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INTRODUCTION:

This document was written at the moment of the largest Ebola outbreak ever reported, situated in Guinea, Liberia and Sierra Leone, in August 2014 with an update in October and December. Ebola transmission is through direct contact with body fluids (blood, saliva, amniotic fluid\textsuperscript{1}, urine, sperm, tears, sweat, breast milk, vomit and excreta)\textsuperscript{1}. The Zaire strain is responsible for the outbreak with up to 90% mortality\textsuperscript{2}. There is no curative treatment for Ebola, only supportive care such as hydration and pain relief. In a MSF Ebola treatment centre with supportive care the mortality was lower: 50 to 70% mortality has been reported\textsuperscript{3}.

Pregnant women are even more than the general population at risk to die. In the largest case series published by Mupata et al\textsuperscript{4}, the mortality in pregnant women was 93%. 14 out of 15 pregnant patients died and the one patient who survived had a miscarriage, not a term pregnancy. Even though MSF booked successes in at least 16 pregnant women surviving up till now in Liberia (Foya, Monrovia), Sierra Leone (Kailahun) and Guinea (Guekedou), in general the prognosis is unfavourable. The mortality for the foetus or newborn is also (extremely close to) 100%. Most of the Ebola-infected pregnant women present with an intra-uterine foetal death (IUFD). During delivery or through procedures frequently performed during birth or for the management of incomplete abortion, there is a very serious risk of infection of health care personnel, other patients and caretakers (in a normal delivery there is up to 500 ml of blood loss and 500 ml amniotic fluid).

In any given population in low-resource countries, 3 to 5% of the population is estimated to be pregnant (WHO data). Pregnant women will thus be a reality in every Ebola epidemic. **Differential diagnosis of Ebola infection with other common complications of pregnancy is extremely difficult** since that bleeding and fever are very common in pregnancy in countries where Ebola epidemics happen. At the same time, it is important to assess all women on pregnancy/breastfeeding at the moment of admission in the ETC (history taking, urine pregnancy test when in doubt). **Any suspected or confirmed Ebola patient – whether pregnant or not – should never undergo a surgical procedure.** Caesarean section or uterine evacuation (e.g. manual vacuum aspiration) is contraindicated, to protect the (medical) staff. Additionally, the prognosis for both mother and baby is extremely poor.

\textsuperscript{1} This we know from testing amniotic fluid in MSF ETC

Pregnancy in an ETC often gives high anxiety levels in the medical personnel caring for the patient. However managing this patient is in general the same as managing any other patient in the ETC. Communication with the patient is best done in the visiting area where more time can be taken.

The following recommendations are to reduce the risk of infection to the absolute minimum possible for the health personnel. The safety for the medical staff is the priority in this guidance paper.

1. **PRINCIPLES OF MANAGEMENT FOR PREGNANT WOMEN WITH EBOLA**

- Always assess safety to healthcare and other workers. Numbers of people working in direct contact with patients and in the high risk area should be kept to a minimum and only appropriately qualified/trained personnel should enter.
- Any pregnant women suspected of having Ebola should be isolated and handled in the same way as any other suspect/confirmed patient. This should remain the case until proven to not have Ebola. Begin the same standard treatment as you would for any other patient admitted to ETC.
- In the event of a women with, or recently survived of Ebola, delivery should only take place within a designated area in the high risk zone of the ETC before returning home. This is because the baby, amniotic fluid and placenta are still highly infected and should therefore be disposed in accordance with high risk material protocol.
- Avoid all invasive procedures. Prefer e.g. PO treatment (misoprostol) over IM/IV (oxytocin), do not perform episiotomy, avoid manual removal of retained placenta, ... and surgical interventions (MVA included) are contra indicated in an Ebola context.
- In the unlikely event of a live birth, the baby must be assumed to be Ebola positive and handled in accordance with full PPE and safety protocols.
- All surviving women should be counselled and given adequate family planning and nutritional support.

**Test on admission:**

From anecdotal evidence from the field and limited literature data, differential diagnosis of Ebola with other pregnancy conditions might be extremely difficult, especially in the early stages of the disease. Fever might/might not be the first presenting sign. In November 2014, a pregnant women in the third trimester presented in Monrovia at ELWA 3 in latent phase of labour with nonspecific clinical signs (no significant fever, mild abdominal pain, general good condition). The EBOV PCR was highly positive at admission, the patient only developed overt symptoms 24 hours or longer later and died after 5 days.
thus needed to protect the medical staff and staff should apply a very low threshold for EBOV testing.

