effective at maintaining the baby in SSC contact and does not provide enough support to allow the mother to move around with free hands.

▶ 89

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### Discharge planning

- ▶ Plan to discharge when:
  - » baby is breastfeeding well and gaining at least 15 g/kg body weight/day for 3 consecutive days;
  - » baby's body temperature is between 36.5 and 37.5 °C for 3 consecutive days; and
  - » mother is able and confident in caring for her baby.

POSITION THE BABY FOR KMC AS SHOWN BELOW



- › Place the baby between the mother's breasts directly on the skin in an upright position.
- › Turn the head to the side, in a slightly extended position.
- › Put the baby's legs and arms in a flexed position.

- › Secure the baby in a kangaroo binder while holding the baby securely.

- › Pull the top of the binder to the baby's ears.

**POSITION THE BABY FOR KMC AS SHOWN BELOW** *(continued)*



- › Put the baby's legs into frog position and pull the binder down to cover both legs.



- › Ensure that the baby is supported by the binder.
- › Make sure the baby can breathe easily.
- › Do not put too much pressure on the baby's abdomen.



- › Cover with a shirt.
- › Ensure that the mother can walk around comfortably.

- NOTES
- › Continuous SSC should be done for at least 20 h in each 24-h period. To maximize benefits of KMC, breaks should be limited to less than 30-min periods. Adult beds are recommended for comfort during continuous KMC.
  - › If the mother needs to interrupt KMC for a short period, the father and/or grandparents who do not have a cough, cold, fever, transmissible systemic infectious disease (e.g. hepatitis A or E), skin infection on the chest or arms (boils, abscesses, furuncles) or mental impairment (e.g. mental illness, intoxication with alcohol or illicit or prescription drugs) should take over.
  - › Once the baby is positioned correctly, during the daytime, the mother can carry out her usual activities and movements. She should wash her hands frequently, feed her baby regularly (every 2–3 h throughout the day and night), and avoid loud noises and exposure to tobacco smoke.
  - › When the mother needs to rest or sleep, a reclined or semi-sitting position is best. Use pillows or cushions to prop the mother up.
  - › If the surrounding temperature is 22–24 °C, then the baby should be naked inside the “pouch” except for a diaper, a warm hat and socks.
  - › If the temperature is below 22 °C, in addition to the above, put a sleeveless cotton shirt on the baby. Keep the shirt open in the front to allow the baby’s face, chest, abdomen, arms and legs to remain in SSC with the mother’s chest. Advise the mother to then cover herself and her baby with her usual clothes.
  - › KMC can be used for babies until they are about 2500 g or 40 weeks post-conceptual age (meaning the date that they were expected to have been born) or when babies start to refuse KMC.
  - › Counselling, support by health workers, family support and system support, such as provision of food for the mother in the hospital, are critical for helping mothers achieve continuous KMC.

## C. DEALING WITH FEEDING PROBLEMS

### AREA OF CONCERN

### ACTION

#### Mother–infant separation

- ▶ When the mother and baby are separated, or if the baby is not suckling effectively: USE alternative feeding methods (pages 96–97).
- ▶ Teach the mother hand-expression of milk.
- ▶ DO NOT do it for her. Teach her to:
  - » wash her hands thoroughly,
  - » sit or stand comfortably and hold a clean container below her breasts,
  - » use fingers to stroke from the edge of the breast to the nipple,
  - » use fists to push from the edge of the breast to the nipple,
  - » use thumbs in a circular motion to massage from the edge of the breast to the nipple,
  - » use the thumb to spin around the edge of the areola, and
  - » use the thumb and index finger to roll the nipple.

***PLEASE, SEE VISUAL EXPLANATIONS ON NEXT PAGE.***

- ▶ **IF** milk does not flow well:
  - ▶ apply warm compresses, and
  - ▶ have someone massage her back and neck before expressing.

HOW TO EXPRESS BREAST MILK



› Use fingers to stroke from the edge of the breast to the nipple.



› Use fists to stroke from the edge of the breast to the nipple.



› Use thumbs in a circular motion to massage from the edge of the breast to the nipple.



