

EARLY ESSENTIAL NEWBORN CARE

Clinical practice pocket guide



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FOREWORD

Women are especially vulnerable during labour, birth and immediately after birth. A newborn infant dies every two minutes in the Western Pacific Region, accounting for more than half of all under-five child deaths. Many of these deaths are preventable.

In a push to meet the Millennium Development Goals (MDGs) 4 and 5 relating to women and children’s health, United Nations Secretary-General Ban Ki Moon championed the Global Strategy on Women’s and Children’s Health (2010). In his initiative, the UN Secretary-General called on governments, United Nations agencies and other stakeholders to take actions towards achieving these targets in MDGs 4 and 5.

Likewise, *Every Newborn: An Action Plan to End Preventable Deaths (2014)* was developed by the World Health Organization (WHO), the United Nations Children’s Fund (UNICEF) and other partners. At the same time, the *Action Plan for Healthy Newborn Infants in the Western Pacific Region (2014–2020)* was developed by the WHO Regional Office for the Western Pacific and UNICEF’s East Asia Pacific Regional Office. Both plans highlight key actions that Member States and development partners can engage to increase maternal and newborn survival rates, particularly by enhancing the quality of care.

Supporting Member States to update clinical protocols, the Regional Office has now developed the *Early Essential Newborn Care: Clinical Practice Pocket Guide*. This practical, hands-on reference volume provides health workers with WHO-recommended steps to care for mothers during labour and delivery and for newborn infants after birth. Within these pages, health workers will find effective, low-cost recommendations that can be easily implemented even at the community level. For example, the “First Embrace” is a simple, yet vital, sequence of steps in immediate newborn care – focusing on maximizing newborn contact with the mother – that have been proven to dramatically improve outcomes. Special attention is also paid to common practices that are harmful and must be stopped.

With our collective will and sustained efforts – along with practical guidance – we can improve the lives of millions... and save 50 000 young lives every year.



Shin Young-soo, 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.

ACRONYMS

ART	antiretroviral therapy
BCG	bacille Calmette-Guérin (vaccine)
BP	blood pressure
HIV	human immunodeficiency virus
HLD	high-level disinfection
HR	heart rate
IM	intramuscular
IU	International Unit
IV	intravenous
KMC	kangaroo mother care
LBW	low-birth-weight
PR	pulse rate
pPROM	preterm prelabour rupture of membranes
RPR	rapid plasma reagin
RR	respiratory rate
VLBW	very low-birth-weight
UNICEF	United Nations Children’s Fund
VDRL	Venereal Research Disease Laboratory
WHO	World Health Organization

RATIONALE, PURPOSE AND INTENDED USERS

Approximately every two minutes, a baby dies in the WHO Western Pacific Region. The majority of newborn deaths occur within the first few days, mostly from preventable causes. The high mortality and morbidity rates among newborns are related to inappropriate hospital and community practices that currently occur throughout the Region. Furthermore, newborn care has fallen into a gap between maternal care and child care.

This Guide aims to provide health professionals with a user-friendly, evidence-based protocol to essential newborn care – focusing on the first hours and days of life.

The target users are skilled birth attendants including midwives, nurses and doctors, as well as others involved in caring for newborns. This pocket book provides a step-by-step guide to a core package of essential newborn care interventions that can be administered in all health-care settings. It also includes stabilization and referral of sick and preterm newborn infants. Intensive care of newborns is outside the scope of this pocket Guide.

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

The most updated information and actions to perform with regard to the early essential care of newborns in the WHO Western Pacific Region are included in this Clinical practice pocket guide.

The Newborn Care Technical Working Group reviewed the available materials from six countries of the Western Pacific Region (Cambodia, China, the Lao People’s Democratic Republic, Papua New Guinea, Philippines and Viet Nam).

The text and clinical algorithms have been updated and enhanced through the recent WHO publications and guidelines: the 2013 second edition of the *Pocket book of hospital care for children: Guidelines for the management of common childhood illnesses*; the 2012 *Guidelines on basic newborn resuscitation*; the 2012 *WHO recommendations for the prevention and treatment of postpartum haemorrhage*; the 2009 *Infant and young child feeding*. Model chapter for textbooks for medical students and allied health

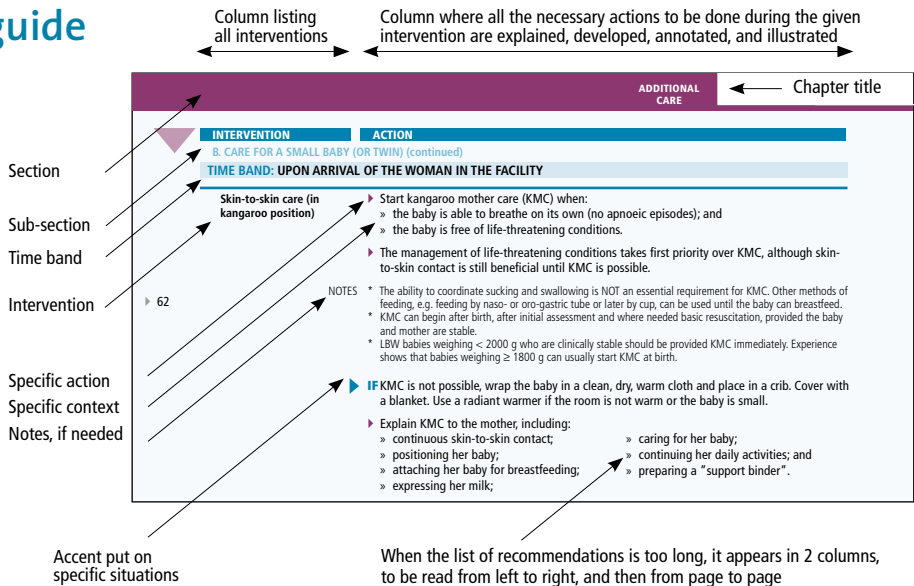
professionals; the 2009 WHO/UNICEF *Baby-Friendly Hospital Initiative: Revised, updated and expanded for integrated care – Section 1: Background and implementation*; the 2013 *WHO recommendations on postnatal care of the mother and newborn* and the 2010 *WHO Technical Consultation on postpartum and postnatal care*; the 2010 *Essential newborn care course*; the 2009 WHO/UNICEF Joint Statement. *Home visits for the newborn child: a strategy to improve survival*; the 2011 *Guidelines on optimal feeding of low-birth-weight infants in low- and middle-income countries*; the 2010 *WHO best practices for injections and related procedures toolkit*; and the 2009 *WHO Guidelines on hand hygiene in health care*.

A compilation of the pertinent recommendations approved or under review by the WHO Guidelines Review Committee is available at: http://origin.who.int/maternal_child_adolescent/documents/guidelines-recommendations-newborn-health.pdf.

How to use the guide

This clinical practice guide is organized chronologically. It guides health workers through the standard newborn care practices, beginning at the intrapartum period with the process of preparing the delivery area, and emphasizing care practices in the first hours and days of a newborn's life.

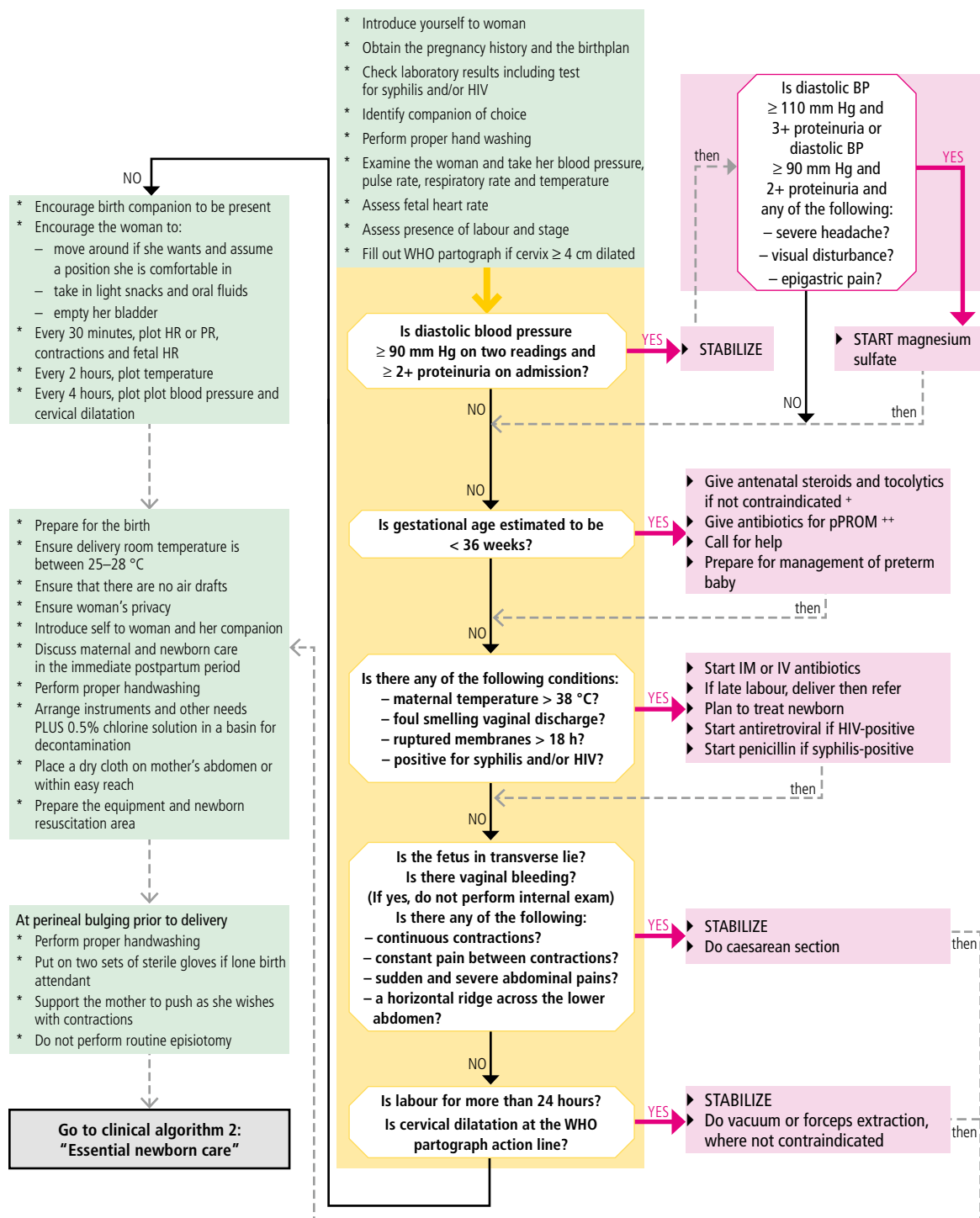
Each section has a colour tab for easy reference.