Equally important: pregnancy testing at admission is recommended if any suspicion of pregnancy from clinical examination or history. It could even be done as a standard test at admission if capacity allows it. In sites where experimental drugs will be tested (planned for December 2014/January 2015), pregnancy testing for all women of reproductive age will be part of the protocol.

**Points for patient counselling**
- Inform any pregnant woman that the risk of miscarriage or early labour as part of Ebola illness is probable and that loss of fetal life is highly likely;
- Inform at appropriate time in recovery (e.g. when mentally aware, and potential for cure is real) that when cured, ToP or induction of labour will be offered;
- Explain the reason for the induction of labour: very likely the foetus will be dead and the viral load in the foetus, placenta and amniotic fluid will still be high even after cure of the mother, making a risk for infection to birth assistants when delivering at home or a health facility.
- Explain that we recommend the woman to stay near the ETC when she’s not ready for labour induction until she agrees or IUFD is confirmed.
- It is important that women understand the risks and reality of being pregnant with Ebola and that consent is obtained for any procedure;
- If very sick women go into labour/miscarriage and birth, chances of survival are minimal and interventions to save maternal life should be few and non-invasive (e.g. if possible oral misoprostol with bleeding; antibiotics if able to do so safely);

2. **PLANNING AND ORGANIZATION — DELIVERY IN ETC**

1. **DELIVERY SPACE**

Ideally, the patient should stay in a separate tent or structure in the confirmed area of the high-risk zone during labour and delivery. When this is not feasible, one side in the confirmed cases department needs to be installed for the delivery. The patient will deliver in the bed; a screen will provide some privacy and will be sprayed with chlorine after use.

**Practical aspects:**
- Ideally if offers ease of movement in and out;
- Can be small, one room can be enough;
- Access from low risk zone to be able to communicate with patient to help in decision making, as there is minimal time available to spent inside high risk zone;
- Important infection control measures:
  - good drainage system as lots of bodily fluids possible and highly viraemic;
- slope for ease of drainage;
- cement floor if possible for better cleaning;
- good lighting as birth can happen at night;
- higher beds if possible for ease of work for clinicians, less bending and moving less risk of goggles or mask moving;
- private latrine if possible;

**Waste:** waste management as applicable for an ETC.

Almost all babies born in the ETC will be stillborn, the corpse and placenta can be treated in the following way: placenta and corpse together on (absorbable) cloth; chlorine spraying, then wrapped in more cloth, spraying, then in a (child) body bag.

2. **Delivery equipment**

The needed materials should be reduced to the absolute minimum; all material need to be discarded (burned) after use with the only exception of material which can be disinfected with chlorine and sterilized (recipient available in ETC). There is no need of a standard delivery kit (instruments). This can be replaced by plastic cord clamps and one pair of disposable scissors. When disposable scissors are not available, a regular surgical scissor with blunt tips should be used and discarded after use. Disposable blades cannot be used. Disposable absorbent drapes with plastic on one side should be used instead of reusable.

Practical aspects:

- Make sure all supplies are ready: some can stay in the delivery area, others should be brought last minute (eg. Oxytocin, prepared in low risk zone)
- No sharps should be left in the delivery area.
- Prepare a Maternity box: organize equipment beforehand in plastic bags per action (eg. Items for delivery, items for bladder catheterization, items for PPH management, items for sample collection, …) a list can be found in annex 4.

3. **Birth team**

Best is to have a gynaecologist, doctor or nurse/midwife with experience in deliveries but this might not always be feasible in every ETC. Since that the normal timeframe for a healthcare worker to stay in an ETC is only 1 (½) hours, a good handover between teams should be given every shift. Besides the two people per shift in the ETC, preferably two extra persons should be made responsible for when the patient delivers.

Practical aspects:
Personal protective equipment (PPE): “3 plus” as always in an ETC is mandatory

Recommended/suggested HR set-up – 4 staff (two pairs of two)
- One person with experience in obstetrics to lead the management of the patient +
- One person to assist in the delivery
- One person to observe respect of safety rules: intervention and time limits, hygiene and IC procedures +
- One chlorine sprayer

And: One time keeper in low risk zone: at the time of birth one extra responsible for time in low risk zone who is able to communicate between those inside to those outside to ensure team members are replaced in timely manner and safely and supplies are brought or passed in as needed (requested by team leader).

