A Toolkit for Implementing Health Services

UN Commission on Life-Saving Commodities for Women's and Children's Health
Acknowledgements

The UN Commission on Life-saving Commodities for Women’s and Children’s Health and Amref Health Africa would like to thank all the experts who have been involved in drafting this toolkit – A Toolkit for Implementing Health Services. The process was led by Dr Joachim Osur, and the technical writing by the following:

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4. Dr Monica Oguttu – Reproductive Health Toolkit

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Much appreciation also goes to Dr John Nduba for his overall oversight and to Ms Cecilia Abinya who coordinated the project.

Funding source

The development of this toolkit was supported by the UN Commission on Life-saving Commodities for Women’s and Children’s Health.

ISBN: 9789966798275

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Foreword

Approximately 800 women die each day worldwide due to pregnancy and childbirth complications: out of these, 440 are in Africa south of the Sahara. The major causes of maternal deaths are haemorrhage, sepsis, hypertensive diseases, obstructed labour and unsafe abortion. These causes of death are totally preventable, making maternal mortality an injustice that should not be tolerated in the 21st Century.

Further, maternal death is the result of inequity in access to health that occurs within and between countries and continents. The risk of a woman living in Sub-Saharan Africa dying from a pregnancy-related cause during her lifetime is, for example, about 97 times higher than it is for a woman living in a developed country.

Child mortality rates closely mirror maternal mortality rates, the causes similarly being preventable and being a result of poverty and inequitable access to care. The major killers of children under 5 years in Africa, for example, are neonatal causes (29%), pneumonia (18%), diarrhoeal diseases (15%), and malaria (16%). Additionally, undernutrition is an underlying cause in more than a third of deaths among African children under 5 years.

Eliminating preventable maternal, newborn and child deaths is a major part of the unfinished business of the Millennium Development Goals and an important scope of work in the post-2015 development agenda. Making neglected commodities available to all women and children is an important aspect of this work and an important way to reduce the injustice and inequity issues that maternal, infant and child deaths are. It is for this reason that the UN family and Amref Health Africa find the initiative to have toolkits to be used to improve access to neglected commodities quite a noble course.

This toolkit includes Maternal Health Toolkit, Newborn Toolkit, Child Health Toolkit and Reproductive Health Toolkit. Each toolkit addresses product summary, service delivery, job aids, and performance indicators. We urge health systems to adapt and use these tools so that no woman, infant or child dies due to inability to access the 13 neglected life-saving commodities.

Gitahi Githinji        Paul Pronyk
CEO, Amref Health Africa      Senior Health Specialist, RMNCH Strategy and Coordination Team
## List of Acronyms

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAP</td>
<td>American Academy of Pediatrics</td>
</tr>
<tr>
<td>AIDS</td>
<td>Acquired Immunodeficiency Syndrome</td>
</tr>
<tr>
<td>AMSTL</td>
<td>Active Management of Third Stage of Labour</td>
</tr>
<tr>
<td>ANC</td>
<td>Antenatal Care</td>
</tr>
<tr>
<td>APGAR Score</td>
<td>Appearance, Pulse, Grimace, Activity and Respiration Score</td>
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<tr>
<td>BCC</td>
<td>Behavioral Change Communication</td>
</tr>
<tr>
<td>CARMMA</td>
<td>Campaign on Accelerated Reduction of Maternal Mortality in Africa</td>
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<tr>
<td>CHWs</td>
<td>Community Health Workers</td>
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<tr>
<td>CCT</td>
<td>Cord Controlled Traction</td>
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<tr>
<td>CHX</td>
<td>Chlorhexidine</td>
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<tr>
<td>CWG</td>
<td>Chlorhexidine Working Group</td>
</tr>
<tr>
<td>DHS</td>
<td>Demographic Health Survey</td>
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<tr>
<td>DT</td>
<td>Dispersible Tablet</td>
</tr>
<tr>
<td>ESM</td>
<td>Essential Medicines List</td>
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<tr>
<td>EWEC</td>
<td>Every Woman Every Child</td>
</tr>
<tr>
<td>FIGO</td>
<td>International Federation of Gynecology and Obstetrics</td>
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<tr>
<td>FP</td>
<td>Family Planning</td>
</tr>
<tr>
<td>HBB</td>
<td>Helping Babies Breath</td>
</tr>
<tr>
<td>HIV</td>
<td>Human Immunodeficiency Virus</td>
</tr>
<tr>
<td>HMIS</td>
<td>Health Management Information System</td>
</tr>
<tr>
<td>iCCM</td>
<td>Integrated Community Case Management</td>
</tr>
<tr>
<td>ICM</td>
<td>International Confederation of Midwives</td>
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<tr>
<td>ICPD</td>
<td>International Conference on Population Development</td>
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<tr>
<td>IM</td>
<td>Intramuscular</td>
</tr>
<tr>
<td>IMCI</td>
<td>Integrated Management of Childhood Illnesses</td>
</tr>
<tr>
<td>IV</td>
<td>Intravenous</td>
</tr>
<tr>
<td>KMC</td>
<td>Kangaroo Mother Care</td>
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<tr>
<td>LARC</td>
<td>Long-acting Reversible Contraception</td>
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<tr>
<td>LMIS</td>
<td>Logistics Management Information System</td>
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<td>MDGs</td>
<td>Millennium Development Goals</td>
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<tr>
<td>M&amp;E</td>
<td>Monitoring and Evaluation</td>
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<tr>
<td>MgSO₄</td>
<td>Magnesium Sulphate</td>
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<tr>
<td>MICS</td>
<td>Multiple Indicator Cluster Survey</td>
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<tr>
<td>NMR</td>
<td>Neonatal Mortality Rate</td>
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<td>NR</td>
<td>Newborn Resuscitation</td>
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<tr>
<td>NSAIDs</td>
<td>Non-steroidal Anti-inflammatory Drugs</td>
</tr>
<tr>
<td>ORS</td>
<td>Oral Rehydration Salts</td>
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<tr>
<td>ORT</td>
<td>Oral Rehydration Therapy</td>
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<tr>
<td>OS</td>
<td>Oral Suspension</td>
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<tr>
<td>PATH</td>
<td>Program for Appropriate Technology in Health</td>
</tr>
<tr>
<td>PE/E</td>
<td>Pre-eclampsia</td>
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<tr>
<td>PMTCT</td>
<td>Prevention of Mother to Child Transmission</td>
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<tr>
<td>PPH</td>
<td>Postpartum Haemorrhage</td>
</tr>
<tr>
<td>PPV</td>
<td>Positive Pressure Ventilation</td>
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<tr>
<td>QI</td>
<td>Quality Initiative</td>
</tr>
<tr>
<td>Acronym</td>
<td>Description</td>
</tr>
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</tr>
<tr>
<td>QOC</td>
<td>Quality of Care</td>
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<tr>
<td>RMNCH</td>
<td>Reproductive, Maternal, Newborn, and Child Health</td>
</tr>
<tr>
<td>SBA</td>
<td>Skilled Birth Attendant</td>
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<tr>
<td>SM</td>
<td>Social Marketing</td>
</tr>
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<td>SMAGs</td>
<td>Safe Motherhood Action Groups</td>
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<tr>
<td>UN</td>
<td>United Nations</td>
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<tr>
<td>UNICEF</td>
<td>United Nations Children’s Fund</td>
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<tr>
<td>VSI</td>
<td>Venture Strategies Innovation</td>
</tr>
<tr>
<td>WHO</td>
<td>World Health Organization</td>
</tr>
</tbody>
</table>
# Contents

## Acknowledgements

References

## Foreword

References

## List of Acronyms

References

## Chapter 1: Introduction

1.1 UN Commission on Life-Saving Commodities: improving access, saving lives

References

## Chapter 2: Maternal Health Toolkit

2.1 Background

2.2 Oxytocin

2.2.1 Product summary

2.2.2 Service delivery

2.2.3 Standards and guidelines

2.2.4 Job aids

2.2.5 Performance indicators

2.3 Misoprostol

2.3.1 Product summary

2.3.2 Service delivery

2.3.3 Standards and guidelines

2.3.4 Job aids

2.3.5 Performance indicators

2.4 Magnesium Sulphate

2.4.1 Product Summary

2.4.2 Service delivery

2.4.3 Job aids

References

## Chapter 3: Newborn Toolkit

3.1 Background

3.2 Chlorhexidine

3.2.1 Product summary

3.2.2 Service delivery

3.2.3 Job aids

3.2.4 Performance indicators

3.3 Neonatal resuscitation equipment

3.3.1 Product summary

3.3.2 Service delivery

3.3.3 Job aids

3.3.4 Performance indicators

References
### Chapter 4: Child Health Toolkit

#### 4.1 Background

- **4.1.1 Situational Analysis**

#### 4.2 ORS/Zinc

- **4.2.1 Product Summary for ORS/Zinc**
- **4.2.2 Service delivery for ORS/Zinc**
- **4.2.3 Job aids for ORS/Zinc**