› Use the thumb to spin around the areola.



## HOW TO EXPRESS BREAST MILK *(continued)*



- › Use the thumb and the index finger to roll the nipple.



- › Form the hand into a "C" on the area behind the areola, about 2–4 cm from the centre of the nipple.



- › Press back towards the chest wall and compress the breast rhythmically between the thumb and fingers until milk expresses. When the flow slows, move the fingers and thumb to a new position gradually moving around the areola. Repeat on the second side until the milk flow stops.



## AREA OF CONCERN

## ACTION

Feed the baby with the mother's own milk, whenever possible, by one of the three methods presented below.

**1. EARLY EXPOSURE  
TO THE BREAST**

In general, preterm babies will develop a coordinated suck-and-swallow reflex and be able to successfully breastfeed as early as 32 post-conceptual weeks.

Babies < 28 weeks generally require tube feeding. From 28 to 32 weeks, babies may still require tube feeding, but as a preterm approaches 32 weeks they start to explore, lick and smell the mother's nipple and areola without necessarily

attaching to the breast. This early exposure to the breast, initially for brief 5- to 10-min periods and then longer periods, builds the mother's confidence in later direct breastfeeding.

In later sessions, the preterm can be supervised to suckle on the emptied breast to promote milk production and sucking experience without undue choking hazard.

**2. EXPRESSING MILK  
DIRECTLY INTO  
THE BABY'S MOUTH**

- ▶ Hold the baby in SSC, with the mouth close to the nipple.
- ▶ Express the breast until some drops of breast milk appear on the nipple.
- ▶ Wait until the baby is alert and opens mouth and eyes, or stimulate the baby lightly to awaken her/him.
- ▶ Let the baby smell and lick the nipple.
- ▶ Let some breast milk fall into the baby's mouth.

## 2. EXPRESSING MILK DIRECTLY INTO THE BABY'S MOUTH

(continued)

- ▶ Wait until the baby swallows before expressing more drops of breast milk.
- ▶ When the baby has had enough, she/he will close her/his mouth and take no more breast milk.
- ▶ Repeat this process every 1–2 h if the baby is very small (> 2 months early or <1500 g), or every 2–3 h if the baby is not very small.
- ▶ Be flexible at each feed, but make sure the intake is adequate by checking daily weight.

## 3. CUP FEEDING, IF INDICATED



© WHO

- ▶ Do not feed the baby yourself.
- ▶ Teach the mother how to feed the baby with a cup:
  - › Measure the quantity of milk in the cup.
  - › Hold the baby sitting semi-upright on her lap.
  - › Hold the cup of milk to the baby's lips; rest cup lightly on the lower lip.
  - › Touch the edge of cup to the outer part of the upper lip.
  - › Tip the cup so that milk just reaches the baby's lips
  - › DO NOT pour the milk into the baby's mouth.
  - › Baby will become alert, open her/his mouth and eyes and start to feed.
  - › Baby will suck the milk from the cup, spilling some.
  - › Small babies will start to take milk into their mouth using the tongue.
  - › Baby swallows milk. The baby is finished feeding when the mouth closes or when she/he is not interested in taking more.

▶ 97

## AREA OF CONCERN

3. Cup feeding, if indicated  
(continued)

See: *Relactation: a review of experience and recommendations for practice*. Geneva: World Health Organization; 1998.

## ACTION

- ▶ If the baby does not take the calculated amount:
  - » feed for a longer time or feed more often, and
  - » teach the mother to measure the baby's intake over 24 h, not just at each feed.
- ▶ The baby is cup feeding well if the required amount of milk is swallowed, spilling little and weight gain is maintained.