A 2nd team of 4 should be identified for follow up care when needed.
4. LABOUR AND DELIVERY PROCEDURES:

1. INDUCTION AND DELIVERY

✓ **Routine antibiotic prophylaxis and antimalarial treatment:** antibiotics from admission until five days post discharge; combined with antimalaria treatment. Provide ferrous sulphate/folic acid for every pregnant woman or multivitamins from the moment of admission up to 1 month post discharge.

✓ **No induction of labour if the patient is still having fever,** await spontaneous labour even if this takes several days. **Opt only for induction of labour if the Ebola viraemia is negative (usually after 10-12 days after entry in the ETC).** This is both to protect the medical staff and the patient. If the Ebola viraemia is negative, the risk of coagulation disorders might be less for the patient, and this might increase chance of survival for the mother. Induction can be done with misoprostol as per protocol, but no oxytocin can be given as continues follow up is not feasible in an ETC. Artificial rupture of membranes should not be performed. The delivery will still be in the ETC (even with a negative viraemia in the blood, the amniotic fluid and placenta still contain virus for an unknown period as will the foetus). Give hygienic pad if membranes ruptured.

✓ **In case if the baby is still alive in utero: offer the mother planned termination of pregnancy in the ETC.** PCR in amniotic fluid remains positive even when the mother is cured (duration unknown but more than 30 days after cure of the mother PCR of placenta and cord blood was still Ebola positive in a case in Guinea). No baby has ever been reported to have survived transplacental Ebola. Termination of pregnancy should happen in the ETC to avoid Ebola infection of the family, TBA or health care workers. In case the mother is very motivated to keep the pregnancy: explain that chances of survival of the baby are extremely low. The mother should not leave the surroundings of the ETC in case she has not delivered yet.

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6 Check with ETC guidelines for type, dose and route for the routine antibiotic and antimalarials. Out of an ETC, anti malaria fixed drug combinations (FDC) are not given in the first trimester of pregnancy. For the ETC it is preferred to standardize as maximum as possible, so FDC can be given throughout pregnancy. This measure of giving antibiotics and antimalaria treatment was given without any literature evidence, with survival of two pregnant patients.

7 200 mg ferrous sulfate (65 mg elemental iron) + 400 μg folic acid PO: 1 or 2 tbs per day for 1 month.

8 In Guinea, a mother was cured of Ebola (PCR negative on the 15th of September 2014). She was 5 months pregnant and baby was alive (checked with Doppler). She declined a termination of pregnancy. The team built a wooden hut for her next to the ETC where she agreed to stay for the remainder of the pregnancy. On the 17th of October she started bleeding and was transferred back to the ETC where she delivered a macerated stillborn baby. All PCR’s (placenta and cord blood) were still Ebola positive (32 days after the moment the mother tested 2 times negative).
**Reminder**: wash your gloved hands with chlorine between each and every procedure as recommended. When planning to perform procedures: organize an extra person to observe respect of IC procedures.

**Preparation**: if an IV line is to be used or anticipated, it is recommended to put it early (= before labour or in early labour), this to avoid any needle stick injury by putting an IV line in an agitated patient. When possible, alternative medication to avoid IM/IV routes are given (e.g. misoprostol PO for the prevention of postpartum haemorrhage instead of oxytocin IM).

**No foetal monitoring** (no Pinard stethoscope, no Doppler) since that no actions will be taken if it is not normal or absent. Ask the mother if she feels foetal movements/leakage of amniotic fluid. If no foetal movements for several days, discuss with the mother the high likelihood that the baby died.

**During labour**: no artificial rupture of membranes. Ebola virus is also present in amniotic fluid. **Limit the number of vaginal examinations** (the least the better).

**During delivery no invasive procedures**: no episiotomy, no vacuum, no destructive delivery (e.g. craniotomy in case of obstructed labour). Obstructed labour is managed expectantly (read: no procedures, wait until the baby comes). Caesarean section or any other laparotomy can never be performed. Many of the women in the countries currently affected have undergone Female Genital Mutilation (FGM) however this is mostly type II (without infibulation) and major obstruction at delivery is not to be expected. For type III: preferably no deinfibulation.