#### 4.3 Amoxicillin

- **4.3.1 Product Summary for Amoxicillin**
- **4.3.2 Service delivery for Amoxicillin**
- **4.3.3 Job Aids for Amoxicillin DT**

### References

---

### Chapter 5: Reproductive Health Toolkit

#### 5.1 Background

#### 5.2 Implants

- **5.2.1 Product summary**
- **5.2.2 Service delivery**
- **5.2.3 Job aids for implants**

#### 5.3 The female condom

- **5.3.1 Product Summary**
- **5.3.2 Service delivery**
- **5.3.3 Job aids for female condoms**

#### 5.4 Emergency contraception (EC)

- **5.4.1 Product Summary**
- **5.4.2 Service delivery**
- **5.4.3 Job Aids for Emergency Contraceptives**

### References

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### Appendix - List of Contributors
List of Figures

| Figure 2.1 | AMSTL: Active Management of the Third Stage of Labour | 11 |
| Figure 2.2 | General Steps for PPH Management | 12 |
| Figure 2.3 | Uterotonics Supply Management Cycle | 14 |
| Figure 2.4 | The stock card at the dispensing point (pharmacy) | 20 |
| Figure 2.5 | Oxytocin log book | 20 |
| Figure 2.6 | Delivery log book | 21 |
| Figure 2.7 | Steps for AMSTSL using Misoprostol when Oxytocin is not available and birth attendant is SBA | 27 |
| Figure 2.8 | Supervision: competence-based skills checklist | 30 |
| Figure 2.9 | Magnesium Sulphate Monitoring Sheet (use along with the Partograph) | 36 |
| Figure 2.10 | Managing severe pre-eclampsia and eclampsia with Magnesium Sulphate (MgSO4) | 38 |
| Figure 3.1 | Causes of neonatal deaths | 41 |
| Figure 3.2 | Examples of neonatal suction devices | 47 |
| Figure 3.3 | Example of a neonatal resuscitation training mannequin | 47 |
| Figure 3.4 | Neonatal resuscitation: flow chart | 50 |
| Figure 3.5 | Neonatal resuscitation: steps and process | 51 |
| Figure 3.6 | Neonatal resuscitation flow chart | 53 |
| Figure 3.7 | Neonatal resuscitation | 54 |
| Figure 3.8 | Facility checklist for essential newborn care and resuscitation † | 58 |
| Figure 4.1 | Assess and classify the sick child | 67 |
| Figure 4.2 | Treating the child — Plan A and B | 68 |
| Figure 4.3 | Treating the child — Plan C | 69 |
| Figure 4.4 | Classification of diarrhoea and dehydration | 70 |
| Figure 4.5 | Tips on homecare for child with diarrhoea | 71 |
| Figure 4.6 | Giving Amoxicillin at home | 75 |
| Figure 4.7 | Assessment tools for severity of pneumonia | 76 |
| Figure 5.1 | Types of implants | 82 |
| Figure 5.2 | Eligibility for using contraceptive implants | 84 |
| Figure 5.3 | Inserting the implant | 88 |
| Figure 5.4 | Contraceptive methods comparing effectiveness | 91 |
| Figure 5.5 | Female condom samples | 92 |
| Figure 5.6 | Demonstration model FC2 materials | 99 |
List of Tables

Table 1.1: The life-saving commodities .......................................................... 2
Table 2.1: Key steps of AMTSL using Oxytocin ............................................. 9
Table 2.2: Treatment of PPH ......................................................................... 9
Table 2.3: Competence-based skills checklist ............................................... 15
Table 2.4: Checklist for choosing uterotonics ............................................... 18
Table 2.5: Checklist for Oxytocin procurement ............................................. 18
Table 2.6: Drug quality and cold-chain management ................................... 19
Table 2.7: Checklist for staff capacity on AMSTL .......................................... 19
Table 2.8: Key steps for use of Misoprostol for prevention of PPH at facility level .......................................................... 24
Table 2.9: Key steps for use of Misoprostol for prevention of PPH at community level .................................................. 25
Table 2.10: Key steps for use of Misoprostol for treatment of PPH at facility level in the absence of IM oxytocics .......... 25
Table 2.11: Checklist for choosing uterotonics ............................................. 28
Table 2.12: Checklist for Misoprostol procurement ...................................... 28
Table 2.13: Checklist for staff capacity on Misoprostol use .......................... 29
Table 2.14: Checklist for AMTSL when IM oxytocics not available and delivered by Skilled Birth Attendant (SBA) ........ 31
Table 2.15: Checklist for AMTSL when IM oxytocics not available and delivered by CHW ............................................. 31
Table 2.16: Dosing for MgSO₄ ....................................................................... 34
Table 2.17: Alternate protocol ...................................................................... 35
Table 2.18: Side effects, toxicity and nursing intervention ............................. 37
Table 3.1: Different CHX formulations .......................................................... 42
Table 3.2: Various CHX digluconate concentrations and usage .................. 42
Table 3.3: Proposed monitoring indicators .................................................. 46
Table 3.4: How to score the newborn baby: APGAR score ........................... 55
Table 3.5: Core and additional input, process, coverage and referral indicators to support facility-based NR improvement efforts ................................................ 56
Table 3.6: Core and additional indicators of essential system functions for delivery of high-quality NR services, to inform sub-national/district results-based management .................................................. 57
Table 4.1: Recommended minimum amount of fluid by age ........................ 66
Table 4.2: Dosage of Zinc by age ................................................................. 66
Table 4.3: Determining amount of ORS to give during first 4 hours ............ 72
Table 4.4: Amoxicillin Product Formulations ................................................. 72
Table 4.5: Community case management guidance for treatment of pneumonia .......................................................... 73
Table 4.6: Guidance for clinical management of childhood pneumonia .......... 74
Table 5.1: The 5 basic steps of using a female condom ................................ 94
Table 5.2: Supporting the new user ............................................................... 95
Table 5.3: Methods and when to start ......................................................... 108
Table 5.4: Steps for developing and mainstreaming a family planning programme .................................................. 108
Introduction

1.1 UN Commission on Life-Saving Commodities: improving access, saving lives

The UN Commission on Life-Saving Commodities for Women’s and Children’s Health was established in 2010 by the United Nations Secretary-General to make 13 life-saving commodities more widely available and used in developing countries to avert preventable maternal and child deaths¹.

Too often, affordable, effective medicines and simple health supplies do not reach the women and children who need them most. The most common barriers that prevent them from receiving appropriate interventions include the insufficient supply of high quality health commodities where they are most needed; the inability to effectively regulate the quality of these commodities; and the lack of access and awareness on why, how and when to use them.

Life-saving commodities (See table 1.1) are those medicines, medical devices and health supplies that effectively address leading avoidable causes of death during pregnancy, childbirth and childhood, and that, if more widely accessed and properly used, could significantly reduce preventable deaths among women and children². It is estimated that an ambitious scale-up over 5 years in these countries of the 13 commodities would save an estimated 6 million lives, including approximately 230,000 maternal deaths averted because of increased use of family planning commodities¹.
Table 1.1: The life-saving commodities

<table>
<thead>
<tr>
<th>Group of commodities by life stage</th>
<th>Specific commodities</th>
<th>Cause of mortality targeted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maternal health commodities</td>
<td>Oxytocin</td>
<td>Post-partum haemorrhage</td>
</tr>
<tr>
<td></td>
<td>Misoprostol</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Magnesium Sulphate</td>
<td>Eclampsia and severe pre-eclampsia</td>
</tr>
<tr>
<td>Newborn health commodities</td>
<td>Injectable antibiotics</td>
<td>Neonatal sepsis</td>
</tr>
<tr>
<td></td>
<td>Antenatal corticosteroids</td>
<td>Preterm respiratory distress syndrome</td>
</tr>
<tr>
<td></td>
<td>Chlorhexidine</td>
<td>Newborn cord care</td>
</tr>
<tr>
<td></td>
<td>Resuscitation devices</td>
<td>Newborn asphyxia</td>
</tr>
<tr>
<td>Child health commodities</td>
<td>Amoxicillin</td>
<td>Pneumonia</td>
</tr>
<tr>
<td></td>
<td>Oral rehydration salt</td>
<td>Diarrhoea</td>
</tr>
<tr>
<td></td>
<td>Zinc</td>
<td></td>
</tr>
<tr>
<td>Reproductive health commodities</td>
<td>Female condoms</td>
<td>Unplanned pregnancy</td>
</tr>
<tr>
<td></td>
<td>Contraceptive implants</td>
<td></td>
</tr>
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<td></td>
<td>Emergency contraception</td>
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The UN Commission on Life-Saving Commodities for Children’s and Women’s Health, in its 2012 report, made ten, specific, time-bound recommendations to increase access to, and use of, these commodities. The ninth recommendation focuses on health worker performance.