Ensuring adequate  
milk intake

- ▶ **IF** the mother does not express enough milk in the first few days or if the mother cannot breastfeed at all, use one of the following feeding options:
  - » donor heat-treated human milk;
  - » donated raw milk (in circumstances where benefit of providing raw donor milk outweighs the small risk of HIV transmission); or
  - » artificial formula (as a last resort).
- ▶ LBW infants, including those with VLBW, who cannot be fed mother's own milk should be fed donor's human milk (where safe and affordable milk banking facilities are available or can be set up).
- ▶ Artificial formula should only be resorted to *after all efforts have been exerted to provide mother's own milk or human milk from donors*. The use of powdered milk substitutes increases the risk for necrotizing enterocolitis, pneumonia, diarrhoea, meningitis and death.
- ▶ LBW infants, including those with VLBW, who cannot be fed mother's own milk should be fed standard infant formula. If VLBW infants on standard formula fail to gain weight despite adequate

## Ensuring adequate milk intake *(continued)*

feeding, they should be given preterm infant formula. Intensive efforts to express and give the mother's breast milk and to breastfeed naturally should continue.

### When these methods are used:

- ▶ determine appropriate amount for daily feeds by age,
- ▶ assess the total daily amount of breast milk given, and
- ▶ plan to keep the small baby longer before discharging.

See: *Guidelines on optimal feeding of low-birthweight infants in low- and middle-income countries*. Geneva: World Health Organization; 2011.

See: *Infant and young child feeding: model chapter for textbooks for medical students and allied health professionals*. Geneva: World Health Organization; 2009.

- » Preterm babies 1500–2499 g should consume 60–80 mL/kg on Day 1, increasing by 20 mL per day over 5 days, up to 140–160 mL/kg per day.
- » Preterm babies 1000–1499 g should consume 70–90 mL/kg on Day 1, increasing by 20–30 mL per day over 5 days, up to 160–180 mL/kg per day. After Day 5 they should receive 140–160 mL/kg per day.
- » If the baby is still having exclusive breast milk by cup or gastric tube after 7 days, increase the quantity given by 20 mL/kg each day until the baby is receiving 180 mL/kg per day.
- » Milk is given at least 8 times in each 24-h period. If a baby has more than 8 feeds in 24 h, the amount per feed must be reduced accordingly, to achieve the same total volume in 24 h.
- » Cup-fed babies need to be offered 5 mL extra at each feed to accommodate for spillage.
- » A record of amounts given at each feed should be kept to estimate total breast milk consumed and ensure the daily intake is sufficient.

See: Jochum F, Moltu SJ, Senterre T, Nomayo A, Goulet O, Iacobelli S, et al. *ESPGHAN/ESPEN/ESPR/CSPEN Guidelines on pediatric parenteral nutrition: fluid and electrolytes*. *Clinical Nutrition*. 2018;37(6):2344–53. Table 1: <https://doi.org/10.1016/j.clnu.2018.06.948>.

**RECOMMENDED FLUID INTAKE FOR LBW INFANTS**

DAY OF LIFE	FLUID REQUIREMENTS (in mL/kg per day)			
	2000–2500 g	1500–1999 g	1000–1499 g	< 1000 g
DAY 1	60–80	60–80	70–90	80–100
DAY 2	80–100	80–100	90–110	100–120
DAY 3	100–120	100–120	110–130	120–140
DAY 4	120–140	120–140	130–150	140–160
DAY 5	140–160	140–160	160–180	160–180
DAYS 6–10	140–160	140–160	140–160	140–160
DAYS 11–30	140–160	140–160	140–160	140–160

## AREA OF CONCERN

Ensuring adequate milk intake (*continued*)

## ACTION

- ▶ After 10–14 days of life a weight gain of at least 10 g/kg per day is expected (averaged over 3 days).
- ▶ If the baby has inadequate weight gain, determine and classify the cause. A baby with inadequate weight gain usually has:
  - 1) insufficient feeds,
  - 2) incorrect feeding method,
  - 3) incorrect temperature control, or
  - 4) illness – signs of illness must be assessed and baby referred, if present (see pages 54–59).
- ▶ To assess adequacy of feed volumes, ask about and observe the mother in these areas:
  - » expressing and giving expressed breast milk (volume, technique, frequency of feeds);
  - » breastfeeding (positioning, attachment, sucking adequacy, duration and frequency); and
  - » inappropriate use of other methods, including giving formula between feeds and the use of bottle feeding.
- ▶ To assess temperature control, ask about and observe KMC technique including positioning, adequacy of SSC, duration of separations, total time in SSC each 24-h period, and whether the baby is adequately covered. Ensure that the environmental temperature is adequate (at least 25–28 °C).
- ▶ If no obvious cause is found or if feeding problems cannot be adequately addressed, refer for further review by a paediatrician.