**Clamping and cutting of the umbilical cord**: when the baby is stillborn there is no need for clamping and cutting the umbilical cord. The baby can be kept discretely on an absorbent drape on the bed while waiting for the delivery of the placenta. To rub up a contraction of the uterus, put a disposable cloth on the abdomen of the mother first. When delivering the placenta, stay at the side of the mother to prevent splashes on the care provider, cover the area as much as possible. When the baby is alive born or in case of retained placenta, the cord can be clamped with two plastic cord clamps and cut with disposable scissors. After the delivery of the placenta, both the corpse of the stillborn and the placenta can be treated as per protocol (see 2.1 waste section).

**No suturing of ANY tears (there should be no episiotomy)**: the risk of getting Ebola through needle-stick injuries is close to 100%. No vaginal exams post delivery. Active management of 3rd stage of labour (abdominal uterine massage with a protective sheath on the abdomen and Misoprostol 600 µg orally after birth of the baby (first choice) or oxytocin IM or slow IV 10 IU (second choice) as prevention of postpartum haemorrhage should be done. No controlled cord traction, wait until placenta delivers spontaneously.
(wait at the side of the patient, do not stand in front to avoid splashes of blood).

2. COMMON OBSTETRIC COMPLICATIONS:

- **Postpartum Haemorrhage (PPH):** for prevention, give misoprostol PO: 600 µg after the delivery of the baby. For treatment: drugs as per regular PPH management protocol (2 IV lines with 1 L of Ringers, add in one Ringers oxytocin 40 IU and let run over 4 hours. Add Misoprostol PO 600 µg (= 3 tabs, preferably oral if the patient can swallow, otherwise per rectum) + methylergometrin IM 0,2 mg (max times 5) if bleeding is uncontrollable. Make sure the bladder is empty (emptying the bladder was preferably done before delivery). **No suturing of cervical nor vaginal tears**; the risk for a needle stick injury is too high. **No bimanual compression of the uterus** in order to avoid blood contact.

- **Retained placenta (pieces):** continue prophylactic antibiotics (as per FHF guideline) until the placenta is delivered. **No manual removal of placenta, nor uterine revision.** Trial of oxytocin 20 IU in 1 L of Ringers over 12 hours. Misoprostol PO 800 µg can also be given as an alternative (orally is here preferred, rectal administration is possible if the patient cannot swallow). There was already the experience of a retained placenta during 3 days, and afterwards the mother survived.

- **Retained products of conception:** (after miscarriage). No manual vacuum aspiration (MVA), dilatation and curettage (D&C) or digital curettage. Medical treatment with Misoprostol PO 800 µg is recommended and can be repeated after 48 hours if no expulsion. Expulsion of retained products takes longer but has good success rates.

- **Prolonged labour:** Because follow up of oxytocin is almost not feasible due to the maximum length care takers can stay in the ITC, there is danger by giving oxytocin ‘uncontrolled’. However, when feasible to organize close follow up, oxytocin stimulation by experienced care providers can be discussed.

- **Complications requiring surgery cannot be treated.** E.g. true cephalo-pelvic disproportion, malpresentation, ruptured uterus, ectopic pregnancy, molar pregnancy, abruptio of the placenta with no imminent delivery. **Blood transfusions will not be given in an ETC outside a clinical trial situation.** Compassionate care including morphine can be used.

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9 A Nelaton or Foley catheter can be put to empty the bladder, when removing the catheter, cover the genital area with a cloth to avoid splashing.


5. INFANT FEEDING:

1. Feeding of an alive born child in ETC:

Since Ebola is transmitted across the placenta, the possibility of survival of the baby is almost zero. In the very rare event the baby is being born alive: if the mother is able to breastfeed: best initiation of breastfeeding. If the mother is not able: the baby is considered contagious, admit the baby with the mother and MSF could offer formula milk for this baby until the survival of the mother is more clear. Explain to the family that the baby is a potential source of Ebola transmission.

When the baby is stillborn or when the child dies in the ETC, cabergoline PO 1mg should be given to the mother to stop the milk production.

2. Feeding of Ebola negative children from breastfeeding mothers admitted to the ETC

In settings where MSF intervenes, women very often breastfeed until a child has reached 2 years of age or even longer. When a woman is admitted who is still breastfeeding, the child should no more receive breast milk at this stage and should be separated from the mother. Further, the child will have been exposed to body fluids of an Ebola-infected mother during the first stages of the illness; therefore, most children will be tested as well. Also, the child is a risk for the other family members/friends to contract Ebola if they would breastfeed this child. Therefore wet-nursing is not recommended.