Recommendation 9:
Performance and accountability: By end 2013, all EWEC countries have proven mechanisms such as checklists in place to ensure that healthcare providers are knowledgeable about the latest national guidelines.

This recommendation is based on the understanding that the ability of health systems to deliver live-saving commodities depends on many factors, one of which is the performance of its healthcare providers. Barriers to increased demand among health workers include lack of training in and knowledge about the efficacy and use of a particular commodity, use of outdated standards of practice, and policies restricting certain levels of health workers — including community health workers and pharmacists — from prescribing and administering live-saving commodities.

The Commission sees the solution to this situation as using checklists to help ensure that all critical steps associated with a specific health event (e.g. birth) are completed.

This Toolkit for Implementing Health Services brings together guides, job aids and checklists to help ensure that all critical steps associated with a specific health event are completed. These tools are designed to accelerate uptake of the neglected commodities and contribute to reducing maternal and child mortality in the poorest countries.

The UN Commission on Life-saving Commodities for Women’s and Children’s Health is part of the global Every Woman Every Child (EWEC) movement which seeks to mobilize and intensify global action to address the main treatable health challenges facing women and children in the poorest countries, and is guided by the Global Strategy for Women’s and Children’s Health.
References


Maternal Health Toolkit

2.1 Background

This toolkit contains relevant information on the three neglected United Nations Commission on Life-Saving Commodities for women aimed at increasing access to and use of Oxytocin, Misoprostol and Magnesium Sulphate (MgSO₄) to ensure that women are protected from preventable causes of death and disease. The implementation of Oxytocin and Misoprostol for the prevention and treatment of Postpartum Haemorrhage (PPH) and Magnesium Sulphate for the prevention and treatment of Severe Pre-eclampsia and Eclampsia, especially in developing countries, could result in improved maternal health outcomes, and this could save millions of lives of pregnant women during and after delivery.

Globally, more than 8 million of the 136 million women giving birth each year suffer from excessive bleeding after childbirth. PPH causes one out of every four maternal deaths that occur annually and accounts for more maternal deaths than any other individual cause¹. PPH is the leading direct cause of maternal deaths in developing countries, with an estimated 14 million cases of pregnancy-related haemorrhage every year². The incidence of PPH may be underestimated by up to 50%, due to the clinical difficulty in accurately estimating blood loss³.

The majority of these deaths can be prevented through the use of prophylactic uterotonics during the third stage of labour and by timely and appropriate management. Routine prophylaxis can result in a 70% reduction in the need for therapeutic oxytocics to treat excessive postpartum bleeding⁴.

Oxytocin remains the drug of choice for prevention and treatment of PPH worldwide. However, access to Oxytocin remains a big challenge, especially in low-income countries, mainly due to inadequate skilled birth attendants (SBAs), home deliveries, poor transport systems, poor emergency services and commodity issues (stockouts and poor quality), amongst many other reasons. Active management of third stage of labour (AMTSL) is an effective measure to prevent PPH that can be delivered by a trained healthcare provider linked with essential supplies in all the settings that women give birth, including home births.
Oxytocin is widely accepted and used as the gold standard for prevention and treatment of PPH. Most Every Woman Every Child (EWEC) countries have policy and guidelines for its use at facility level, where trained providers are allowed to administer to all women in labour. In order to strengthen the use of Oxytocin, the World Health Organization (WHO) and other partners will support EWEC countries in updating national clinical guidelines based on WHO guidelines on PPH, task shifting, and induction of labour and utilizing these for appropriate communication materials and messages, training and supervision to safely use these products at all levels of the healthcare system5. Active Management of Third Stage of Labour (AMTSL) should be performed by all SBAs regardless of where the patient delivers from (home to facility based). The potential benefit of investing in the use of Oxytocin for use in prevention and treatment of PPH is extraordinary if potential barriers were overcome and equitable access achieved. The UN Commission Report on Life-Saving Commodities for Women's and Children’s Health has estimated that if implemented in all EWEC countries over a period of 5 years, approximately 15,000 maternal lives could be saved6.

Where Oxytocin is not available or feasible — due to lack of refrigeration, supplies (such as syringes) or trained staff — Misoprostol can be an essential drug for prevention and treatment of PPH. The WHO Recommendations for PPH7 recommend the use of Misoprostol for PPH prevention in the absence of AMTSL. Most African countries ratified several international treaties amongst them, the International Conference on Population Development (ICPD), Millennium Development Goals (MDGs), Maputo Plan of Action, and more recently the Campaign on Accelerated Reduction of Maternal Mortality in Africa (CARMMA). This shows the global commitment to improving the maternal, newborn and child health. WHO8 has included Misoprostol on the essential medicines list and has since recommended its use for prevention and treatment of PPH in cases where Oxytocin is not available or where there is no SBA. In addition, WHO will maintain and promote regulatory approval of use by nurses and midwives, updating national clinical guidelines and establishing procurement, training and supervision programmes.

Misoprostol is not a substitute for AMTSL using Oxytocin, which is the gold standard for prevention and treatment of PPH. The potential benefit of investing in the use of Misoprostol for prevention and treatment of PPH is extraordinary if potential barriers were overcome and equitable access achieved. The UN Commission on Life-Saving Commodities for Women’s and Children’s Health has estimated that if implemented in all EWEC countries over a period of 5 years, approximately 15,000 maternal lives would be saved6.

Hypertensive disorders of pregnancy affect about 10% of all pregnant women around the world9:

- In Africa and Asia, nearly one tenth of all maternal deaths are associated with hypertensive disorders of pregnancy, whereas one quarter of maternal deaths in Latin America have been associated with complications10.
- Pre-eclampsia/Eclampsia (PE/E) is responsible for a quarter of all maternal deaths, affecting an estimated 63,000 women worldwide each year11. The risk of dying of PE/E is approximately 300 times higher for women in developing countries than for women in developed countries, due to a lack of access to quality, affordable care and supplies that could save their lives12.

As early as 1925, MgSO$_4$ became the standard treatment for PE/E in the United States. Until recently, there was widespread use of other, less effective anticonvulsants in the rest of the world. However, large clinical trials conducted between 1995 and 2002 found MgSO$_4$ to be the most effective when compared with other treatments, including Diazepam and Phenytoin13. These trials have found MgSO$_4$ to reduce the occurrence of eclampsia by more than 50% and maternal deaths by 46%. Women treated with MgSO$_4$ had a 52% and 67% lower recurrence of convulsions (eclampsia) than those treated with Diazepam and Phenytoin, respectively14.

MgSO$_4$ is the preferred drug for treatment of severe PE/E. MgSO$_4$ has since been placed on the WHO Essential Medicines List and is recommended as the most effective, safe and affordable treatment for severe PE/E. All EWEC countries should ensure that MgSO$_4$ is designated as the first line of treatment for
severe PE/E. The potential benefit of investing in the use of Magnesium Sulphate for use in prevention and treatment of severe PE/E is enormous if potential barriers were overcome and equitable access achieved. The UN Commission on Life-Saving Commodities has estimated that, if implemented in all EWEC countries, approximately 55,000 maternal lives could be saved over a five-year period.

### 2.2 Oxytocin

#### 2.2.1 Product summary

**Description**

Oxytocin is a cyclic non-apeptide that is obtained by chemical synthesis. This synthetic form is identical to the natural hormone that is stored in the posterior pituitary and released into the systemic circulation in response to suckling and labour.

**Medicinal product**

Syntocinon or Pitocin® 10 IU/ml Concentrate for solution for infusion. Oxytocin comes as a clear, colourless, sterile solution in 1 ml clear glass ampoules.

**Routes of administration**

IV (bolus or infusion) or IM.

**Clinical particulars**

1. **Indications**
   - **Antepartum:**
     - Induction of labour for medical reasons, e.g. in cases of post-term gestation, premature rupture of the membranes, pregnancy-induced hypertension (pre-eclampsia), etc.
     - Stimulation of labour in hypotonic uterine inertia
     - Early stages of pregnancy as adjunctive therapy for the management of incomplete, inevitable, missed abortion or molar pregnancy.
   - **Postpartum:**
     - Prevention and treatment of PPH.

2. **Mechanism of action**
   
   Oxytocin stimulates the smooth muscle of the uterus by activation of Oxytocin receptors, which results in release of calcium from intracellular stores and thus leads to myometrial contraction.