1. Preparing for a birth

Algorithm 1: Preparing for a birth

2



3

* Recommendations for antenatal steroids are currently under global review. An update will be provided once available.

**pPROM: preterm prelabour rupture of membranes

- Essential care for all
- Decision points
- Conditions needing urgent care

→ YES → NO - - - → then

1. Preparing for a birth

INTERVENTION	ACTION
TIME BAND: UPON ARRIVAL OF THE WOMAN IN THE FACILITY	

- ▶ Introduce yourself to the woman.
- ▶ Obtain the pregnancy history and birth plan.
- ▶ Identify the companion(s) of choice.
- ▶ Perform proper handwashing (see pages 75–77).
- ▶ Examine the woman. Check for pallor, and take:
 - » blood pressure (BP),
 - » heart rate (HR) or pulse rate (PR),
 - » respiratory rate (RR),
 - » temperature.
- ▶ Assess fetal heart rate.
- ▶ Assess the progress and stage of labour.

TIME BAND: UPON CONFIRMATION THAT LABOUR HAS BEGUN

- ▶ Check results of woman’s laboratory tests including haemoglobin, syphilis – rapid plasma reagin (RPR) or Venereal Disease Research Laboratory (VDRL) – and HIV tests.

FILL OUT WHO PARTOGRAPH, WHICH INCLUDES:

- » hours in active labour,
 - » hours since ruptured membranes,
 - » rapid assessment,
 - » vaginal bleeding,
 - » amniotic fluid,
 - » uterine contractions,
 - » fetal heart rate,
 - » urine voided,
 - » temperature,
 - » heart rate or pulse rate,
 - » blood pressure,
 - » cervical dilatation, and
 - » any problems.
- ▶ IF diastolic blood pressure is ≥ 90 mm Hg, CONFIRM with a second reading and check urine for protein.
 - ▶ IF diastolic blood pressure is ≥ 90 mm Hg on two readings AND $\geq 2+$ proteinuria, STABILIZE the woman.

INTERVENTION

ACTION

TIME BAND: UPON CONFIRMATION THAT LABOUR HAS BEGUN (continued)

- ▶ **IF** diastolic blood pressure is ≥ 110 mm Hg AND 3+ proteinuria OR diastolic blood pressure is ≥ 90 mm Hg AND 2+ proteinuria AND ANY of the following:
 - » severe headache;
 - » visual disturbance; or
 - » epigastric pain;START magnesium sulfate.
- ▶ **IF** the gestational age is estimated to be < 36 weeks:
 - START tocolytics to slow down labour, if no contraindications;
 - START antibiotics for preterm prelabour rupture of membranes;
 - CALL for help; and
 - PREPARE for resuscitation and management of a preterm baby.
- ▶ **IF** any of the following are present:
 - » maternal temperature $> 38^{\circ}\text{C}$;
 - » foul-smelling vaginal discharge;
 - » ruptured membranes > 18 hours;START IM or IV antibiotics.

NOTE – Recommendations for antenatal steroids are currently under global review. An update will be provided once available.

- ▶ **IF** positive for:
 - » syphilis test (RPR or VDRL): START penicillin;
 - » HIV: START antiretroviral therapy (ART).
- ▶ **IF** known to be positive for HIV:
 - » continue ART per national protocol.
- ▶ **IF** late labour:
 - DELIVER, then REFER.
 - START the newborn, as appropriate, on the following before referral:
 - » prophylactic antibiotics;
 - » antiretroviral therapy for HIV-exposed newborn; or
 - » penicillin for syphilis-exposed newborn.
- ▶ **IF** any of the following are present:
 - » fetus is in transverse lie;
 - » vaginal bleeding (if yes, DO NOT perform internal exam);
 - » continuous contractions;
 - » constant pain between contractions;
 - » sudden and severe abdominal pains; or
 - » a horizontal ridge across the lower abdomen;STABILIZE and REFER accordingly for caesarean section.

NOTE – Refer to the *Consolidated guidelines* (see Bibliography).

INTERVENTION

ACTION

TIME BAND: UPON CONFIRMATION THAT LABOUR HAS BEGUN (continued)

▶ **IF** labour has lasted for >24 hours or the cervical dilatation is at the WHO partograph action line: **STABILIZE** and do vacuum/forceps extraction.

- NOTE DO NOT give (tocolytic) medications to stop labour if:
- * gestation is more than 36 weeks;
 - * there is chorioamnionitis, pre-eclampsia or active bleeding;
 - * the mother has heart disease; or
 - * the fetal heart rate is not heard or the fetus is known to have a potentially lethal major malformation, for example, anencephaly.

TIME BAND: DURING LABOUR

- ▶ Encourage birth companion(s) to be present.
- ▶ Encourage the woman to:
 - » move around if she wants and assume a position she is comfortable in;
 - » take in light snacks and oral fluids; and
 - » empty her bladder.
- ▶ Every
 - » 30 minutes: plot heart or pulse rate, contractions and fetal heart rate;
 - » 2 hours: plot temperature; and
 - » 4 hours: plot blood pressure and cervical dilatation.

TIME BAND: PREPARING FOR THE BIRTH

- ▶ Ensure privacy.
- ▶ Ensure that the delivery area is between 25–28 °C using a non-mercury room thermometer.
- ▶ Test whether the delivery area is draft-free by hanging a piece of tissue paper.
- ▶ Eliminate draft if present, e.g. turn off fans and/or air-conditioning units.
- ▶ Introduce yourself to the mother and her companion of choice or support person.
- ▶ Review with the mother what care to expect for herself and her baby in the immediate postpartum period.
- ▶ Wash hands with clean water and soap (see pages 75–77).
- ▶ Place a dry cloth on her abdomen or within easy reach.
- ▶ Prepare the following:
 - » clean linen or towel(s),
 - » bonnet,
 - » syringe,
 - » 10 IU ampoule of oxytocin,
 - » basin with 0.5% chlorine solution for decontamination (see page 78).
- ▶ Open the delivery kit containing sterile umbilical clamp or tie, instrument clamp, and scissors. Do not touch the sterile items.

INTERVENTION

ACTION

TIME BAND: PREPARING FOR THE BIRTH (continued)

- ▶ Prepare newborn resuscitation area by:
 - » clearing a flat, firm surface; and
 - » checking that resuscitation equipment including bag, masks and a suction device (preferably single-use) are within reach, clean and functional.

TIME BAND: PRIOR TO DELIVERY AT PERINEAL BULGING, WITH PRESENTING PART VISIBLE (2nd STAGE OF LABOUR, PERINEAL PHASE)