- For children of more than 6 months of age: stop breastfeeding, the child should be weaned. MSF should give formula milk and/or plumpy-nut for the transition period to other food (several weeks).

- For children of less than 6 months of age: stop breastfeeding, formula feeding should be provided till the age of 6 months, then, other foods can be introduced.

When stopping abruptly with breastfeeding, the mother will need to express her milk to alleviate pain and prevent inflammation. Women admitted to the ETC who have established

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12 There have been reports of alive born babies to Ebola positive women, however, all died within a couple of days. The rationale to initiate breastfeeding here is based on the knowledge that the baby received already high doses of virus through the placenta. The survival outcome of the newborn is extremely poor. Hypothesis is that giving breast milk will not make the difference anymore. When the mother cannot accept to feed the child, formula feeding should be offered.
breastfeeding should receive a personal breast pump in order to prevent breast engorgement unless her clinical condition reduces already spontaneously the milk production. Practically this means: one pump per patient while they are admitted in the ETC, burned afterwards and another one at moment of discharge if needed. In the ETC, expressed milk will be discarded in a bucket with chlorinated water. At home, women should discard the milk into the latrine. It is important to explain this to women when discharged from the ETC.

If the mother survives Ebola, the virus is still present in the breast milk, even when the viraemia in the blood is negative\textsuperscript{13}. At the moment it is not known for how long this is. It is therefore not recommended to resume breastfeeding (unless testing of the milk has confirmed the absence of the virus in the milk)\textsuperscript{14}.

3. Feeding of Ebola positive children of breastfeeding mothers admitted to the ETC

Continue breastfeeding.

6. DISCHARGE POST DELIVERY OR POST ABORTION:

Discharge criteria apply as for other patients admitted to the ETC (negative viraemia and good clinical status).

The only exception is for pregnant women: once the viraemia is negative, induction can be done and delivery should still take place in the ETC because of the amniotic fluid and placenta that will still be Ebola-positive. After delivery and an observation period of 24 h, the woman can be discharged from the ETC. If the baby is being born alive, the baby should be kept in the ETC, with the mother and should be breastfed. In case of the difficult situation where the foetus is still alive and not viable, ask expert (referents SRH & Ebola) advice. This situation might be ethically difficult for both health care provider and patient. Good counselling is paramount.

Extra hygienic pads can be given. Explain the woman to discard the pad into a plastic bag and to burn it.

\textsuperscript{13} MSF data 2014.

\textsuperscript{14} UNICEF/WHO/IFE Core group. Infant feeding in the context of Ebola, August 2014.
7. Family Planning

Every woman of reproductive age who survived Ebola should be offered family planning, at least for 3-6 months (implants, pills, injections). Preventing unplanned pregnancies by providing family planning in the context of this ebola epidemic with associated collapse of the health care system (mainly in Liberia and Sierra Leone) will be lifesaving for many women. Access to safe delivery care cannot be guaranteed at this moment.

Give ferrous sulphate/folic acid for minimum 1 month to women who had a miscarriage or delivered. Advise condom use for 3 months because an EBOV positive PCR has been demonstrated in both semen and vaginal swabs after cure of the patient.

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With contributions from: Michel Van Herp, Benjamin Black, Ann Caluwaerts, Aisha Taybi, Fernanda Mendez, Jenny Dörneman, Eva De Plecker, Ruth Kauffman and the field teams of Guinea, Sierra Leone and Liberia.

For advice, comments, and remarks: please contact severine.caluwaerts@brussels.msf.org or daphne.lagrou@brussels.msf.org. This document is a work in progress and will be adapted during the course of the epidemic.
ANNEX 1: ITEMS TO ADD TO THE SOLIDARITY PACK (DISCHARGE PACK)

Family Planning – all women of reproductive age

Ferrous / folic acid – post delivery or post abortion

Hygienic pads

Breast-pump – women lactating
## Annex 2 Extra Items for an Ebola Treatment Centre