3. **Contraindication**
   
   Hypersensitivity to Oxytocin.

4. **Side effects**
   
   - Nausea and vomiting
   - Tachycardia or bradycardia
   - Hypotension
   - Arrhythmias
   - Rash
Box 2.1: Storage of Oxytocin drug in the pharmacy

- Make sure that there are adequate stocks of uterotonic drugs, syringes, and injection safety materials.
- Check the manufacturer’s label for storage recommendations.
- Oxytocin should be stored in a refrigerator or a cold box with a thermometer. Make sure that there is a system in place to monitor the temperature of the refrigerator/cold box — record the temperature in the refrigerator on a regular basis, preferably at the hottest times of the day (put thermometers in different parts of the refrigerator).
- Make sure that there is a back-up system in place in case of frequent electricity cuts — for example, gas or solar refrigerators, placing ice packs in the refrigerator to keep it cool, etc.
- Follow the rule of first expired–first out (or first in–first out) and maintain a log to keep track of expiration dates to reduce wastage of uterotonic drugs.
- To ensure the longest life possible of injectable uterotonics, keep them refrigerated at 2–8°C.


Box 2.2: Storage of Oxytocin in delivery rooms

- Check the manufacturer’s label for recommendations on how to store injectable uterotonic drugs outside the refrigerator. In general:
  - Oxytocin may be kept outside the refrigerator at a maximum of 30°C (warm, ambient climate) for up to three months and then discarded
  - Ergometrine and syntometrine vials may be kept outside the refrigerator in closed boxes and protected from the light for up to one month at 30°C and then discarded
- Record the temperature in the delivery room on a regular basis, preferably at the hottest times of the day
- Periodically remove ampoules from the refrigerator for use in the delivery room — carefully calculate the number removed from the refrigerator based on anticipated need
- Only remove ampoules or vials from their box just before using them
- Make sure that there are adequate stocks of syringes and injection safety materials
- Avoid keeping injectable uterotonics in open kidney dishes, trays, or coat pockets


2.2.2 Service delivery

The key components of AMTSL using Oxytocin include:

- Prophylactic administration of Oxytocin 10 IU IM (drug of choice) immediately after birth of baby;
- Delivery of the placenta with controlled cord traction;
- Uterine massage after delivery of the placenta every 15 minutes for 2 hours.

In addition to the skilled attendant, Oxytocin must be prepared in advance and available at the bedside. AMTSL involves a combination of three consecutive steps as shown in table 2.1, which are easy to learn and can be mastered through practice.
### Table 2.1: Key steps of AMTSL using Oxytocin

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
<th>Actions to take</th>
<th>Additional information</th>
</tr>
</thead>
</table>
| 1    | Administration of Oxytocin following the birth of the baby | • Prepare the Oxytocin in syringe when woman begins second stage  
• Palpate the uterus to ensure that there is no additional foetus  
• Give Oxytocin 10 IU IM on anterior thigh | • In case there is no Oxytocin use other available uterotonic drug |
| 2    | Application of controlled cord traction to deliver the placenta | Cord clamping:  
• Clamp the cord 2–3 minutes after delivery of baby  
Controlled cord traction (CCT):  
• CCT should begin with the first contraction following Oxytocin administration  
• Apply gentle cord traction while applying counter supra-pubic pressure onto the uterus  
• Stop doing CCT when the contraction ceases and restart with subsequent contraction  
• Receive the placenta with both hands when it appears at the vulva  
• Deliver membranes slowly by rolling the placenta gently  
• Examine the placenta and membranes to ensure that they are complete | Immediate cord clamping shall be done only if there is:  
• need for newborn resuscitation  
• HIV infected mothers  
• Rhesus negative mother  
You can use an artery forceps to remove visibly remaining membranes |
| 3    | Uterine massage every 15 minutes for 2 hours | • Massage the uterus until it is firmly contracted to expel clots from the uterus or vagina  
• Clean and inspect the vulva, vaginal walls, cervix and perineum for tears and repair them  
• Empty the bladder  
• Massage the uterus every 15 minutes for 2 hours after delivery, as you observe for occurrence of PPH | • The mother or the attendant can be taught how to massage the uterus  
• Repair episiotomy and/or tears after infiltrating with 1% lignocaine  
• Put the baby on the breast within the first 1 hour. This practice also enhances contraction of the uterus to prevent PPH  
• Encourage the mother to pass urine more often because a full bladder causes uterine atony |

Source: Adapted from www.pphprevention.org/AMTSL_FacilitatorGuide_English_004.pdf.pdf

### Table 2.2: Treatment of PPH

<table>
<thead>
<tr>
<th>Description</th>
<th>Actions to take</th>
<th>Additional information</th>
</tr>
</thead>
</table>
| Administration of Oxytocin following the birth of the baby | • Shout for help  
• Conduct rapid evaluation  
• Massage uterus to expel blood and clots  
• If Shock is present start resuscitation immediately — ABC  
• Repeat Oxytocin 10 IU IM  
• Give Oxytocin infusion 20–40 IU in 1000 ml at 60 drops/min (normal saline or ringer’s lactate)  
• Catheterize bladder | In case there is no Oxytocin use other uterotonic drug options. |

Source: Adapted from www.pphprevention.org/AMTSL_FacilitatorGuide_English_004.pdf.pdf
2.2.3 Standards and guidelines

Globally, most countries uphold the WHO recommendations that AMSTL should be performed by all trained health personnel at all births using Oxytocin. All EWEC countries should ensure that country-level guidelines which support use of Oxytocin for AMSTL by SBAs at all levels of the healthcare system are developed, disseminated and implemented. Guidelines should address the following issues:

- Policy and advocacy
- Financing and procurement
- Drug regulation and drug quality
- Drug storage and distribution
- Drug usage at all levels of the healthcare system
- Disposal
- Monitoring and evaluation
- Demand creation and community involvement
- Research

WHO guidelines

The WHO has made recommendations on the use of Oxytocin for prevention and treatment of PPH, with the primary objective of providing a foundation for the strategic policy and programme development needed to ensure the sustainable implementation of effective interventions for reducing the global burden of PPH. However, individual countries can develop or adopt guidelines that suit their country needs.

**WHO recommendation for the use of Oxytocin for prevention of PPH**

1. The use of uterotonic for the prevention of PPH during the third stage of labour is recommended for all births (strong recommendation, moderate-quality evidence).
2. Oxytocin (10 IU, IV/IM) is the recommended uterotonic drug for the prevention of PPH for all births, including caesarian section (strong recommendation, moderate-quality evidence).
3. In settings where Oxytocin is unavailable, the use of other injectable uterotonic (if appropriate Ergometrine/Methylergometrine or the fixed drug combination of Oxytocin and Ergometrine) or oral Misoprostol (600 μg) is recommended (strong recommendation, moderate-quality evidence).

**WHO recommendation for treatment of PPH**

1. Intravenous Oxytocin alone is the recommended uterotonic drug for the treatment of PPH (strong recommendation, moderate-quality evidence).
2. If intravenous Oxytocin is unavailable, or if the bleeding does not stop on Oxytocin, the use of intravenous Ergometrine, Oxytocin-Ergometrine fixed dose, or a prostaglandin drug (including Misoprostol, 800 μg) is recommended (strong recommendation, low-quality evidence).
3. If the placenta is not expelled spontaneously, the use of IV/IM Oxytocin in combination with controlled cord traction is recommended (weak recommendation, very-low quality evidence).
2.2.4 Job aids

**AMSTL**

*Figure 2.1: AMSTL: Active Management of the Third Stage of Labour*

**Step 1: Administer uterotonic within 1 minute of delivery of baby**
- Choose uterotonic in the following order of preference:
  1. Oxytocin 10 IU IM
  2. Ergometrine/Syntometrine 0.2 mg IM (If no heart disease/BP)
  3. Misoprostol 600 mcg oral/sublingual
- Prepare uterotonic when woman begins 2nd stage. Keep at bedside
- Deliver baby. Place on mother’s abdomen
- Palpate abdomen. Rule out additional baby(ies)
- Administer uterotonic within 1 minute of delivery of last baby
- Dry and wrap baby
- Put baby to breast

**Step 2: Controlled cord traction (CCT)**
- Clamp and cut the cord within 2–3 minutes of delivery
- Re-clamp cord close to mother’s perineum
  - Hold clamp in one hand
- Place other hand just above pubic bone to stabilize uterus during CCT
  - Keep slight tension on cord & wait for a strong contraction
- With strong contraction, stabilize uterus using counter-pressure upward and backward
  - Encourage mother to push
  - Gently pull downward on the cord to deliver placenta
  - Continue applying counter-pressure
- Immediately massage fundus of uterus until it contracts
- Examine the placenta and membranes for completeness. If placenta or fragments are returned or membranes are incomplete take appropriate actions to remove returned products
- Palpate uterine fundus every 15 minutes for 2 hours. If uterus not firm, massage. Teach mother to massage her own uterus as needed.
- Request mother to empty bladder
- Massage and ensure uterus is not soft during the first 2 hours.