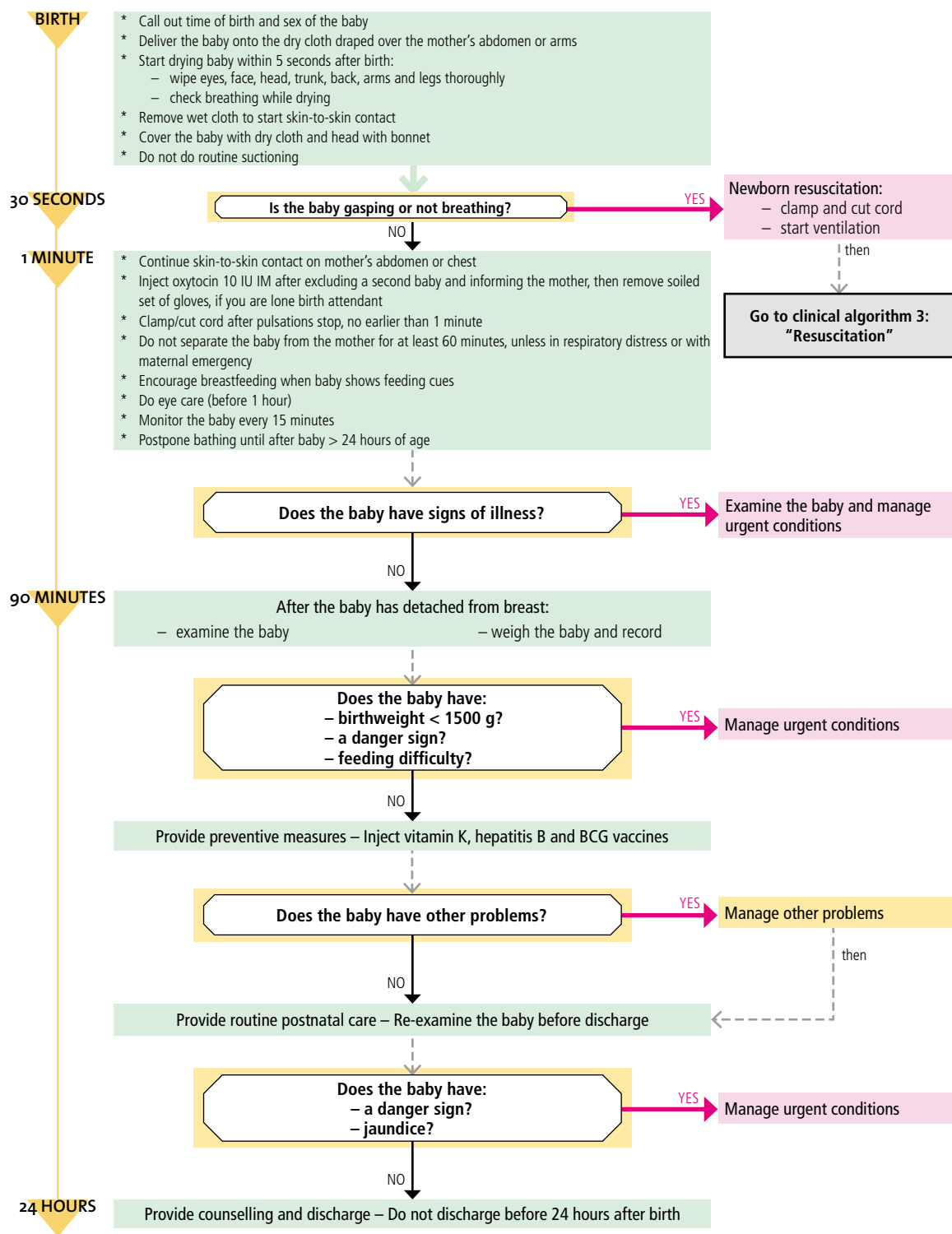
Prepare for the delivery

NOTE – If lone birth attendant, put on two sets of sterile gloves; if a team, the gloves of the health worker who will handle the cord should be sterile.

- ▶ Perform proper handwashing (see pages 75–77).
- ▶ Put on sterile gloves.
- ▶ Allow the mother to push as she wishes with contractions.
- ▶ Do not perform routine episiotomy.
- ▶ Episiotomy should be considered only in the case of:
 - » complicated vaginal delivery (breech, shoulder dystocia, vacuum or forceps extraction);
 - » scarring of the female genitalia or poorly healed third- or fourth-degree tears; or
 - » fetal distress.
- ▶ Provide good perineal support with controlled delivery of the head.

2. Immediate newborn care: the first 90 minutes

Algorithm 2: Essential newborn care



- Essential care for all
- Decision points
- Conditions needing urgent care

→ YES → NO - - - → then

2. Immediate newborn care: the first 90 minutes

INTERVENTION	ACTION
TIME BAND: WITHIN THE FIRST 30 SECONDS	

- Dry and provide warmth**
- ▶ Call out time of birth.
 - ▶ Immediately dry the baby (starting within the first 5 seconds after birth), as follows:
 - » use a clean, dry cloth and dry the baby thoroughly;
 - » wipe the eyes, face, head, front, back, arms and legs; and
 - » do a quick check of baby's breathing while drying (see page 12).
 - ▶ Remove wet cloth and place baby in skin-to-skin contact with the mother.
 - ▶ Cover the baby and mother with a clean warm cloth.
 - ▶ Cover the baby's head with a bonnet.

NOTE DO NOT do routine suctioning. During the first 30 seconds:
– do not suction unless the mouth/nose is/are blocked; and
– do not suction meconium unless the baby is not vigorous.

TIME BAND: FROM 30 SECONDS TO 3 MINUTES

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

- Start of positive pressure ventilation**
- ▶ Call for help.
 - ▶ Clamp and cut the cord with sterile scissors and with sterile gloves on.
 - ▶ Transfer to warm, firm surface.
 - ▶ Inform the mother in a kind and gentle tone that the baby has difficulty breathing and that you will help the baby to breathe.
 - ▶ Start ventilation (see page 53).

- ▶ **IF** breathing or crying

- Continue skin-to-skin contact**
- ▶ If baby is breathing normally or crying, avoid manipulation such as routine suctioning that may cause trauma or introduce infection. Postpone routine procedures such as weighing and measurements.
 - ▶ Continue skin-to-skin contact with the baby prone on the mother's abdomen or chest. Turn the baby's head to one side.
 - ▶ Keep the baby's back covered with a blanket and head with a bonnet.

INTERVENTION

ACTION

TIME BAND: FROM 30 SECONDS TO 3 MINUTES (continued)

- NOTES
- * DO NOT separate baby from the mother as long as the baby is well – i.e. does not exhibit severe chest in-drawing, gasping or apnoea, or severe malformation – and the mother does not need urgent medical stabilization, e.g. emergency hysterectomy.
 - * DO NOT wipe off the vernix, if present.
 - * DO NOT bathe the baby during the first 24 hours of life.
 - * IF an identification band is used, place on the baby's ankle.
 - * IF the baby must be separated from his/her 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 oxytocin to make her uterus contract and protect her from excessive bleeding.
- A trained second health worker, if available, could inject the oxytocin.
- Put soiled instruments into a decontaminating solution.

Assist with multiple births

- If there is another baby/ies, get help. Deliver the next baby. Manage as in a multifetal pregnancy.

Do appropriately timed cord clamping and cutting

- Ensure gloves are sterile when touching or handling the cord:
 - » if single health worker with double sterile gloves: remove soiled set of gloves prior to touching or handling the cord;
 - » if other health worker: wash hands and use sterile gloves.
- Clamp and cut the cord after cord pulsations have stopped (between 1–3 minutes), 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.

TIME BAND: WITHIN 90 MINUTES

- Leave the baby on mother's chest in skin-to-skin contact, with the head turned to one side and mother in a semi-upright position, or on her side.
- Observe the baby. Only when the baby shows feeding cues (e.g. opening of the mouth, tonguing, licking, rooting), suggest to the mother to encourage/nudge her baby towards the breast.

INTERVENTION

ACTION

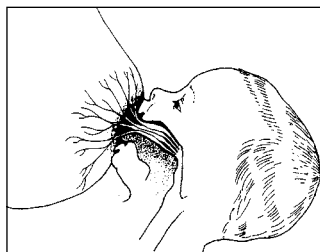
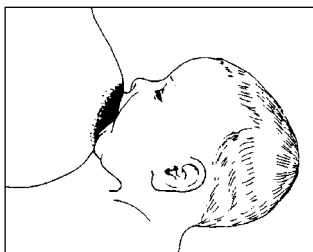
TIME BAND: WITHIN 90 MINUTES (continued)

- ▶ Provide breastfeeding support to ensure good positioning and attachment.
When the baby is ready, advise the mother to:
 - » make sure the baby's neck is not flexed or twisted;
 - » make sure the baby is facing the breast with the baby's nose opposite her nipple and chin touching the breast;
 - » hold the baby's body close to her body;
 - » support the baby's whole body, not just the neck and shoulders;
 - » wait until her baby's mouth is opened wide; and
 - » move the baby onto her breast, aiming the lower lip well below the nipple.
- ▶ Look for signs of good attachment and suckling, including:
 - » mouth wide open;
 - » lower lip turned outwards;
 - » baby's chin touching breast; and
 - » slow and deep suckling, with some pauses.

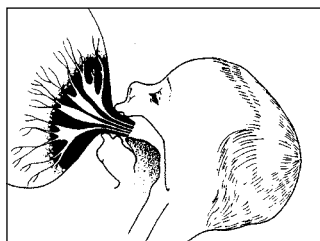
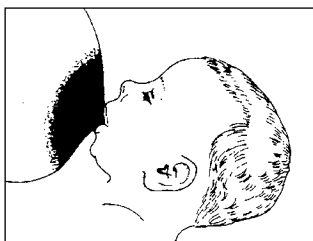
NOTE Breastfeeding is a learned behaviour for both baby and mother. Baby will make several attempts to breastfeed before being successful. Health workers should avoid interfering with this process (e.g. manipulating baby's head and/or body).

DIAGRAMS OF INFANT'S MOUTH

Good attachment to the breast



Bad attachment to the breast



© WHO

INTERVENTION

ACTION

TIME BAND: WITHIN 90 MINUTES (continued)

- ▶ **IF** attachment or suckling is not good, try again, and reassess.
 - ▶ Do not leave the mother and baby alone. Monitor breathing and warmth.
- ▶ **IF** the baby has signs of illness or does not show readiness to feed, i.e. feeding cues within 90 minutes, **EXAMINE** the baby and **MANAGE** urgent conditions.
- ▶ **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 touch the baby unless there is a medical indication.
- * DO NOT give sugar water, formula or other prelacteals. Do not give bottles or pacifiers.
- * DO NOT throw away colostrum.
- * IF the mother is HIV-positive, take measures to prevent mother-to-child transmission. Do counselling and testing.

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.
- ▶ After baby has located the breast, 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.

Provide additional care for a small baby (or twin)

- ▶ For a visibly small baby or a baby born > 1 month early:
 - » encourage the mother to keep the baby in skin-to-skin contact;
 - » provide extra blankets to keep the baby warm;
 - » do not bathe the baby; and
 - » ensure hygiene by wiping with a damp cloth, but only after 24 hours.
- ▶ **IF** the mother cannot keep the baby in skin-to-skin contact because of complications:
 - » wrap the baby in a clean, dry, warm cloth;
 - » place in a cot;
 - » cover with a blanket; and
 - » encourage another family member to keep the baby in skin-to-skin contact or use a radiant warmer if room is < 28 °C.
- ▶ Prepare a very small baby (< 1500 g or a baby born > 2 months early) for referral. Keep the baby in skin-to-skin contact or in an incubator while waiting for referral (see Additional care for a small baby, page 60).