**Pregnancy - Delivery – Breastfeeding**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DORACABG5T</td>
<td>CABERGOLINE, 0.5 mg, tab.</td>
</tr>
<tr>
<td>DORAETHL3T1</td>
<td>ETHINYLESTR. 0.03 mg / LEVONORGESTREL 0.15 mg, plaq. 28 tab.</td>
</tr>
<tr>
<td>DORAFERF1T4</td>
<td>FERROUS fumarate 185 mg (60mg ir.) / FOLIC acid 0.4 mg, tab</td>
</tr>
<tr>
<td>DORAMIFP2T</td>
<td>MIFEPRISTONE, 200 mg, tab.</td>
</tr>
<tr>
<td>DORAMISP2T</td>
<td>MISOPROSTOL, 200 µg, breakable tab.</td>
</tr>
<tr>
<td>DINJOXYT1A</td>
<td>OXYTOCIN, 10 IU/ml, 1 ml, amp.</td>
</tr>
<tr>
<td>DINJLEVN1S</td>
<td>LEVONORGESTREL implant 2 x 75 mg (Jadelle) + trocar, 10 sets</td>
</tr>
<tr>
<td>DINJMEDR1V</td>
<td>MEDROXYPROGESTERONE acetate, 150 mg, 1 ml, vial</td>
</tr>
<tr>
<td>DINJMERG2A</td>
<td>METHYLERGOMETRINE, 0.2 mg/ml, 1 ml, amp.</td>
</tr>
<tr>
<td>ESURSCOP4S</td>
<td>SCISSORS, blunt, straight</td>
</tr>
<tr>
<td>EMEQPUMB1P</td>
<td>BREAST PUMP, manual, plastic</td>
</tr>
<tr>
<td>SDREUMBC1</td>
<td>UMBILICAL CORD THREAD, cotton, roll, 100 m</td>
</tr>
<tr>
<td>SDREUMBC2</td>
<td>UMBILICAL CORD CLAMP, sterile, s.u.</td>
</tr>
<tr>
<td>NFOSMILI1P5</td>
<td>MILK, INFANT, powder, 0-12 months, 500g sac</td>
</tr>
<tr>
<td>SDREPADM1</td>
<td>PAD, MENSTRUAL, maternity use, non sterile</td>
</tr>
<tr>
<td>SMSUCOND1</td>
<td>CONDOM, lubricated + RESERVOIR, s.u.</td>
</tr>
</tbody>
</table>
ANNEX 3: OBSTETRIC PROTOCOLS IN ETC\textsuperscript{15}

1. Postpartum haemorrhage:

Prevention:
Misoprostol 600 µg oral after the delivery of the baby or oxytocin 10IU IM/IV

Treatment:
- 2 IV lines of Ringers, one with oxytocin 40 IU in 1 l of Ringers over 4 hours
- Empty the bladder
- Add Misoprostol PO 600 µg (preferably) or per rectum, when not given as prevention
- Abdominal uterine massage
- Add methylergometrin IM 0.2 mg, repeat every 15 minutes if the uterus stays soft, with a max of 5 dosages.

No blood transfusions, no suturing of tears, no intrauterine manoeuvres.

2. Labour Induction:

Definition: Triggering labour artificially before it begins naturally.

1. Term pregnancy

Before starting the induction, make sure the patient is not yet in spontaneous labour: regular and painful contractions (3 contractions every 10 minutes is a well established labour). When possible, seek advice for induction from a gynaecologist or midwife.

Misoprostol 200 µg tablet: 25 µg PO (dissolve one tablet in 200 ml of water and give 25 ml of this solution) every 2 hours until good contractions are obtained. Do not exceed 150 micrograms total dose. If 2 hourly is not realistic, the dosage can be increased to 50 µg PO every 4 hours. Do not give misoprostol when there is history of a previous caesarean section.

2. Labour induction of preterm pregnancies (2\textsuperscript{nd} and 3\textsuperscript{rd} trimester):

a. Combination mifepristone (if available) + a prostaglandin:

\textbf{Mifepristone} PO: 600 mg once daily for 2 days followed on the third day by a prostaglandin (see doses below).

\textsuperscript{15}Outside an ETC, please refer to: MSF Obstetrics in remote settings 2007 and the SRH resource CD
b. or misoprostol alone:

**Misoprostol** orally, every 6 hours, until labour begins (max. 3 doses within 24 hours, to be repeated after 24 hours if no good contractions yet): 200 micrograms in the second trimester or 100 micrograms in the third trimester or 50 micrograms in the ninth month. Ask for expert advice if patient is grand multipara (P5 or more) or has a previous caesarean section scar.