**Step 3: Massage the uterus**
- As placenta delivers, hold in two hands and gently turn so that membranes are twisted on themselves until they slowly deliver
- Immediately massage fundus of uterus until it contracts
- Examine the placenta and membranes for completeness. If placenta or fragments are returned or membranes are incomplete take appropriate actions to remove returned products
- Palpate uterine fundus every 15 minutes for 2 hours. If uterus not firm, massage. Teach mother to massage her own uterus as needed.
- Request mother to empty bladder
- Massage and ensure uterus is not soft during the first 2 hours.

Source: www.pathfinder.org/publication-tools/pdfs/clinical Action To Address Postpartum Hemorrhage
Figure 2.2: General Steps for PPH Management

1. Call for help

2. Perform rapid evaluation (vital signs, pallor & cause)

3. Massage uterus

4. If shock is present, start immediate resuscitation

5. Massage the uterus to expel blood and blood clots

6. Give Oxytocin 10 units IM

Source: Pictures adapted from www.path.org – Postpartum haemorrhage prevention and treatment
Box 2.3: Management of Shock

- Shout for help and mobilize care providers
- Do rapid initial assessment (vital signs, level of consciousness, vaginal bleeding and convulsion)
- Turn the woman onto her side and ensure her airway is open
- Give oxygen at 6–8 l/minute by mask or nasal cannula
- Elevate the legs
- Cover the woman with a blanket
- Set IV line and quickly Infuse normal saline or Ringer’s Lactate. Initially at rate of 1 litre over 15–20 minutes using a large bore cannula (16 gauge or largest available)
- If the woman is very shocked, establish 2 lines. Give at least 2 litres in the first hour

**Aim to replace 2–3 times the estimated fluid loss**

- Monitor pulse, blood pressure, respiration every 15 minutes until condition improves and take temperature every 2 hours
- Catheterize the bladder and monitor fluid intake and urine output
- Take blood sample for grouping cross/matching and assess clotting status using bedside clotting test
- Reassess responses; if improving continue with IV fluids and close monitoring of vital signs
- While stabilizing the woman determine the specific cause/take brief history from her

Figure 2.3: Uterotonics Supply Management Cycle

**SELECTION**
- Build consensus on protocol for active management of the third stage of labour (AMSTL) with committee of experts and consult best practices.
- Use the following selection criteria:
  - At what level of health system? Who will use them?
  - Types of medicine? First-line medicine?
  - Cost
  - Safety and efficacy
  - Quality and stability (storage conditions)
  - Availability for procurement
  - Registered for use in country?
- Include selected uterotonic in national essential medicines list (EML) and standard treatment guidelines (STGs).

**USE**
- Policy: who is allowed to prescribe uterotonics?
- Training in AMSTL: what skills are needed?
- Service delivery protocols (AMSTL)
  - Indications
  - Dose
  - Contraindications
  - Management of side effects
- Skilled birth attendants
- Client counseling

**MANAGEMENT SUPPORT**
- Standard Operating Procedures
- Financing
- Information management (MIS)
- Human resources
  - Pre-service education
  - Continuing education
  - In-service education
  - Monitoring and supervision

**PROCUREMENT**
- Quantity needed
- Cost
- Quality: packaging, cold chain
- Shelf life
- Supplier performance
- Management information system (MIS) to monitor consumption

**DISTRIBUTION**
- Effects of heat and light
- Cold chain equipment and transportation
  - Cold box or packs
  - Refrigerators
  - Excursion?
- Inventory monitoring system
  - Stock cards and registers
- Distribution network and transportation
  - Vertical vs. integrated (How do uterotonics fit into overall supply system?)
  - Delivery kit system?
  - Non-facility locations

**POLICY AND LEGAL FRAMEWORK**
- EML
- Registration issues
- Importation
- Centralized vs. Decentralized; vertical vs. integrated programs
- Financing mechanisms: cost recovery, cost sharing, insurance
- AMSTL service delivery protocols
- Human resources: who is authorized to prescribe?

Table 2.3: Competence-based skills checklist

<table>
<thead>
<tr>
<th>TASK/ACTIVITY</th>
<th>CASES</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Preparation for birth</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Checks that all needed equipment and instruments are ready, and in working order</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Makes sure that all surfaces the woman and baby will come in contact with are clean and dry</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prepares uterotonic when woman begins second stage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asks the woman to empty her bladder before second stage begins</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Birth</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does not encourage the woman to push until she has the urge to do so</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assists the woman to assume the position of her choice (squatting, semi-sitting) and allows her to change position according to what is comfortable for her</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Explain to the woman what to expect and provide emotional support</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wears protective clothing (gown, mask, gloves)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Washes hands with soap and dries them on a clean towel, or air dries them</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wears sterile gloves</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Delivers baby according to Standards of Practice and places on mother’s abdomen</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Immediate newborn care</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thoroughly dries the baby while assessing baby’s breathing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>If baby is not crying or breathing well within 30 seconds of delivery, calls for help and begins resuscitation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>If the baby breathes well, places the baby in skin-to-skin contact on the mother’s abdomen and covers the baby, including the head, with a clean dry cloth</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Puts baby to breast if mother plans to breastfeed</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Administration of a uterotonic drug</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Within one minute of the delivery of the baby, palpates the abdomen to rule out the presence of an additional baby(babies) and gives uterotonic:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oxytocin 10 IU IM first choice</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Controlled cord traction

- Clamps the cord close to the perineum 2–3 minutes after the delivery of the baby and holds the cord in one hand
- Places a second clamp on the cord and cuts the cord between the two
- Stabilizes the uterus using counter-pressure by pushing uterus up and backwards from just above the symphysis (pubic bone) while gently pulling downward on the cord.
- Keeps slight tension on the cord and awaits a strong uterine contraction
- With the strong contraction, encourages the mother to push while gently pulling downward on the cord to deliver the placenta
- If the placenta does not descend during 30–40 seconds of controlled cord traction, stops traction
- With the next contraction, gently holds the cord and waits until the uterus is well contracted again
- With the next contraction, repeats controlled cord traction with counter-pressure
- As the placenta delivers, holds the placenta in two hands and gently turns it until the membranes are twisted. Slowly pulls to complete the delivery.
- If the membranes tear, gently examines the upper vagina and cervix wearing sterile gloves and uses a sponge forceps to remove any membrane pieces present
- Inspects the placenta for completeness
- If a portion of the maternal surface is missing or there are torn membranes with vessels, takes appropriate action to locate any pieces of membrane that might be present

### Uterine massage

- Immediately massages the fundus of the uterus until the uterus is contracted
- Palpates for a contracted uterus every 15 minutes and repeats uterine massage as needed during the first 2 hours
- Ensures that the uterus does not become relaxed (soft) after stopping uterine massage
| Keeps bladder empty |
|———|———|
| Instructs the woman on how to massage her uterus |

**Immediate postpartum care**

| Inspects and repairs lacerations or tears (if necessary) |
|———|———|
| Repairs episiotomy if one was performed |
| Estimates blood loss |
| Removes soiled bedding and makes the woman comfortable |
| In all of the above actions, explains the procedures and actions to the woman and her family |
| Continues to provide support and reassurance throughout |

**Infection prevention**

| Before removing gloves, disposes of gauze, swabs and other waste material in a leak-proof container or plastic bag |
|———|———|
| Disposes of needles and sharps in a sharps disposal container |
| Cleans apron with decontamination solution |
| Places instruments in 0.5% chlorine solution |
| Decontaminates and disposes of gloves |
| Washes hands thoroughly with soap and water and dries them |

**Counselling the woman on self care**

| Encourages the woman to eat, drink and rest |
|———|———|
| Asks the woman’s companion to watch her and call for help if bleeding or pain increases, if the mother feels dizzy, or has a severe headache, visual disturbance, or epigastric discomfort or pain |
| Reminds the woman how the uterus should feel and how she can massage it herself |
| Encourages the mother to empty her bladder and ensures that she has passed urine |
| Counsels the woman on hygiene |

*Source: Adapted from www.path.org/publication/files/MNCH_popphi_amstl_participants_handbook.pdf*
Selection of uterotonic

It is critical that programme managers choose the uterotonic that is appropriate for the available programme conditions. For example, selection may be guided by the capacity of the supply system to maintain product quality; medicines requiring a cold chain should only be put into systems that can maintain a cold chain to safeguard effectiveness.