NOTE

Low-birth-weight (LBW) babies weighing >1200 g who do not have complications should be maintained in skin-to-skin contact with the mother or other family member immediately after birth, after drying them thoroughly to prevent neonatal hypothermia.

See Bibliography. *Pocket book of hospital care for children: guidelines for the management of common childhood illnesses.*

3. Newborn care (from 90 minutes to 6 hours)

3. Newborn care (from 90 minutes to 6 hours)

INTERVENTION	ACTION
TIME BAND: FROM 90 MINUTES TO 6 HOURS	

Examine the baby

- ▶ After the baby has detached from the breast:
 - » wash hands;
 - » thoroughly examine the baby;
 - » put an identification tag 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, or
 - » fast or slow respiratory rate.

NOTE Normal breathing rate of a newborn is 30–60 breaths per minute.

- ▶ Check the baby's
 - » temperature – normal axillary temperature is of 36.5–37.5 °C;
 - » eyes for redness, swelling or pus draining; or
 - » 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; or
 - » arm that does not move.

- ▶ **IF** the above birth injuries are present:
 - » explain to parents that these are likely to disappear in a week or two, and do not need special treatment;
 - » gently handle the limb that is not moving; and
 - » do not force the legs into a different position.

INTERVENTION

ACTION

TIME BAND: FROM 90 MINUTES TO 6 HOURS (continued)

**Examine the baby
(continued)**

- ▶ Look for signs of fracture, including:
 - » swelling, or baby crying when part is touched.
- ▶ **IF** suspected fracture, refer.
- ▶ Look for malformations:
 - » club foot (talipes);
 - » odd/unusual appearance;
 - » open tissue on head, abdomen or back;
 - » no anal opening; or
 - » any other abnormalities.
- ▶ **IF** any of the above malformations are present, refer, and:
 - » cover any open tissue with sterile gauze and keep warm, before referral; and
 - » pass a nasogastric tube, if the baby has an abdominal malformation or no anal opening. Keep it open during transport to minimize risk of abdominal distension or bloating.
- ▶ Look at the baby's skin for cuts or abrasions.
- ▶ Look into the baby's mouth for cleft palate or lip.
- ▶ Inform the mother of your examination findings. Reassure her as necessary.

- ▶ **IF** the baby weighs < 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 50–51);
 - » re-warm and keep warm during referral for additional care;
 - » 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.
- ▶ Help the mother to breastfeed. If not successful, teach her alternative feeding methods (see pages 65–69).

Give vitamin K prophylaxis

- ▶ Wash hands (see pages 75–77).

**Inject hepatitis B and BCG
vaccinations**

- ▶ Explain to the mother that you will be injecting:
 - » vitamin K to prevent bleeding and 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.

INTERVENTION

ACTION

TIME BAND: FROM 90 MINUTES TO 6 HOURS (continued)

Inject hepatitis B and BCG vaccinations at birth (continued)

- ▶ 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 outweigh the risks.
- ▶ Inject a single dose of vitamin K (phytomenadione) 1 mg IM.
- ▶ Inject hepatitis B vaccine IM and BCG intradermally, as per national guidelines.
- ▶ Ensure that there is no excessive bleeding before leaving the baby and mother.
- ▶ Wash hands.
- ▶ Record the injections.

▶ **IF** the baby has other problems, **MANAGE** accordingly.

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

Dry cord care

- ▶ Wash hands (see pages 75–77).
- ▶ Instruct the mother to:
 - » keep cord stump loosely covered with clean clothes;
 - » fold 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 3 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;
- » wash hands; and

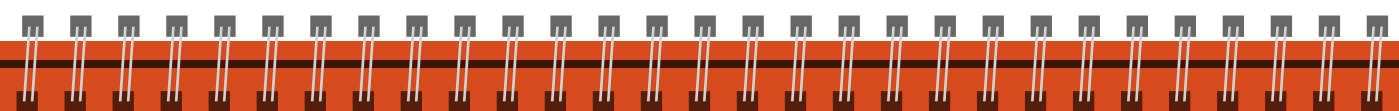
REFER urgently to the hospital if pus or redness worsens or does not improve in 2 days.

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

Provide additional care for a small baby (or twin)

- ▶ **IF** the baby is delivered:
 - ▶ 2 months early or weighs < 1500 g, refer to specialized hospital;
 - ▶ 1–2 months early or weighs 1500 to less than 2500 g (or is visibly small when scale is not available), see Additional care for a small baby (see page 60).

NOTES * Encourage the mother to keep her small baby in skin-to-skin contact.
* IF mother cannot keep the baby in skin-to-skin contact because of complications, another family member (grandmother or father) should be instructed on how to do so.
* DO NOT bathe the small baby. Keep the baby clean by wiping with a damp cloth, but only after 24 hours.
* Measure the baby's temperature every 6 hours.



4. Care prior to discharge (but after the first 90 min)

4. Care prior to discharge (but after the first 90 min)

INTERVENTION

ACTION

TIME BAND: AFTER 90 MINUTES OF AGE, BUT PRIOR TO DISCHARGE

Advise on staying in the facility

- ▶ After an uncomplicated vaginal birth, advise the mother that she and her healthy baby should receive care in the birthing facility for at least 24 hours.

Support unrestricted, on demand breastfeeding, day and night

- ▶ Keep the baby in the room with the mother, on her bed or within easy reach: do not separate them.
- ▶ Support exclusive breastfeeding on demand, day and night.
- ▶ Assess breastfeeding in every baby 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 exclusive breastfeeding.
- ▶ Explain to the mother that exclusive breastfeeding is the only feeding that protects her baby against serious illness. Define that exclusive breastfeeding means no other food or water except for breast milk.

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

Ensure warmth of the baby

- ▶ ENSURE the room is warm (25–28 °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 skin-to-skin contact with the mother as much as possible.
- ▶ Dress the baby or wrap in a soft, dry, clean cloth. Cover the head with a bonnet for the first few days, especially if the baby is small.

- ▶ **IF** a thermometer is not available, assess warmth every 4 hours by touching the baby's feet. If feet are cold, use skin-to-skin contact, add extra blanket and reassess.

NOTE – Refer to the *Pocket book of hospital care for children* (see Bibliography).

Washing and bathing (hygiene)

- ▶ Wash your hands (see pages 75–77).
- ▶ Wipe the baby's face, neck and underarms with a damp cloth daily.
- ▶ Wash the buttocks when soiled. Dry thoroughly.
- ▶ Bathe after 24 hours (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.

INTERVENTION

ACTION

TIME BAND: AFTER 90 MINUTES OF AGE, BUT PRIOR TO DISCHARGE (continued)

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 an impregnated bed net.

Look for danger signs

- ▶ Re-examine the baby before discharge.
- ▶ Look for danger signs, including:
 - » stopped feeding well;
 - » convulsions;
 - » fast breathing (breathing rate ≥ 60 per minute);
 - » severe chest in-drawing;
 - » no spontaneous movement;
 - » fever/high body temperature ($> 37.5^{\circ}\text{C}$);
 - » low body temperature ($< 35.5^{\circ}\text{C}$).

▶ **IF** any of the above is present, consider possible serious illness.

- ▶ **MANAGE** urgent conditions, as follows:
 - » start resuscitation if necessary (see pages 52–57);
 - » re-warm and keep warm during referral for additional care;
 - » give first dose of IM ampicillin and gentamicin;
 - » stop any bleeding; and
 - » give oxygen, if available.

Look for signs of jaundice

- ▶ **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 < 24 hours old; or
 - on palms and soles of a baby at any age.
 - » Encourage breastfeeding.

▶ **IF** feeding difficulty is present, give expressed breast milk by cup.

INTERVENTION

ACTION

TIME BAND: AFTER 90 MINUTES OF AGE, BUT PRIOR TO DISCHARGE (continued)

Look for signs
of local infection:

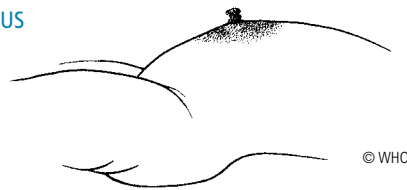
- eyes
- umbilicus
- skin
- baby's mouth

LOOK AT THE EYES

▶ Are they swollen and draining pus?

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

LOOK AT THE UMBILICUS



- ▶ What has been applied to the umbilicus?
 - » Advise the mother on proper cord care (see pages 28–29).

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

- ▶ **IF** the redness extends to < 1 cm beyond the umbilicus, treat as a local infection of the umbilicus. Teach the mother to treat this local infection with gentian violet. If no improvement in 2 days, or if worse, refer the baby urgently.
- ▶ **IF** the redness extends to > 1 cm beyond the umbilicus, there is pus draining or hardness, 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.

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

▶ Are there pustules?

- ▶ **IF** > 10 pustules or bullae, consider possible serious infection. Refer for evaluation.
- ▶ **IF** < 10 pustules, consider local skin infection. Teach 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, and refer for evaluation.

INTERVENTION

ACTION

TIME BAND: AFTER 90 MINUTES OF AGE, BUT PRIOR TO DISCHARGE (continued)

Look for signs of local
infection (continued)

LOOK INTO THE BABY'S MOUTH

- ▶ Are whitish lesions present?
 - » Consider oral thrush due to a yeast infection.
 - » Remember to observe a breastfeed. Examine the mother's breasts for signs of yeast infection.
 - » Treat, and teach the mother how to treat at home.

Discharge instructions

- ▶ Provide counselling. Do a thorough examination prior to discharge.
- ▶ Discharge no earlier than 24 hours 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 ≥ 60 per minute);
 - » severe chest in-drawing;
 - » no spontaneous movement;
 - » fever/high body temperature ($> 37.5^{\circ}\text{C}$);
 - » low body temperature ($< 35.5^{\circ}\text{C}$); or
 - » any jaundice in first 24 hours of life, or
 - » yellow palms and soles at any age.