In case of prior caesarean section or grand multiparity, given the increased risk of uterine rupture: The combination of mifepristone + misoprostol should be favoured over misoprostol alone to reduce the number of misoprostol doses required. Reduce by half the doses of misoprostol, and do not give more than 3 doses. Try to obtain advise from a midwife or gynecologist.

3. **Preparing formula milk:**

It is suggested to prepare the milk in the ETC, and to have one tin of milk, cup, spoon and bottled water per child. The milk is made with one scoop of powder (delivered with the tin) per 30 ml of water (or as per instruction on the tin). Check the table on the tin of the milk for quantities and frequency of feeding times. All used items for the preparation and feeding stay in the ETC, and cleaned with chlorinated water and kept preferably in a plastic container for the next use.
## Annex 4: Content List of a Maternity Box

### Maternity Box - ETC

<table>
<thead>
<tr>
<th>Bag 1</th>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>DINFRINL1P1</td>
<td>RINGER lactate, 1 l, plastic pouch, + SET RINGER lactate, 1 l, poche plastique + PERFUSEUR</td>
<td>2</td>
</tr>
<tr>
<td>DEXTIODP1S2</td>
<td>POLYVIDONE IODEE, 10% solution, 200ml, dropper bot. POLYVIDONE IODEE, 10% solution, 200ml, fl. Verseur</td>
<td>1</td>
</tr>
<tr>
<td>EMEQTOUR1</td>
<td>TOURNIQUET, elastic, 100 x 1.8 cm GARROT élastique, 100 x 1.8 cm</td>
<td>1</td>
</tr>
<tr>
<td>SDRECOTW5R</td>
<td>COTTON WOOL, hydrophilic, roll, 500 g COTON hydrophile, rouleau, 500 g</td>
<td>10 pieces</td>
</tr>
<tr>
<td>SDRETAPA025</td>
<td>TAPE, ADHESIVE, ROLL, 2 cm x 5 m SPARADRAP, ROULEAU, 2 cm x 5 m</td>
<td>1</td>
</tr>
<tr>
<td>SINSIVPP18</td>
<td>IV CATHETER, injection port, s.u. 18 G (1.2 x 45 mm), green CATHETER IV, site d'injection, u.u. 18 G (1.2 x 45 mm), vert</td>
<td>2</td>
</tr>
<tr>
<td>SINSIVPP20</td>
<td>IV CATHETER, INJECTION PORT, s.u. 20 G (1,0 x 32 mm), pink CATHETER IV, site d'injection, u.u. 20 G, (1,0 x32 mm), rose</td>
<td>2</td>
</tr>
<tr>
<td>SINSNEED21</td>
<td>NEEDLE, s.u., Luer, 21 G (0.8 x 40 mm) green, IM AIGUILLE, u.u., Luer, 21 G (0.8 x 40 mm) vert, IM</td>
<td>2</td>
</tr>
<tr>
<td>SINSSETI2</td>
<td>SET, INFUSION 'Y', Luer lock, air inlet, sterile, s.u. PERFUSEUR 'Y', Luer lock, prise d'air, stérile, u.u.</td>
<td>2</td>
</tr>
<tr>
<td>SINSSYDL02</td>
<td>SYRINGE, s.u., Luer, 2 ml SERINGUE, u.u., Luer, 2 ml</td>
<td>2</td>
</tr>
<tr>
<td>Bag 2</td>
<td>For labour induction - 1 IV line is in place</td>
<td></td>
</tr>
<tr>
<td>DORAMIFP2T</td>
<td>MIFEPRISTONE, 200 mg, tab. MIFEPRISTONE, 200 mg, comp.</td>
<td>1</td>
</tr>
<tr>
<td>DORAMISP2T</td>
<td>MISOPROSTOL, 200 µg, breakable tab. MISOPROSTOL, 200 µg, comp. sécable</td>
<td>1</td>
</tr>
<tr>
<td>Bag 3</td>
<td>For delivery - 1 or 2 IV lines are in place</td>
<td></td>
</tr>
<tr>
<td>DORACABG5T</td>
<td>CABERGOLINE, 0,5mg. tab.</td>
<td>2</td>
</tr>
<tr>