Table 2.4: Checklist for choosing uterotonic

<table>
<thead>
<tr>
<th>No</th>
<th>Issues to consider</th>
<th>Yes</th>
<th>No</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Are there medicine storage conditions that are recommended to protect product quality?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Are the identified products registered for use in the given setting?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Are standard treatment guidelines in place for the medicine(s) chosen?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Are skilled providers charged with delivering AMTSL empowered to administer the medicine(s) of choice, and do they have the skills to properly perform injections and monitor side effects?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Should more than one type of uterotonic be available in the system?</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Uterotonics for the Active Management of the Third Stage of Labor http://www.pphprevention.org/files/AMTSLUterotonicsflyer03.29.06_Final.pdf

Procurement

Quantification is the first step in procurement. A careful analysis of the number of facilities, deliveries, and rates of programme expansion should be made to estimate the quantity of medicines to be supplied. Because uterotonic are used for a variety of therapeutic purposes, such as induction of labor, prevention of PPH, and treatment of PPH, needs must be reasonably estimated, given all available information on projected uses. When quantification has been completed, procurement specifications must be set.

Table 2.5: Checklist for Oxytocin procurement

<table>
<thead>
<tr>
<th>No</th>
<th>Questions to consider</th>
<th>Yes</th>
<th>No</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Is quantification of Oxytocin that must be available for programme use done? What quantity is available?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>How much of the medicine can a programme initially afford to buy?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Are management information systems in place so that consumption patterns can be monitored?</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>4</td>
<td>Does the programme have the capacity to do a forward-looking quantification rather than one based on historical consumption?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Is Oxytocin procured by the Ministry of Health? How is Oxytocin procured?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Are procurement processes and specifications required to be modified?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Do procurement specifications include criteria to ensure product quality?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Is the supplier willing to ensure that clear and understandable information on prescribing, administration, and storage is included with the product?</td>
<td></td>
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</tr>
<tr>
<td>9</td>
<td>Can the supplier guarantee that a reasonable amount of product shelf life will remain when the medicines are delivered?</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>10</td>
<td>Can supplier performance be monitored?</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Uterotonics for the Active Management of the Third Stage of Labor http://www.pphprevention.org/files/AMTSLUterotonicsflyer03.29.06_Final.pdf
**Storage and distribution**

In places where refrigeration is difficult, to maximize access to the product, programme managers may have to consider the possibility that Oxytocin can be used for up to three months even when kept at room temperature (depending on the manufacturer). For uterotonic medicines that require more stringent refrigeration up to the time of use, the maintenance of a cold chain is an essential part of a product quality assurance system. Vials or ampoules should not be removed from refrigeration and left on trays for indefinite periods in anticipation of need.

**Table 2.6: Drug quality and cold-chain management**

<table>
<thead>
<tr>
<th>No</th>
<th>Issues to consider</th>
<th>Yes</th>
<th>No</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Do those facilities in which medicines will be either stored or provided have adequate cold chain equipment?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Do facilities have the means to monitor the cold chain (e.g. thermometers and temperature charts)?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Can the cold chain be maintained during transportation?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Are pharmacy and storekeeping staff members trained in the proper means of storing and dispensing the medicines?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>What are the storage conditions at the health facility level?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Do providers have a means of accessing refrigerated supplies 24 hours a day?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>For births that take place outside of health facilities, does the birth attendant have a means of safeguarding medicine quality?</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>8</td>
<td>Are there routine mechanisms to check the product for quality?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Are records kept on the length of time that medicines are removed from the cold chain?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Would it be better to use a product that is not heat sensitive or less heat sensitive?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Are expired medicines removed from the system?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Can personnel counsel and educate patients effectively about the medicine, including purpose, timing of administration, and potential side effects?</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Uterotonics for the Active Management of the Third Stage of Labor [http://www.pphprevention.org/files/AMTSLUterotonicsflyer03.29.06_Final.pdf](http://www.pphprevention.org/files/AMTSLUterotonicsflyer03.29.06_Final.pdf)

For AMTSL to be successful, providers must have the right skills.

**Table 2.7: Checklist for staff capacity on AMSTL**

<table>
<thead>
<tr>
<th>No</th>
<th>Issues to consider</th>
<th>Yes</th>
<th>No</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Have all providers been trained in the appropriate use of the uterotonic available in the programme?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Is it feasible to train all personnel rapidly?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Who will provide training?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Can personnel counsel and educate patients effectively about the medicine, including purpose, timing of administration, and potential side effects?</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Uterotonics for the Active Management of the Third Stage of Labor [http://www.pphprevention.org/files/AMTSLUterotonicsflyer03.29.06_Final.pdf](http://www.pphprevention.org/files/AMTSLUterotonicsflyer03.29.06_Final.pdf)
Documenting movement of uterotonic drugs in the pharmacy

Movement of uterotonic drugs should be documented on the stock card when uterotonic drugs are dispensed from the pharmacy for use in the delivery room.

**Figure 2.4: The stock card at the dispensing point (pharmacy)**

<table>
<thead>
<tr>
<th>Date</th>
<th>Received from</th>
<th>Quantity received</th>
<th>Quantity issued</th>
<th>Balance in stock</th>
<th>Remarks</th>
<th>Signature</th>
</tr>
</thead>
<tbody>
<tr>
<td>32/4/2008</td>
<td>Inventory</td>
<td>-</td>
<td>-</td>
<td>20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1/5/2008</td>
<td>Order</td>
<td>80</td>
<td>-</td>
<td>160</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1/5/2008</td>
<td>Delivery room</td>
<td>5</td>
<td>5</td>
<td>155</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4/5/2008</td>
<td>Delivery room</td>
<td>5</td>
<td>5</td>
<td>150</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7/5/2008</td>
<td>Delivery room</td>
<td>10</td>
<td>10</td>
<td>140</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


Movement of uterotonic drugs should be documented in the log book in the delivery room when uterotonic drugs are dispensed from the pharmacy for use in the delivery room.

**Figure 2.5: Oxytocin log book**

<table>
<thead>
<tr>
<th>Date</th>
<th>Received from</th>
<th>Quantity received</th>
<th>Quantity issued</th>
<th>Balance in stock</th>
<th>Remarks</th>
<th>Signature</th>
</tr>
</thead>
<tbody>
<tr>
<td>30/4/2008</td>
<td>Inventory</td>
<td>5</td>
<td></td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1/5/2008</td>
<td>Pharmacy</td>
<td>5</td>
<td>5</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1/5/2008</td>
<td>ANTS – Ms Diallo</td>
<td>1</td>
<td>1</td>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1/5/2008</td>
<td>ANTS – Ms Bah</td>
<td>1</td>
<td>1</td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2/5/2008</td>
<td>ANTS – Ms Tondé</td>
<td>1</td>
<td>1</td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3/5/2008</td>
<td>ANTS – Ms Katta</td>
<td>1</td>
<td>1</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3/5/2008</td>
<td>ANTS – Ms Dikko</td>
<td>1</td>
<td>1</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4/5/2008</td>
<td>Pharmacy</td>
<td>5</td>
<td>5</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4/5/2008</td>
<td>PPH – Ms Diallo</td>
<td>2</td>
<td>2</td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4/5/2008</td>
<td>ANTS – Ms Sadiè</td>
<td>1</td>
<td>1</td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4/5/2008</td>
<td>ANTS – Ms Koné</td>
<td>1</td>
<td>1</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5/5/2008</td>
<td>ANTS – Ms Komplé</td>
<td>1</td>
<td>1</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5/5/2008</td>
<td>PPH – Ms Samengo</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6/5/2008</td>
<td>ANTS – Ms Touré</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7/5/2008</td>
<td>Pharmacy</td>
<td>10</td>
<td>10</td>
<td>12</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Documenting movement of uterotonic drugs in the delivery room

When a uterotonic drug is administered in the delivery room, it should be documented in the country specific log book and delivery register book in the delivery room:

- The uterotonic drug log book in the delivery room (see Figure 2.5)
- The delivery log book (see Figure 2.6)