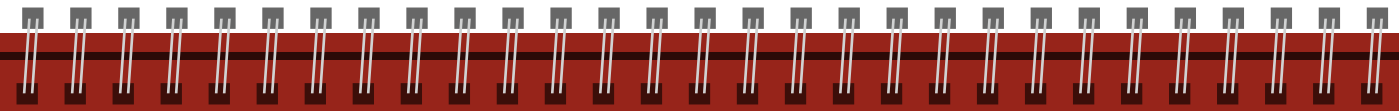
- ▶ The family should be encouraged to seek health care early if they identify any of the danger signs in between postnatal care visits.
- ▶ Advise newborn screening tests, as per national guidelines.

Schedule postnatal contacts:

- within 24 hours
- 48–72 hours
- 7–14 days
- 6 weeks

- ▶ All babies should be examined within 24 hours of birth, between 48–72 hours, and between 7–14 days. 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 a 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 two home visits:
 - » first visit within 24 hours of birth;
 - » second visit on day 3 (48–72 hours);
 - » third visit, when possible, 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.

NOTE – An extra contact for home births at 24–48 hours is desirable.



5. Care from discharge to 6 weeks

5. Care from discharge to 6 weeks

INTERVENTION

ACTION

TIME BAND: FROM DISCHARGE TO 6 WEEKS

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

- ▶ All babies, whether term or preterm, whether LBW or not, whether in high-, middle- or low-resource settings should be exclusively breastfed 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 deliver by caesarean section or prematurely.
- ▶ Ask the mother exactly what the baby fed on in the past 24 hours before the visit. Ask about water, vitamins, local foods and liquids, formula, and use of bottles and pacifiers. Ask about stooling and wet diapers.
- ▶ Praise any mother who is breastfeeding and encourage her to continue exclusive breastfeeding.
- ▶ Explain that exclusive breastfeeding is the only food that protects her baby against serious illness. Define that exclusive breastfeeding means no other food or water except for breast milk.
- ▶ 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, on her bed or within easy reach; and
 - » exclusively breastfeed on demand, day and night (> 8 times in 24 hours, except in the first day of life when the baby sleeps a lot).
- ▶ Observe a breastfeed, if possible. Ensure mother knows about good position and good attachment.
- ▶ Ask the mother to alert you if she has breastfeeding difficulty, pain or fever.
- ▶ Observe, treat 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 baby by cup until breast/s is/are better.

▶ **IF** breasts are swollen:

- ▶ but the milk is dripping, reassure the mother that this is normal breast fullness and will improve with frequent breastfeeding in 36–72 hours;
- ▶ but shiny and the milk is not dripping, mother's temperature is < 38 °C and the baby is not well attached, treat and advise for engorgement.

INTERVENTION

ACTION

TIME BAND: FROM DISCHARGE TO 6 WEEKS (continued)

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

- » In addition to the above:
 - 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.
- ▶ But, if painful, there is patchy redness and mother's temperature is $>38^{\circ}\text{C}$, treat and advise for mastitis. In addition to the above:
 - » give cloxacillin 500 mg every 6 hours for 10 days;
 - » give paracetamol, if 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.
 - * DO NOT give bottles or pacifiers.

Ensure warmth for the baby

- ▶ Delay bathing until after 24 hours. If this is not possible due to cultural reasons, delay for at least 6 hours.
- ▶ Explain to the mother that babies need an additional 1–2 layers of clothing 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 her or within easy reach, to facilitate breastfeeding at night.

- 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.

- ▶ Look for danger signs and refer for further evaluation if the baby has any of the following:
 - » stopped feeding well;
 - » convulsions;
 - » fast breathing (breathing rate ≥ 60 per minute);
 - » severe chest in-drawing;
 - » no spontaneous movement;
 - » fever/high body temperature ($>37.5^{\circ}\text{C}$);
 - » low body temperature ($<35.5^{\circ}\text{C}$);
 - » any jaundice in first 24 hours of life; or
 - » yellow palms and soles at any age.

INTERVENTION

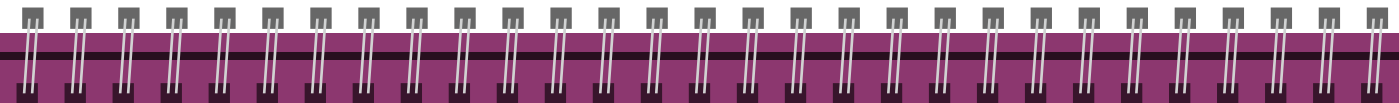
ACTION

TIME BAND: FROM DISCHARGE TO 6 WEEKS (continued)

Ensure warmth for
the baby (continued)

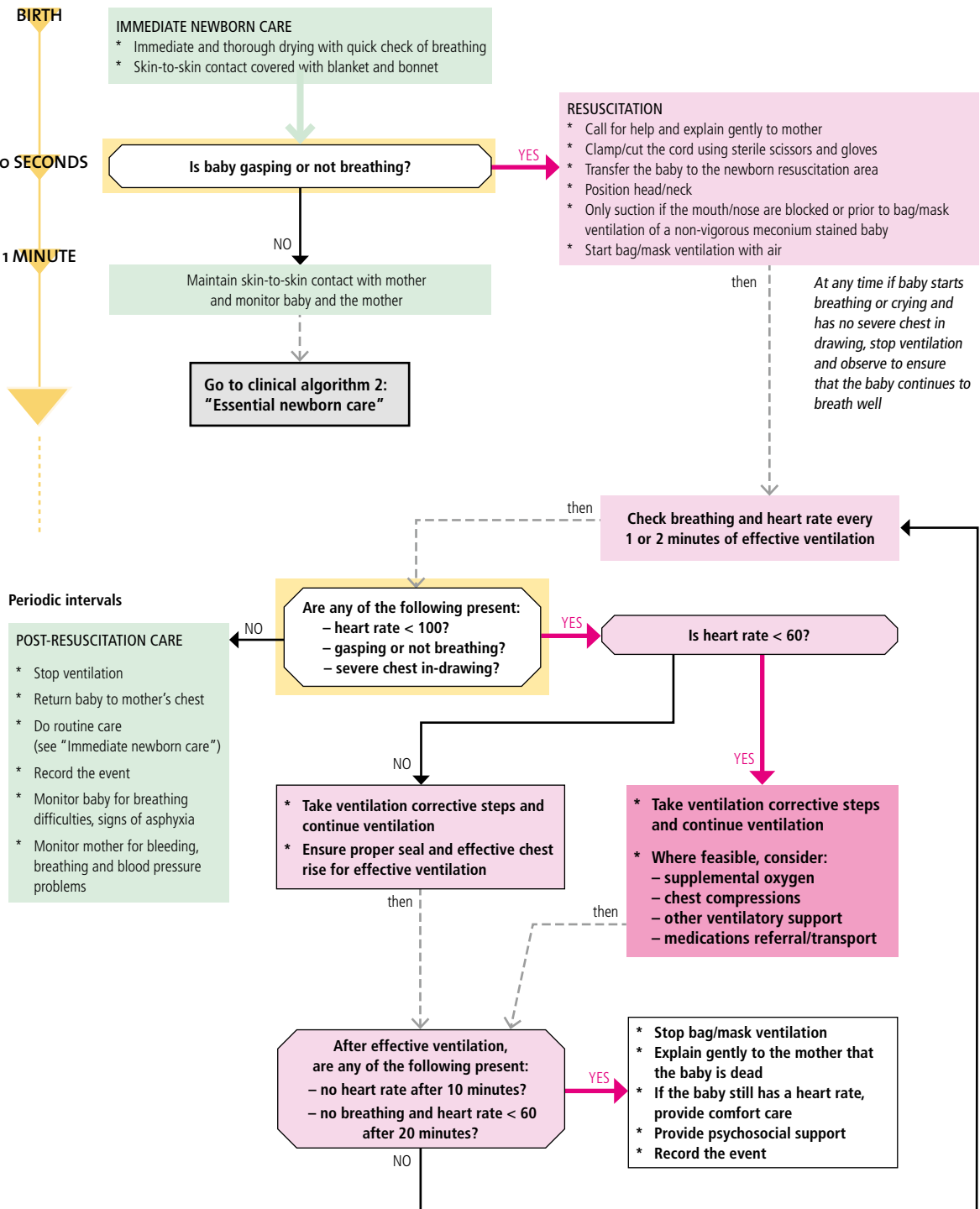
- ▶ REFER the baby urgently to hospital. After emergency treatment:
 - » explain the need for referral to the mother/father;
 - » organize safe transportation;
 - » always send the mother with the baby if possible;
 - » send referral note with the baby; and
 - » inform the referral centre by radio or telephone, if possible.
- ▶ Assess all postpartum mothers regularly for:
 - » vaginal bleeding,
 - » uterine contraction,
 - » fundal height,
 - » temperature,
 - » heart (pulse) rate, and
 - » anaemia.
- ▶ At each subsequent postnatal contact, ask about the mother's general well-being and symptoms suggestive of complications including:
 - » excessive bleeding,
 - » headache,
 - » fits,
 - » fever,
 - » feeling very weak,
 - » breathing difficulties,
 - » foul-smelling discharge,
 - » painful urination, and
 - » severe abdominal or perineal pain.

- ▶ IF the mother has any of these symptoms, refer her to a health facility.
 - ▶ Advise all mothers about recovery after giving birth and 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;
 - » use of antibiotics for third- and fourth-degree perineal tears;
 - » birth spacing;
 - » nutrition;
 - » safe sex, including use of condoms;
 - » early walking, gentle exercise and rest; and
 - » iron supplementation.