▶ 101

## Ensuring adequate milk intake *(continued)*

See: Save the Children, Limpopo Provincial Government of South Africa, University of Limpopo, United Nations Children's Fund. *Management of sick and small newborns in district hospitals: trainee manual*. Polokwane, South Africa: Limpopo Initiative for Newborn Care; 2015, page 72 ([http://www.kznhealth.gov.za/kinc/Trainee\\_manual.pdf](http://www.kznhealth.gov.za/kinc/Trainee_manual.pdf)).

### MINIMUM EXPECTED WEIGHT GAIN IS 10 g/kg PER DAY

BIRTHWEIGHT	EXPECTED WEIGHT GAIN
1–1.9 kg	At least 10 g/day <b>OR</b> 70–150 g/week
2–2.9 kg	At least 20 g/day <b>OR</b> 150–200 g or more/week
3 kg or more	At least 30 g/day <b>OR</b> > 200 g or more/week

- ▶ Refer for breastfeeding counselling and further investigation if:
  - » feeding difficulty persists for 3 days, or
  - » where there is weight loss of > 10% of birthweight.
- ▶ Assess the mother and baby, and plan to discharge them when:
  - » baby is breastfeeding well and gaining weight adequately for 3 consecutive days,
  - » baby's body temperature is between 36.5 and 37.5 °C for 3 consecutive days, and
  - » mother is able and confident in caring for her baby.



# 7. Setting up the environment for good neonatal care

## A. PREPARING FOR SHIFTS

- ▶ **Prepare workplace for deliveries** 104

## B. AFTER EVERY DELIVERY

- ▶ **Restock delivery area** 104

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## C. STANDARD PRECAUTIONS

- ▶ **General standard precautions and cleanliness** 105
  - Hand hygiene technique* 108
- ▶ **Processing instruments and other items for decontamination** 110

## A. PREPARING FOR SHIFTS

## INTERVENTION

Prepare workplace  
for deliveries

## ACTION

- ▶ The incoming and outgoing teams together should perform the following actions:
  - » complete the equipment and supplies maintenance checklist to ensure all equipment is disinfected and functioning, and that supplies and drugs are maintained in the right quantity (see Equipment and supplies maintenance checklist, pages 112–117);
  - » establish staffing lists and schedules;
  - » maintain and appropriately file all clinical records, certificates, referrals and all other documentation; and
  - » ensure that there are no violations of the *International Code of Marketing of Breast-milk Substitutes* or national codes and other legislation pertaining to infant feeding.

## B. AFTER EVERY DELIVERY

## INTERVENTION

Restock delivery area

## ACTION

- ▶ Replace and process used delivery instruments (see pages 114–117).
- ▶ Replace used linen.
- ▶ Update essential information in the logbook. Document findings, treatments, referrals, and follow-up plans on clinical and home-based records.

## C. STANDARD PRECAUTIONS

### INTERVENTION

#### General standard precautions and cleanliness

### ACTION

- ▶ Consider every person potentially infectious (even the baby and medical staff).
- ▶ Practise the routine procedures that protect both health workers and patients from contact with infectious materials:
  - » Wash hands before and after caring for a woman or baby, before any treatment procedure including injection sessions or cord cutting, after handling waste or potentially contaminated materials and after removal of gloves (see page 110).
  - » Wear fresh sterile gloves when performing delivery, cutting the cord or drawing blood.
  - » Wear non-sterile, well-fitting latex or latex-free gloves when coming into contact with blood or blood products.
  - » Wear clean gloves when handling and cleaning instruments, handling contaminated waste, and cleaning blood and body fluid spills.
  - » **During deliveries:** wear gloves; cover any cuts, abrasions or broken skin with a waterproof bandage; wear a long plastic apron or other fluid-resistant material and closed shoes; and protect your eyes from splashes and blood.
  - » Gloves DO NOT provide protection against needle-stick or other puncture wounds caused by sharp objects. Needles, scalpels and other sharps should be handled with extreme caution.