**Figure 2.6: Delivery log book**

<table>
<thead>
<tr>
<th>No</th>
<th>Date / time of admission</th>
<th>Name</th>
<th>Complications</th>
<th>Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>124</td>
<td>1/5/06 02h10</td>
<td>Ms Diallo</td>
<td></td>
<td>AMTSL (1 Oxytocin)</td>
</tr>
<tr>
<td>125</td>
<td>1/5/06 21h05</td>
<td>Ms Bah</td>
<td></td>
<td>AMTSL (1 Oxytocin)</td>
</tr>
<tr>
<td>126</td>
<td>3/5/06 12h15</td>
<td>Ms Traoré</td>
<td></td>
<td>AMTSL (1 Oxytocin)</td>
</tr>
<tr>
<td>127</td>
<td>3/5/06 02h30</td>
<td>Ms Keita</td>
<td></td>
<td>AMTSL (1 Oxytocin)</td>
</tr>
<tr>
<td>128</td>
<td>3/5/06 22h15</td>
<td>Ms Dicko</td>
<td></td>
<td>AMTSL (1 Oxytocin)</td>
</tr>
<tr>
<td>129</td>
<td>4/5/06 13h30</td>
<td>Ms Diakité</td>
<td>Home birth / FPH (2 Oxytocin)</td>
<td></td>
</tr>
<tr>
<td>130</td>
<td>4/5/06 20h25</td>
<td>Ms Sidibé</td>
<td></td>
<td>AMTSL (1 Oxytocin)</td>
</tr>
<tr>
<td>131</td>
<td>4/5/06 23h00</td>
<td>Ms Kené</td>
<td></td>
<td>AMTSL (1 Oxytocin)</td>
</tr>
<tr>
<td>132</td>
<td>5/5/06 01h30</td>
<td>Ms Konaté</td>
<td></td>
<td>AMTSL (1 Oxytocin)</td>
</tr>
<tr>
<td>133</td>
<td>5/5/06 14h20</td>
<td>Ms Sanogo</td>
<td>Home birth / FPH (2 Oxytocin)</td>
<td></td>
</tr>
<tr>
<td>134</td>
<td>6/5/06 06h20</td>
<td>Ms Touré</td>
<td></td>
<td>AMTSL (1 Oxytocin)</td>
</tr>
</tbody>
</table>


**Disposal**

Used items should be disposed of according to laid down disposal guidelines and infection prevention guidelines should be adhered to. Clearly identify and document any ampoules that are expired or have been broken.

**Box 2.4: Disposal of expired and broken ampoule**

**If an ampoule has expired or is broken:**

- do not keep it with stock to be distributed/used.
- put all broken or expired ampoules in a closed safety box that is clearly labeled “Expired, do not use.”
- store the safety box at a safe distance from stock to be distributed/used.
- subtract any expired or broken ampoules from the « balance in stock » as soon as they are taken out of the stock to be distributed/used.
- apply national protocols for destruction or return of expired or broken ampoules.

2.2.5 Performance indicators
Countries may integrate specific indicators to monitor AMTSL use in their existing relevant monitoring structures. The quality of this data can be strengthened during supervisory visits of the relevant institutions and this should be included in the national Health Management Information System (HMIS) for decision-making and planning. Examples of indicators that countries could include are:

- percentage of women who were offered and received AMSTL at the facility
- percentage of women who were offered and received AMSTL in home delivery
- percentage of observed deliveries with uterotonic given during the third and fourth stages of labour and correct use of AMTSL (uterotonic administration within 1 minute of delivery).

2.3 Misoprostol

2.3.1 Product summary

**Description**
Misoprostol is a synthetic analogue of prostaglandin E1, whose main pharmacodynamic property in the reproductive tract is increasing the uterine contractility. Among other effects, Misoprostol inhibits the acid gastric secretion and increases the digestive peristaltism — used for prevention of peptic ulcer disease as a result of Non-Steroidal Anti-inflammatory Drugs (NSAIDs) use.

**Medicinal product**
Misoprostol for use in prevention and treatment of PPH comes as oral tablets of 200 micrograms.

**Routes of administration**
Routes of Misoprostol administration include oral, buccal, sublingual, rectal and vaginal.

**Clinical particulars**
1. **Indications**
   - Prevention and treatment of PPH
   - Medical abortion
   - Treatment of incomplete abortion
   - Induction of labour
   - Cervical ripening prior to surgical procedures

2. **Mechanism of action**
Misoprostol binds to the myometrial cells and causes uterine contractions.

3. **Side effects**
   - Headache
   - Nausea and vomiting
   - Diarrhoea
   - Fever (usually not more than 38°C)
   - Chills

4. **Contraindication**
Misoprostol is a relatively safe drug and contraindication includes history of allergy to prostaglandin. Misoprostol is safe for use in patients with hypertension, heart diseases, and in lactating mothers.
Storage
Misoprostol can be stored at room temperature and away from excess heat and moisture.

2.3.2 Service delivery

Setting for Misoprostol use

Facility
Misoprostol can be used for the prevention and treatment of PPH at facility level in the absence of Oxytocin or any other injectable oxytocic or if there is no trained health worker present to provide injectable oxytocics.

Community or home
In situations where a woman delivers outside the health facility, Misoprostol can be used for the prevention and treatment of PPH at home delivery. This can be administered by a caregiver or the woman herself, provided instructions are given to them on how to correctly administer Misoprostol for home deliveries.

Who can administer Misoprostol?
Midwife, nurse, clinical officer or doctor, or in the event of a home delivery without assistance, the woman herself or the support person who has been informed of the drug use can administer the drug.

When should Misoprostol be taken by the woman?
Woman should be advised to take (swallow) Misoprostol immediately after the baby is delivered or in case of twin pregnancy, after second baby has been delivered.

Where should Misoprostol be taken?
- Misoprostol should be taken at any health facility where Oxytocin and Ergometrine are not available, or where there is no trained health worker to administer IM Oxytocin or Ergometrine immediately after delivery of the baby, or in case of twin pregnancy, after the second baby is delivered.
- Misoprostol should be taken on the way to the health facility, if delivery occurs before reaching the facility.
- Misoprostol should be taken at home, if delivery occurs at home.
### Table 2.8: Key steps for use of Misoprostol for prevention of PPH at facility level

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
<th>Actions to take</th>
<th>Additional information</th>
</tr>
</thead>
</table>
| 1    | Administration of Misoprostol following the birth of the baby | • Palpate the uterus to ensure that there is no additional foetus  
• Give Misoprostol 3 tablets (600 mcg, PO) within 1 minute after delivery | • Misoprostol can be administered sublingually or rectally |
| 2    | Application of controlled cord traction to deliver the placenta | Cord clamping:  
• Clamp the cord 2–3 minutes after delivery of baby  
Controlled Cord Traction (CCT):  
• CCT should begin with the first contraction  
• Apply gentle cord traction while applying counter supra-pubic pressure onto the uterus  
• Stop doing CCT when the contraction ceases and restart with subsequent contraction  
• Receive the placenta with both hands when it appears at the vulva  
• Deliver membranes slowly by rolling the placenta gently  
• Examine the placenta and membranes to ensure that they are complete | Immediate cord clamping shall be done only if there is:  
• need for newborn resuscitation  
• HIV infected mothers  
• Rhesus negative mother  
You can use an artery forceps to remove visibly remaining membranes |
| 3    | Uterine massage every 15 minutes for 2 hours | • Massage the uterus until it is firmly contracted to expel clots from the uterus or vagina  
• Clean and inspect the cervix, vaginal wall, vulva and perineum for tears and repair them  
• Empty the bladder  
• Massage the uterus every 15 minutes for 2 hours after delivery, as you observe for occurrence of PPH | • The mother or the attendant can be taught how to massage the uterus  
• Repair episiotomy and/or tears after infiltrating with 1% lignocaine  
• If the mother has chosen to breastfeed, put the baby on the breast within the first 1 hour. This practice also enhances contraction of uterus to prevent PPH  
• Encourage the mother to pass urine more often because a full bladder causes uterine atony |

Source: Adapted from USAID, POPPHI and ICM
Table 2.9: Key steps for use of Misoprostol for prevention of PPH at community level

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
<th>Actions to take</th>
<th>Additional information</th>
</tr>
</thead>
</table>
| 1    | Administration of Misoprostol following the birth of the baby | • Palpate the uterus to ensure that there is no additional foetus  
• Give Misoprostol 600mcg (3 tablets of 200 mcg each) PO within 1 minute after delivery of baby |                                                                                         |
| 2    | Wait for spontaneous delivery of the placenta | Cord clamping:  
• Clamp the cord 2–3 minutes after delivery of baby  
• Receive the placenta with both hands when it appears at the vulva  
• Deliver membranes slowly by rolling the placenta gently  
• Examine the placenta and membranes to ensure that they are complete |                                                                                         |
| 3    | Uterine massage every 15 minutes for 2 hours | • Massage the uterus until it is firmly contracted to expel clots from the uterus or vagina  
• Clean and inspect the vulva, vaginal walls, cervix and perineum for tears and repair them  
• Ask the woman to empty the bladder  
• Massage the uterus every 15 minutes for 2 hours after delivery, as you observe for occurrence of PPH | • The mother or the attendant can be taught how to massage the uterus  
• If the mother has chosen to breastfeed, put the baby on the breast within the first 1 hour. This practice also enhances contraction of uterus to prevent PPH  
• Encourage the mother to pass urine more often because a full bladder causes uterine atony |