6. Additional care

Algorithm 3: Newborn resuscitation



- Essential care for all
- Decision points
- Conditions needing urgent care
- Advanced resuscitation

→ YES → NO ---→ then

INTERVENTION

ACTION

A. NEWBORN RESUSCITATION

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

Open airway
Clear the airway only
if it is blocked

- Position the head so it is slightly extended.
- Only if the mouth/nose are blocked, introduce the 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 seconds; and
 - » do tracheal suctioning, where feasible.

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

- clear amniotic fluid if they are breathing on their own;
- clear amniotic fluid prior to positive pressure ventilation if mouth and nose are free of secretions;
- meconium staining if they have started breathing on their own, meaning that they are vigorous.

Ventilate, if still
not breathing

- Start bag/mask ventilation within one minute 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.

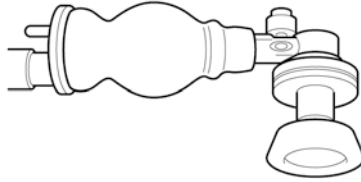
- Squeeze bag attached to the mask with two fingers or whole hand, according to bag size, 2–3 times. Observe rise of chest.
- **IF** chest is not rising:
 - » first, reposition the baby's head.
- **IF** chest is still not rising:
 - » check for adequate mask seal.
- **IF** chest is still not rising:
 - » squeeze bag harder.
- **IF** chest is rising:
 - » ventilate at 40 breaths per minute until baby starts crying or breathing.

INTERVENTION

ACTION

A. NEWBORN RESUSCITATION (continued)

NEONATAL SELF-INFLATING
RESUSCITATION BAG WITH
ROUND MASK



FITTING MASK OVER FACE



© WHO

VENTILATING A NEONATE
WITH BAG AND MASK

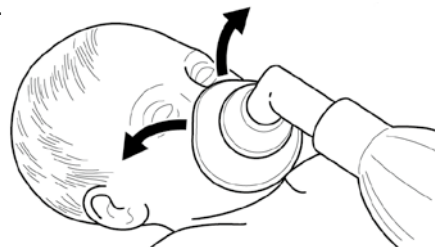
Lift the chin with the third finger of the hand holding the mask.
Do not hyperextend the neck.



© WHO

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.



© WHO

INTERVENTION

ACTION

A. NEWBORN RESUSCITATION (continued)

Ventilate, if still not breathing (continued)

- ▶ Check breathing; and check heart rate every 1–2 minutes of ventilation.
 - » Assess chest rise.
 - » Assess heart rate:
 - if heart rate is <100 per minute, take ventilation corrective steps (see below); or
 - if heart rate is <60 per minute, 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
2. Check for adequate mask seal
3. Check for blocked airway
4. Check resuscitator bag

- ▶ 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 skin-to-skin contact;
 - » exclude a second baby, give oxytocin (if not already given);
 - » wash hands, re-glove and trim the cord, as needed.

- ▶ **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.

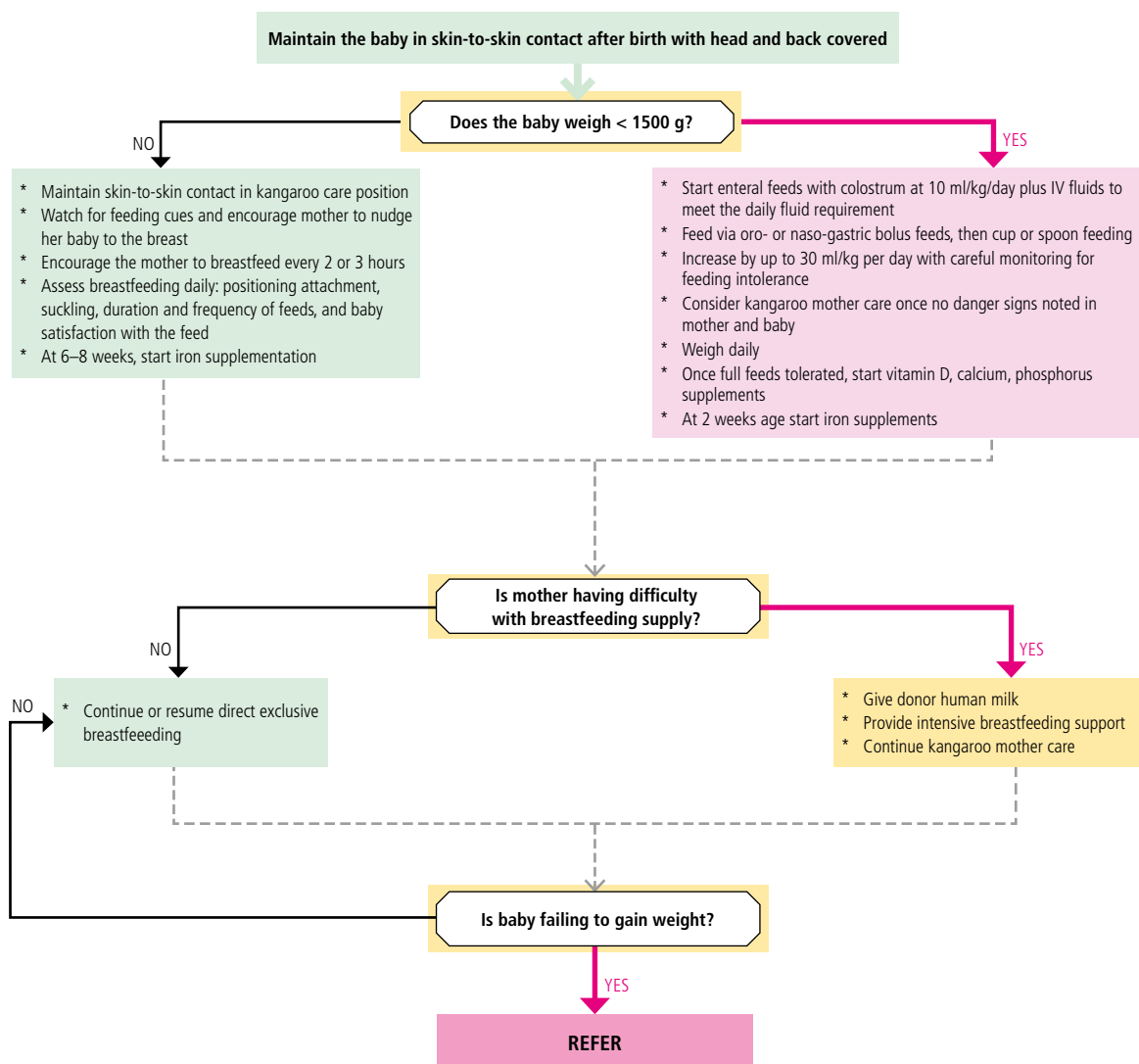
- ▶ **IF** after 10 minutes of effective ventilation, the heart rate remains zero:
 - » STOP bag/mask ventilation;
 - » explain to the mother in a kind and gentle tone that the baby is dead;
 - » give supportive care; and
 - » record the event.

- ▶ **IF** after 20 minutes of effective ventilation, the baby does not start to breathe or gasp and heart rate is <60 per minute:
 - » STOP bag/mask ventilation;
 - » explain to the mother in a kind and gentle tone that despite all attempts you were unable to help her baby to breathe;
 - » provide comfort care, including warmth and psychosocial support; and
 - » record the event.

NOTES

- * While ventilating, refer and explain to the mother what is happening, what you are doing, and why.
- * Ventilate, if needed, during transport.
- * Record the event on the referral form and labour record.

Algorithm 4: Optimal feeding of the clinically stable baby weighing < 2500 g



NOTE – Breast-milk substitutes should only be resorted to after all efforts have been exerted to provide mother's own milk or donor human milk. Breast-milk substitutes increase the risk for necrotizing enterocolitis, pneumonia, diarrhea, meningitis and death.

Essential care for all

Decision points

Conditions needing urgent care

→ YES → NO ---→ then

INTERVENTION

ACTION

B. CARE FOR A SMALL BABY (OR TWIN)

► **IF** baby is preterm, 1–2 months early or weighs 1500–2500 g (or is visibly small when scale is not available)

Warmth

- Ensure additional warmth for a small baby by:
 - » maintaining the room at 25–28 °C, and draft-free;
 - » teaching the mother how to keep the small baby warm in skin-to-skin contact via kangaroo mother care (KMC) (see pages 62–64); and
 - » providing extra blankets for the mother and baby plus bonnet, mittens 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 hours.

Feeding support

- LBW babies, including those with very low-birth-weight (VLBW), should be fed with the mother's own milk.
- Start VLBW babies on expressed breast milk at 10 ml/kg per day via enteral feeds (either cup or spoon feeding) or naso- or oro-gastric tube feeds (bolus 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 human milk to the baby and provide intensive support to increase mother's milk supply.

NOTE – Refer to the *Pocket book for hospital care for children* (see Bibliography).

- 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 until 6 months of age.

NOTE – Refer to the *Guidelines on optimal feeding of low-birth-weight infants in low- and middle-income countries*.

- * 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-based fortifiers.
 - Daily oral vitamin A supplementation for LBW babies who are fed mother's own milk or donor human milk.
 - Routine zinc supplementation for LBW babies 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 hours; and
 - » assessing breastfeeding daily, including positioning, attachment, suckling, duration and frequency of feeds, and baby satisfaction with the feed.

- Weigh the baby daily, and record.

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

Refer to *Dealing with feeding problems* (see pages 65–69).