**INTERVENTION**

General standard precautions and cleanliness *(continued)*

**ACTION**

- ▶ **In addition to standard precautions, take precautions to prevent COVID-19 and other respiratory diseases.**
  - » Wear medical or N95 masks (N95 during aerosol-generating procedures, e.g. caesarean section), eye protection (e.g. face shield), gloves and gowns during births, transfer and postnatal care, according to national protocols.
  - » Manage mothers with confirmed or suspected disease in isolation areas with strict infection control protocols, limits to visitors and limits to number of staff.
  - » Ensure that mothers wear medical masks while breastfeeding, wash hands frequently, have limited contact with visitors and practise respiratory hygiene.
  - » Ensure that the waiting areas and postnatal care areas maintain at least 1 m distance between patients, have adequate handwashing resources, require all patients to wear medical masks, and clean and disinfect surfaces frequently.
- ▶ When undertaking injections, gloves are not needed:
  - for routine intradermal, subcutaneous and intramuscular injections,
  - if the health worker's skin is intact, and
  - if the patient's skin is intact.
- » Safely dispose sharps in a puncture-resistant container kept near the bed.
- » Never reuse, recap or break needles after use.

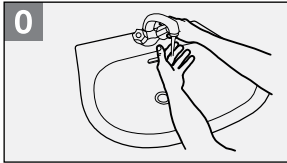
General standard precautions  
and cleanliness *(continued)*

- » Discard a multidose vial as per WHO or manufacturer's recommendation.
- » Dispose of bloody or contaminated infectious items in leak-proof containers.
- » Pour liquid waste down a drain or flushable toilet, where wastewater treatment is adequate, or decontaminated prior to disposal.
- » Collect and keep clothing or sheets stained with blood or body fluids separate from other laundry and follow the process for infectious linen.
- » Make sure that instruments that penetrate the skin are adequately sterilized and that single-use instruments are disposed of after one use.
- » Thoroughly clean or disinfect any equipment which comes into contact with intact skin.
- » Use bleach for cleaning bowls, buckets, bloody or body fluid spills.

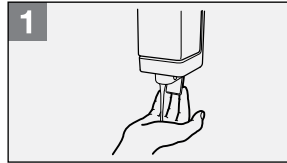
## HAND HYGIENE: TECHNIQUE WITH SOAP

Duration of the entire procedure: 40–60 s

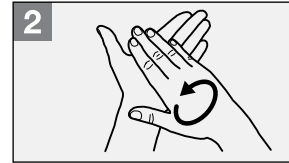
- ▶ If using alcohol hand rub/hand sanitizer, use steps 0 to 7 over 20–30 s



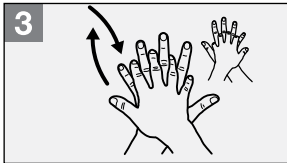
- › Wet hands with water.



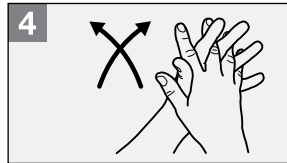
- › Apply enough soap to cover all hand surfaces.



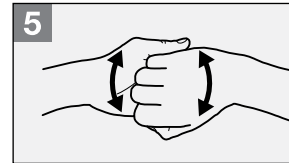
- › Rub hands palm to palm.



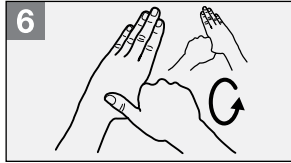
- › Right palm over left dorsum with interlaced fingers and vice versa.



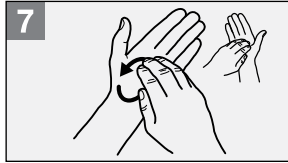
- › Palm to palm with fingers interlaced.



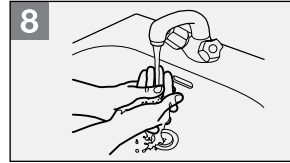
- › Backs of fingers to opposing palms with fingers interlocked.