<td>DORAPARA5T</td>
<td>PARACETAMOL (acetaminophen), 500 mg, tab. PARACETAMOL (acétaminophène), 500 mg, comp.</td>
<td>10</td>
</tr>
<tr>
<td>DINJMERG2A</td>
<td>METHYLERGOMETRINE, 0.2 mg/ml, 1 ml, amp. METHYLERGOMETRINE, 0.2 mg/ml, 1 ml, amp.</td>
<td>2</td>
</tr>
<tr>
<td>DINJOXYT1A</td>
<td>OXYTOCIN, 10 IU/ml, 1 ml, amp. OXYTOCINE, 10 UI/ml, 1 ml, amp.</td>
<td>5</td>
</tr>
<tr>
<td>SDREUMBC2</td>
<td>UMBILICAL CORD CLAMP, sterile, s.u. PINCE POUR CORDON OMBILICAL, stérile, u.u.</td>
<td>3</td>
</tr>
<tr>
<td>SMSUGLOG8</td>
<td>GLOVES, GYNAECO, latex, s.u., n.p., sterile, pair 8.5 GANTS GYNECO., latex, u.u., n.p., stéré, paire, 8.5</td>
<td>4</td>
</tr>
<tr>
<td>SMSUGLOP08</td>
<td>GLOVES, PROTECTIVE, nitrile, reusable, n.p., pair 8 GANTS DE PROTECTION, nitrile, réutilisables, n.p., paire, 8</td>
<td>4</td>
</tr>
<tr>
<td>SDRECOMP1S-</td>
<td>COMPRESS, GAUZE, 10 cm, 12 plies, 17 threads, sterile COMPRESSE DE GAZE, 10 cm, 12 plis, 17 fils, stérile</td>
<td></td>
</tr>
<tr>
<td>-----------------</td>
<td>-------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Disposable scissors - for cutting cord in alive newborn only</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>ESURSCOP4SB</td>
<td>SCISSORS, blunt, straight - for cutting cord of alive newborn when disposable scissors are not available</td>
<td></td>
</tr>
<tr>
<td>Tubes for sample collection</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>SDREPADM1-</td>
<td>PAD, MENSTRUAL, maternity use, non sterile</td>
<td></td>
</tr>
<tr>
<td>Swabs for sample collection</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>SDREPADM1-</td>
<td>PAD, MENSTRUAL, maternity use, non sterile</td>
<td></td>
</tr>
<tr>
<td>Absorbent tissues / materials</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>DORAFERF1T4</td>
<td>FERROUS fumarate 185 mg (60mg ir.) / FOLIC acid 0.4 mg, tab FER fumarate 185 mg (60mg fer) / acide FOLIQUE 0,4 mg, comp.</td>
<td></td>
</tr>
<tr>
<td>Bag x</td>
<td>For urinary catheter - only when indicated (PPH)</td>
<td></td>
</tr>
<tr>
<td>SCTDCAUR12F</td>
<td>CATHETER, URINARY, FOLEY, balloon, sterile, s.u., CH12 SONDE VESICALE, FOLEY, ballonnet, stérile, u.u., CH12</td>
<td></td>
</tr>
<tr>
<td>SCTDBAGU2VS</td>
<td>BAG, URINE, 2 l, draining + non-return valves, sterile POCHE A URINE, 2 l, valves de vidange + anti-retour, stérile</td>
<td></td>
</tr>
<tr>
<td>SINSSYDL10-</td>
<td>SYRINGE, s.u., Luer, 10 ml SERINGUE, u.u., Luer, 10 ml</td>
<td></td>
</tr>
<tr>
<td>DINJWATE1A-</td>
<td>WATER for injection, 10 ml, plastic amp. EAU pour injection, 10 ml, amp. Plastique</td>
<td></td>
</tr>
<tr>
<td>SDRECOMP1S-</td>
<td>COMPRESS, GAUZE, 10 cm, 12 plies, 17 threads, sterile COMPRESSE DE GAZE, 10 cm, 12 plis, 17 fils, stérile</td>
<td></td>
</tr>
<tr>
<td>SINSNEED21-</td>
<td>NEEDLE, s.u., Luer, 21 G (0.8 x 40 mm) green, IM AIGUILLE, u.u., Luer, 21 G (0.8 x 40 mm) vert, IM</td>
<td></td>
</tr>
</tbody>
</table>

PPH PROTOCOL PRINTED