INTERVENTION

ACTION

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

Skin-to-skin care (in kangaroo position)

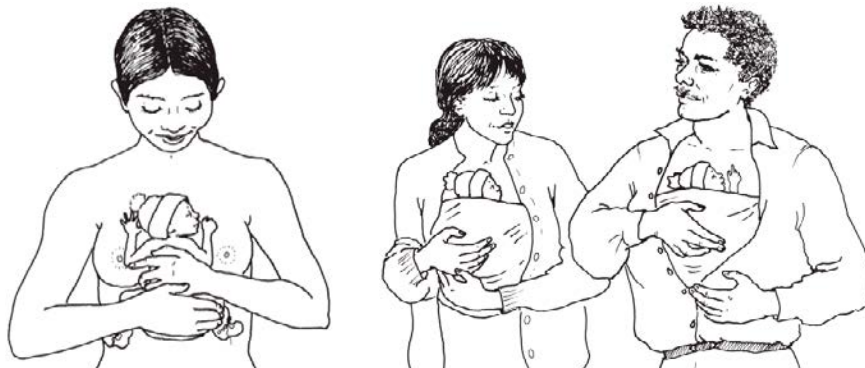
- ▶ Start kangaroo mother care (KMC) when:
 - » the baby is able to breathe on its own (no apnoeic episodes); and
 - » the baby is free of life-threatening conditions.
- ▶ The management of life-threatening conditions takes first priority over KMC, although skin-to-skin contact is still beneficial until KMC is possible.

- NOTES
- * The ability to coordinate sucking and swallowing is NOT an essential requirement for KMC. Other methods of feeding, e.g. feeding by naso- or oro-gastric tube or later by cup, can be used until the baby can breastfeed.
 - * KMC can begin after birth, after initial assessment and where needed basic resuscitation, provided the baby and mother are stable.
 - * LBW babies weighing < 2000 g who are clinically stable should be provided KMC immediately. Experience shows that babies weighing ≥ 1800 g can usually start KMC at birth.

- ▶ **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.
- ▶ Explain KMC to the mother, including:
 - » continuous skin-to-skin contact;
 - » positioning her baby;
 - » attaching her baby for breastfeeding;
 - » expressing her milk;
 - » caring for her baby;
 - » continuing her daily activities; and
 - » preparing a "support binder".

▶ Position the baby for KMC, as follows:

- » place the baby in upright position between the mother's breasts, chest-to-chest;
- » position the baby's hips in a "frog-leg" position with the arms also flexed;
- » the baby's abdomen should be somewhere at the level of the mother's stomach, but should not be constricted. The mother's breathing helps stimulate the baby to breathe;
- » secure the baby in this position with the support binder;
- » turn the baby's head to one side, slightly extended to keep the airway open and allow eye contact with the mother; and
- » tie the cloth binder firmly with the top of the binder just beneath the baby's ear.



INTERVENTION

ACTION

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

- NOTES
- * KMC should last for as long as possible each day. If the mother needs to interrupt KMC for a short period, the father or immediate family member 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 hours 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, 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 at the front to allow the baby’s face, chest, abdomen and arms and legs to remain in skin-to-skin contact 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 until the mother so desires.

Discharge planning

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

C. DEALING WITH FEEDING PROBLEMS

- ▶ When the mother and baby are separated, or if the baby is not suckling effectively:
USE alternative feeding methods.
- ▶ 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;
 - » press slightly inward towards the breast between her finger and thumb;
 - » express one side until milk flow slows, then express the other side; and
 - » continue alternating sides for at least 20–30 minutes.
- ▶ IF milk does not flow well:
 - » apply warm compress; and
 - » have someone massage her back and neck before expressing.

Feed the baby with the mother’s own milk whenever possible by one of **THREE METHODS**, as follows:

1. EXPRESSING MILK DIRECTLY
INTO THE BABY’S MOUTH

- » Hold the baby in skin-to-skin contact, 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.

AREA OF CONCERN

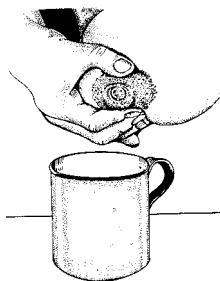
ACTION

C. DEALING WITH FEEDING PROBLEMS (continued)

- » Let the baby smell and lick the nipple.
- » Let some breast milk fall into the baby's mouth.
- » 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 hours if the baby is very small (>2 months early or <1500 g), or every 2–3 hours if the baby is not very small.
- » Be flexible at each feed, but make sure the intake is adequate by checking daily weight.

2. EXPRESSING MILK BY HAND

- » Place finger and thumb on each side of the areola and press inwards towards the chest wall.



© WHO

- » Press behind the nipple and areola between your finger and thumb.



3. CUP FEEDING, IF INDICATED



© WHO

- » Do not feed the baby yourself.
- » Teach the mother 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 lower lip.
- » Touch the edge of cup to outer part of upper lip.
- » Tip cup so that milk just reaches the baby's lips.
- » Do not pour the milk into baby's mouth.
- » Baby becomes alert, opens mouth and eyes and starts to feed.
- » Baby will suck the milk, spilling some.
- » Small babies will start to take milk into their mouth using the tongue;
- » Baby swallows milk.
- » Baby is finished feeding when mouth closes or when not interested in taking more.
- » If baby does not take the calculated amount:
 - feed more often; and
 - teach the mother to measure the baby's intake over 24 hours, not just at each feed.
- » Baby is cup-feeding well if required amount of milk is swallowed, spilling little, and weight gain is maintained.

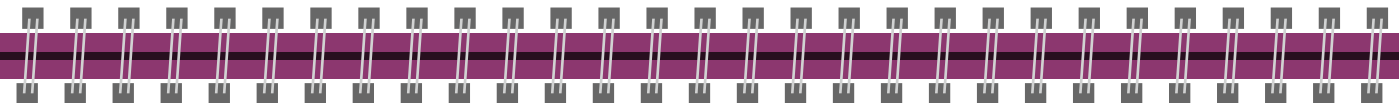
AREA OF CONCERN

ACTION

C. DEALING WITH FEEDING PROBLEMS (continued)

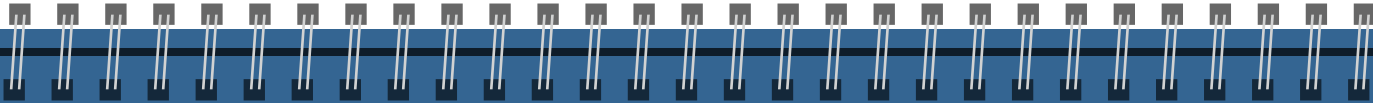
- ▶ **IF** the mother does not express enough milk in the first few days or if the mother cannot breastfeed at all, use one of the following feeding options:
 - » donor heat-treated human milk;
 - » donated raw milk (in circumstances where benefit of providing raw donor milk outweighs small risk of HIV transmission); or
 - » artificial formula (as a last resort).
- ▶ LBW babies, including those with VLBW, who cannot be fed mother's own milk:
 - » should be fed donor 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 babies, including those with VLBW, who cannot be fed mother's milk should be fed standard infant formula. If VLBW babies on standard formula fail to gain weight despite adequate feeding, they should be given preterm infant formula.

▶ 68



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

▶ 69



7. Setting up the environment for good neonatal care

7. Setting up the environment for good neonatal care

INTERVENTION

ACTION

A. PREPARING FOR SHIFTS

Prepare workplace for deliveries

- ▶ 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 on pages 84–88);
 - » 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

Restock delivery area

- ▶ Replace and process used delivery instruments (see page 86).
- ▶ 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

General standard precautions and cleanliness

- ▶ **Consider every person potentially infectious (even the baby and medical staff). Practice 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 (see pages 75–77), and after handling waste or potentially contaminated materials.
 - » Wear fresh sterile gloves when performing delivery, cord cutting or blood drawing.
 - » Wear non-sterile, well-fitting latex or latex-free gloves when coming into contact with blood or blood products.
 - » Wear sterile gloves when handling and cleaning instruments, handling contaminated waste, cleaning blood and body fluid spills.
 - » **During deliveries:** wear gloves, cover any cuts, abrasions or broken skin with a waterproof bandage, wear a long apron made from plastic or other fluid-resistant material and 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

ACTION

C. STANDARD PRECAUTIONS (continued)

General standard
precautions and cleanliness
(continued)

- ▶ 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.
- » Discard a multidose vial as per WHO or manufacturer's recommendation.
- » Dispose of bloody or contaminated items in leak-proof containers.
- » Pour liquid waste down a drain or flushable toilet.
- » Collect and keep clothing or sheets stained with blood or body fluids separate from other laundry.
- » 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

▶ HANDWASHING

- » Remove all hand jewelry and/or watches.
- » **WET HANDS** with running water or alcohol handrub/hand sanitizer. When clean running water is not available, use either basin/bucket of water and pitcher/dipper (ask another person to pour the clean water for handwashing).
- » **APPLY** plain or antimicrobial soap or alcohol handrub/hand sanitizer to hands;
- » **RUB ALL SURFACES** using five strokes each, as follows:
 - rub hands palm to palm;
 - rub right palm over left dorsum with interlaced fingers and vice versa;
 - rub palm to palm with fingers interlaced;
 - rub back of fingers to opposing palms with fingers interlocked;
 - rub left thumb clasped in right palm rotationally and vice versa; and
 - rub rotational, backwards and forwards with clasped fingers of right hand in left palm and vice versa.

▶ IF using running or poured water.

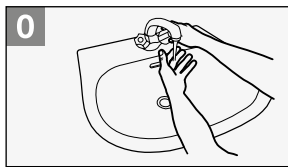
- rinse with a stream of water;
- dry hands thoroughly with a single-use towel;
- turn off the faucet using the towel.
- » With soap, perform the whole procedure over 40–60 seconds (see pages 76–77), or steps 0 to 7 over 20–30 seconds if using alcohol handrub/hand sanitizer.