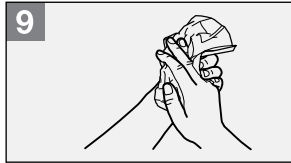
- › Rotational rubbing of left thumb clasped in right palm and vice versa.



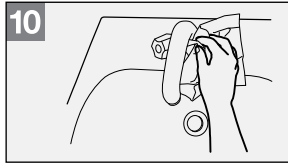
- › Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa.



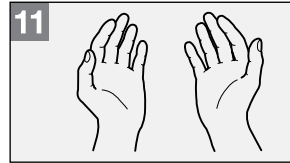
- › Rinse hands with water.



- › Dry hands thoroughly with a single use towel.



- › Use towel to turn off faucet.



- › Your hands are now safe.

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NOTE **MOBILE PHONES** can be heavily contaminated with disease-causing microbes and should not be used during patient care.

## INTERVENTION

**Processing instruments  
and other items for  
decontamination**

## ACTION

**POINT-OF-USE PREPARATION OF DEVICES FOR DECONTAMINATION**

- ▶ Preparation does not replace the cleaning process, but helps to prolong the life of instruments (dried blood and saline can cause the decomposition of stainless steel and make surgical instruments difficult to clean).
- ▶ Before sending instruments to the sterilization department:
  - » wear personal protective equipment (e.g. gloves, gown and eye protection when risk of splash);
  - » remove gross soil from instruments by wiping with a damp clean dry cloth; pre-cleaning (e.g. soak) prevents soil from drying on devices and makes them easier to clean; and
  - » clean with the correct dilution of detergent-based products for the correct time (if soaking), using device manufacturer's recommendations.
- ▶ Place contaminated items in dedicated, fully enclosed, leak- and puncture-proof containers prior to transport.
- ▶ Open soiled instruments and keep moist (e.g. cover with a damp towel, kept moist with water, foam, spray or gel).
- ▶ Do not transport in containers with water, as water is a splash hazard.

## NOTE

**DO NOT** use saline or sodium hypochlorite (bleach) as they damage some medical devices.



## 8. Equipment and supplies maintenance checklist

- ▶ **Warm and clean room** 112
- ▶ **Handwashing** 112
- ▶ **Waste** 113
- ▶ **Sterilization** 113
- ▶ **Supplies** 113
- ▶ **Miscellaneous** 114
- ▶ **Equipment for the mother** 114
- ▶ **Equipment for the newborn** 116

▶ 111

## 8. Equipment and supplies maintenance checklist

AREA OF CONCERN	ACTION
<b>Warm and clean room</b>	<ul style="list-style-type: none"><li>▶ Light source</li><li>▶ Heat source</li><li>▶ Room thermometer</li><li>▶ Clean bed linen</li><li>▶ Curtains if more than one bed, or impregnated bed net in malaria areas</li><li>▶ Work surface for resuscitation of newborn near delivery beds</li><li>▶ Clean surface (for alternative delivery position)</li><li>▶ Detergent for cleaning walls, windows, floors (if no body fluids present)</li></ul>
<b>Handwashing</b>	<ul style="list-style-type: none"><li>▶ Clean water supply</li><li>▶ Liquid hand soap or bar soap in small pieces</li><li>▶ Nail brush or stick</li><li>▶ Clean towels</li><li>▶ Alcohol hand rub</li></ul>

## Waste

- ▶ Container for sharps disposal
- ▶ Receptacle for soiled linens
- ▶ Pail for soiled pads and swabs
- ▶ Bowl and plastic bag for placenta

## Sterilization

- ▶ Instrument sterilizer
- ▶ Jar for forceps

## Supplies

- ▶ Gloves:
  - » utility or heavy-duty, sterile or highly disinfected
  - » long sterile, for removal of placenta
  - » single-use, for examination
  - » surgical, sterile, for procedures
- ▶ Medical masks and N95 masks
- ▶ Eye protection
- ▶ Long plastic apron
- ▶ Urinary catheter
- ▶ Disposable syringes with needles
- ▶ IV tubing
- ▶ Suture material for tear or episiotomy repair
- ▶ Antiseptic solution (iodophors or chlorhexidine)