NOTE on cell phones

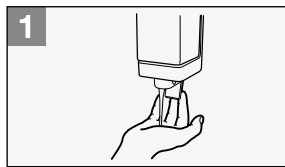
They can be heavily contaminated with disease-causing microbes and should not be used during patient care.

Hand hygiene technique with soap

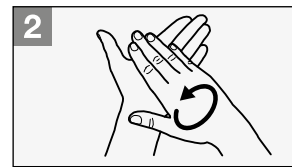
Duration of the entire procedure: 40–60 seconds



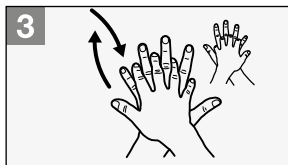
- ▶ Wet hands with water



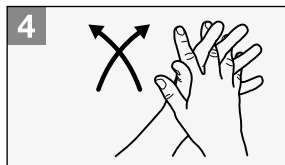
- ▶ Apply enough soap to cover all hand surfaces



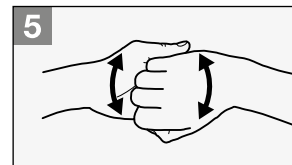
- ▶ Rub hands palm to palm



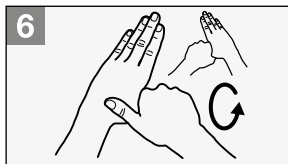
- ▶ Right palm over left dorsum with interlaced fingers and vice versa



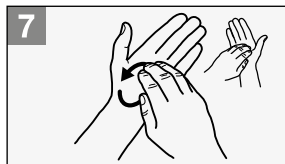
- ▶ Palm to palm with fingers interlaced



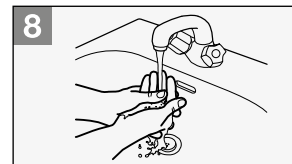
- ▶ Backs of fingers to opposing palms with fingers interlocked



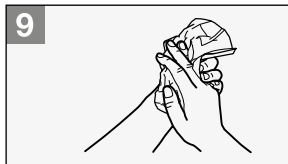
- ▶ Rotational rubbing of left thumb clasped in right palm and vice versa



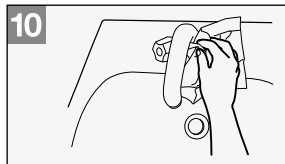
- ▶ Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa



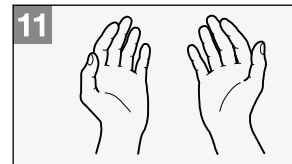
- ▶ Rinse hands with water



- ▶ Dry hands thoroughly with a single use towel



- ▶ Use towel to turn off faucet



- ▶ Your hands are now safe

INTERVENTION

ACTION

C. STANDARD PRECAUTIONS (continued)

Processing instruments
and other items

STEP 1. Decontamination

- » Put items in a plastic container of 0.5% chlorine solution immediately after use.
- » Cover items completely with chlorine solution and soak for 10 minutes.
- » Remove items from chlorine solution (with utility gloves on).
- » Rinse items with water. Set aside until you are ready to clean them.
- » Change chlorine solution:
 - at the beginning of each day; or
 - whenever the solution is very contaminated or cloudy.

USING LIQUID HOUSEHOLD BLEACH

You can use any household bleach to make a 0.5% chlorine solution by using the following formula:
[% chlorine in the liquid bleach divided by 0.5%] minus [1] = parts of water for each part bleach

- ▶ EXAMPLE: to make a 0.5% chlorine solution from a 5% chlorine concentrate, calculate as follows: [5% divided by 0.5%] minus [1] = [10] minus [1] = 9

Mix 1 part liquid bleach with 9 parts water to get a 0.5% chlorine solution.

Processing instruments
and other items
(continued)

STEP 2. Cleaning

- » Wear utility gloves, a mask, and protective eyewear when cleaning.
- » Use a soft brush or old toothbrush, soap, and water to scrub items.
- » Rinse all items well with clean water to remove all soap.

NOTE Use household cleaning soap (bar or liquid), rather than bath soap. If you use bar soap, keep it in a dish with holes for drainage.

STEP 3. High-level disinfection (HLD) by boiling

- » Put all instruments and other items into a pot, open up scissors and other instruments with joints. Place forceps or pickups on top of all other items.
- » Cover all items completely with water. When water comes to a boil, cover pot and boil for 20 MINUTES.
- » Remove items from pot with HLD forceps or pickups and put in a HLD container.
- » Air-dry boiled items before use or storage. Do not leave boiled items sitting in water that has stopped boiling.

NOTE HLD kills all germs except some endospores (difficult-to-kill bacteria, such as tetanus or gas gangrene). If sterilization is not available, HLD (by boiling or steaming) is the only other acceptable choice.

INTERVENTION

ACTION

C. STANDARD PRECAUTIONS (continued)

Processing instruments
and other items
(continued)

▶ STEP 4. HLD by steaming

- » Put water into the bottom of a steamer pot.
- » Put all items onto a steamer tray. Open up scissors and other instruments with joints. Place forceps or pickups on top of all other equipment in the pot.
- » Bring the water to a boil, then when the water starts to boil, cover the pot and boil for 20 MINUTES.
- » Remove items from the pot with HLD forceps or pickups and put in a HLD container.
- » Air-dry items, then use or store items in a covered, HLD container.

NOTE

Steaming causes less damage to gloves and other plastic or rubber items, uses less water and fuel, and does not cause build-up of lime salts on metal items.

▶ STEP 5. Sterilization by steaming (autoclave)

- » Dry all cleaned items to be sterilized. Open all jointed instruments, e.g. scissors, so steam can reach all surfaces of item.
- » If wrapping items for autoclaving, use two layers of paper, newsprint, or cotton.

Processing instruments
and other items
(continued)

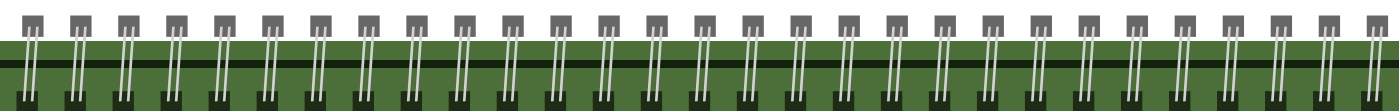
- » Leave space between items so that steam can move about freely. Follow manufacturer's instructions whenever possible. In general, sterilize at 121 °C (250 °F) and 106 kPa (15 lb/in²) pressure. Do not begin timing until autoclave reaches required temperature and pressure: wrapped items take 30 minutes; unwrapped items 20 minutes.
- » At end of cycle: if autoclave is automatic, heat will shut off and pressure will begin to fall. If autoclave is not automatic, turn off heat or remove autoclave from heat source.
- » Wait until pressure gauge reaches "zero." Open autoclave lid/door so that remaining steam escapes.
- » Leave instrument packs or items in autoclave until completely dry. Damp packs draw microorganisms from the environment and should be considered contaminated.
- » Remove items from autoclave when dry.
- » Use or store autoclaved equipment immediately.

NOTE

Sterilization kills all germs, including endospores. Any item that will come into contact with the bloodstream or tissues under the skin should be sterilized using steam (autoclaving) or dry heat. Steam sterilization uses moist heat under pressure, so both water and heat are needed. The autoclave machine must have a pressure gauge.

▶ STEP 6. Store or use

After processing, HLD or sterilized items should be used immediately or stored properly to prevent contamination. Proper storage is as important as decontamination, cleaning, sterilization, or HLD.



8. Equipment and supplies maintenance checklist

8. Equipment and supplies maintenance checklist

AREA OF CONCERN	ACTION
Warm and clean room	▶ Light source ▶ Heat source ▶ Room thermometer ▶ Clean bed linen ▶ Curtains if more than one bed, or impregnated bed net in malaria areas ▶ Work surface for resuscitation of newborn near delivery beds ▶ Clean surface (for alternative delivery position) ▶ Detergent for cleaning walls, windows, floors (if no body fluids present)
Handwashing	▶ Clean water supply ▶ Bar soap in small pieces ▶ Nail brush or stick ▶ Clean towels ▶ Alcohol handrub
Waste	▶ Container for sharps disposal ▶ Receptacle for soiled linens ▶ Bucket 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 ▶ Long plastic apron ▶ Urinary catheter ▶ Disposable syringes with needles ▶ IV tubing ▶ Suture material for tear or episiotomy repair ▶ Antiseptic solution (iodophors or chlorhexidine) ▶ 70% isopropyl alcohol



AREA OF CONCERN

ACTION

Supplies (continued)

- ▶ Swabs
- ▶ Bleach (chlorine-based compound)

Miscellaneous

- ▶ Oxygen source
- ▶ Wall clock
- ▶ Flashlight with extra batteries
- ▶ Log book

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
- ▶ Blood pressure apparatus
- ▶ Body thermometer

Delivery instruments

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

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 testing kit
- ▶ HIV testing
- ▶ Haemoglobin testing kit
- ▶ Contraceptives
- ▶ Nevirapine (adult, infant)
- ▶ Zidovudine (AZT) (adult, infant)
- ▶ Lamivudine (3TC)

Forms and records

- ▶ Birth certificates
- ▶ Health insurance forms
- ▶ Death certificates
- ▶ Referral forms

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

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

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 and 8)
- ▶ Cord ties (sterile) or clamps and forceps
- ▶ Blankets
- ▶ Bonnets, mittens and socks

Drugs and vaccines

Supplies

- ▶ Eye antimicrobial (erythromycin or tetracycline ointment or 2.5% povidone-iodine)
- ▶ Vitamin K (phytomenadione)
- ▶ 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

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