**AREA OF CONCERN**

**ACTION**

Supplies *(continued)*

- ▶ 70% isopropyl alcohol
- ▶ Swabs
- ▶ Bleach (chlorine-based compound)

**Miscellaneous**

- ▶ Oxygen source
- ▶ Wall clock (digital or with distinct second hand)
- ▶ Flashlight with extra batteries
- ▶ Logbook

**Equipment for the mother**

- ▶ Delivery bed that supports the woman in a semi-sitting position or lying in a lateral position, with removable stirrups (only for repairing the perineum or for instrumental delivery)
- ▶ Stethoscope
- ▶ BP apparatus
- ▶ Body thermometer

**Delivery instruments**

- |                            |   |
|----------------------------|---|
| ▶ Scissors                 | ▶ Sponge forceps                              |
| ▶ Needle holder            | ▶ Vaginal speculum                            |
| ▶ Artery forceps and clamp | ▶ Clean (plastic) sheet to place under mother |
| ▶ Dissecting forceps       | ▶ Sanitary pads                               |



## Equipment for the mother

(continued)

### For comprehensive emergency obstetric and newborn care, the above, plus:

- ▶ Equipment for caesarean section
- ▶ Blood supply and needs for blood transfusion

## Drugs

- ▶ Oxytocin
- ▶ Oxygen
- ▶ Methylergonovine maleate
- ▶ Magnesium sulfate
- ▶ Calcium gluconate
- ▶ Dexamethasone or betamethasone
- ▶ Diazepam
- ▶ Hydralazine
- ▶ Ampicillin
- ▶ Gentamicin
- ▶ Metronidazole
- ▶ Benzathine penicillin
- ▶ Lignocaine
- ▶ Epinephrine
- ▶ Ringer's lactate
- ▶ Dextrose 10%
- ▶ Normal saline
- ▶ Sterile water for injection
- ▶ Isoniazid
- ▶ Rapid plasma reagin (RPR) testing kit
- ▶ HIV testing kit
- ▶ Haemoglobin testing kit
- ▶ Contraceptives
- ▶ First-line ART regimen (TDF + 3TC [or FTC] + EFV)
- ▶ Nevirapine (adult, infant)
- ▶ Zidovudine (adult, infant)
- ▶ Lamivudine (3TC)

## Forms and records

- ▶ Birth certificates
- ▶ Health insurance forms
- ▶ Death certificates
- ▶ Recording and reporting forms: births, deaths
- ▶ Referral forms

AREA OF CONCERN

ACTION

Equipment for the newborn

- ▶ Fetal stethoscope
- ▶ Clean towels for drying and covering the baby
- ▶ Neonatal self-inflating bag and masks (sizes 1 for term and 0 for preterm)
- ▶ Suction tube with mucus trap
- ▶ Feeding tubes (Fr 5, 6 and 8)
- ▶ Cord ties (sterile) or clamps and forceps
- ▶ Blankets
- ▶ Baby hats, mittens and socks

Drugs and vaccines

Supplies

- ▶ Eye antimicrobial (erythromycin or tetracycline ointment or 2.5% povidone-iodine)
- ▶ Vitamin K
- ▶ BCG vaccine
- ▶ Hepatitis B vaccine
- ▶ Ampicillin
- ▶ Gentamicin
- ▶ Penicillin G
- ▶ Plain Ringer's lactate or normal saline
- ▶ Dextrose 10%
- ▶ Sterile water for injection
- ▶ 1-cc syringes
- ▶ 3-cc syringes
- ▶ Digital thermometers
- ▶ Baby-weighing scale
- ▶ Feeding cups
- ▶ Support binders for KMC
- ▶ Newborn screen filter cards (per national guidelines)
- ▶ Lancets



**Equipment for the newborn**

*(continued)*

**For comprehensive emergency obstetric and newborn care, the above, plus:**

---

- ▶ Laryngoscope with Miller 0 and 1 blades
- ▶ Epinephrine 1:10 000
- ▶ Dopamine
- ▶ Oxygen source
- ▶ Suction machine or wall suction
- ▶ Radiant warmer or heat source
- ▶ Phototherapy units

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