Source: Adapted from USAID, POPPHI and ICM

Table 2.10: Key steps for use of Misoprostol for treatment of PPH at facility level in the absence of IM oxytocics

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
<th>Actions to take</th>
<th>Additional information</th>
</tr>
</thead>
</table>
| 1    | Administration of Misoprostol following the birth of the baby | • Massage uterus to expel blood and clots  
• Give Misoprostol 800mcg (4 tablets of 200 mcg each) PO  
• Insert indwelling catheter | • Shout for help  
• Conduct rapid evaluation  
• If shock is present, start resuscitation immediately  
• Prepare patient for transfer to next level of care |

Source: Adapted from USAID, POPPHI and ICM

Community model for use of Misoprostol for prevention of PPH

In rural settings, where many women deliver at home, widespread use of injectable uterotonic is not feasible. Many rural health centers may not have the infrastructure or trained staff available to provide these drugs. In such situations, Misoprostol could be the only available option to prevent and treat PPH because it has been proven to be safe and an effective uterotonic for the prevention and treatment of PPH. Misoprostol can be administered by a woman herself or a caregiver during the time of delivery. Misoprostol is a prostaglandin analogue that has been recognized by the international community for its potential to reduce PPH related morbidity and mortality in resource-poor settings due to its relative efficacy, ease of administration, and stability in field conditions. Extensive research has demonstrated that 600 μg of Misoprostol taken orally is the preferred dose for prevention of PPH and symptoms of its use such as shivering or nausea are generally self-limiting.
Venture Strategies Innovation (VSI) has implemented community-level Misoprostol distribution programmes in eight developing countries in Africa and Asia. A pilot project with financial and technical support from VSI was conducted to determine if distribution of Misoprostol at antenatal care (ANC) visits is feasible, between January 2009 and March 2010 at a total of nineteen health centres in five rural districts in Zambia. Misoprostol was distributed to eligible women at ANC visits for use during home delivery if they were unable to reach a facility. In addition, Safe Motherhood Action Groups (SMAGs) provided community education about birth preparedness, the importance of delivering in a facility, the risks of PPH, and correct use of Misoprostol. Of the 5,574 women who attended ANC and participated in the pilot project, 5,232 (94%) of them took Misoprostol home with them at an average gestational age of 25 weeks. The findings from the intervention and evaluation of the Misoprostol pilot programme in Zambia indicate that distributing Misoprostol during ANC visits increases the proportion of women protected from PPH.

There are different approaches to distribute Misoprostol for use at community level. However individual countries should develop their own national action plans for community distribution of Misoprostol. The VSI model distributed Misoprostol to women during antenatal care visits. A woman is educated on how to self-administer 600 μg of Misoprostol during antenatal care visits. Other models have distributed Misoprostol with the help of community health workers, as soon as the pregnant woman reaches 8 months pregnancy (country example: Afghanistan).

2.3.3 Standards and guidelines

**WHO guidelines**

The WHO has made recommendations on the use of Misoprostol for the prevention and treatment of PPH, with the primary objective of providing a foundation for the strategic policy and programme development needed to ensure the sustainable implementation of effective interventions for reducing the global burden of PPH. However, individual countries can develop or adopt recommendations that suit their country needs.

**WHO recommendation for the use of Misoprostol for the prevention of PPH**

1. In settings where Oxytocin is unavailable, the use of other injectable uterotonic (if appropriate, ergometrine/methylergometrine or the fixed drug combination of Oxytocin and ergometrine) or oral Misoprostol (600 μg) is recommended (strong recommendation, moderate quality of evidence).

2. In settings where skilled birth attendants are not present and Oxytocin is unavailable, the administration of Misoprostol (600 μg PO) by community health care workers and lay health workers is recommended for the prevention of PPH (strong recommendation, moderate quality of evidence).

3. In settings where skilled birth attendants are unavailable, Controlled Cord Traction (CCT) is not recommended (strong recommendation, moderate quality of evidence).

**WHO recommendation for the use of Misoprostol for treatment of PPH**

1. If intravenous Oxytocin is unavailable, or if the bleeding does not respond to Oxytocin, the use of intravenous ergometrine, Oxytocin-ergometrine fixed dose, or a prostaglandin drug (including sublingual Misoprostol, 800 μg) is recommended (strong recommendation, low quality of evidence).
### 2.3.4 Job aids

**Figure 2.7: Steps for AMTSL using Misoprostol when Oxytocin is not available and birth attendant is SBA**

1. Place the baby in skin-to-skin contact on the abdomen of the mother, dry the baby, assess the baby's breathing and perform resuscitation if needed. Cover the baby's head, with a cloth or, preferably, a hat/bonnet. Cover the woman and baby.

2. Give 600 mcg of Misoprostol by mouth immediately after birth of the baby, and after ruling out the presence of another baby.

3. Clamp and cut the cord after cord pulsations have ceased or approximately 2–3 minutes after birth of the baby, whichever comes first. Cover the cord with a piece of gauze when cutting the cord to avoid splashing of blood.

4. Place the infant directly on the mother’s chest, prone, with the newborn’s skin touching the mother's skin. Cover the baby’s head with a cap or cloth. Cover the woman and baby.

5. Encourage maternal effort to bear down with contractions and, if necessary, to encourage an upright position to deliver the placenta.
   
   **NOTE:** Controlled cord traction should ONLY be performed when a skilled attendant is present at the birth.

6. Massage the uterus immediately after delivery of the placenta and membranes until it is firm.

During recovery, assist the woman to breastfeed.

Monitor the newborn and woman closely, palpate the uterus through the abdomen every 15 minutes for 2 hours to make sure it is firm, and monitor the amount of vaginal bleeding. Provide Prevention of Mother to Child Transmission (PMTCT) care as needed.

**Selection of uterotonics**

It is critical that programme managers choose the uterotonic that is appropriate for the available programme conditions. For example, selection may be guided by the capacity of the supply system to maintain product quality; medicines requiring a cold chain should only be put into systems that can maintain a cold chain to safeguard effectiveness.

| Table 2.11: Checklist for choosing uterotonics |
|---|---|---|
| No | Questions to consider | Yes | No | Comment |
| 1 | Are there medicine storage conditions that are recommended to protect product quality? | | | |
| 2 | Are the identified products registered for use in the given setting? | | | |
| 3 | Are standard treatment guidelines in place for the medicine(s) chosen? | | | |
| 4 | Are skilled providers charged with delivering AMTS empowered to administer the medicine(s) of choice, and do they have the skills to properly perform injections and monitor side effects? | | | |
| 5 | Should more than one type of uterotonic be available in the system? | | | |


**Procurement**

Quantification is the first step in procurement. A careful analysis of the number of facilities, deliveries, and rates of programme expansion should be made to estimate the quantity of medicines to be supplied. When quantification has been completed, procurement specifications must be set.

| Table 2.12: Checklist for Misoprostol procurement |
|---|---|---|
| No | Questions to consider | Yes | No | Comment |
| 1 | Is quantification of Misoprostol that must be available for programme use done? What quantity is available? | | | |
| 2 | How much of the medicine can a programme initially afford to buy? | | | |
| 3 | Are management information systems in place so that consumption patterns can be monitored? | | | |
| 4 | Does the programme have the capacity to do a forward-looking quantification rather than one based on historical consumption? | | | |
| 5 | Is Misoprostol procured by the Ministry of Health? How is Misoprostol procured? | | | |
| 6 | Are procurement processes and specifications required to be modified? | | | |
| 7 | Do procurement specifications include criteria to ensure product quality? | | | |
| 8 | Is the supplier willing to ensure that clear and understandable information on prescribing, administration, and storage is included with the product? | | | |
| 9 | Can the supplier guarantee that a reasonable amount of product shelf life will remain when the medicines are delivered? | | | |
| 10 | Can supplier performance be monitored? | | | |

For AMTSL to be successful, uterotonics must be prescribed and dispensed properly.

**Table 2.13: Checklist for staff capacity on Misoprostol use**

<table>
<thead>
<tr>
<th>No</th>
<th>Questions to consider</th>
<th>Yes</th>
<th>No</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Have all providers been trained in the appropriate use of the uterotonics available in the programme?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Is it feasible to train all personnel rapidly?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Who will provide training?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Can personnel counsel and educate patients effectively about the medicine, including purpose, timing of administration, and potential side effects?</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2.3.5 Performance indicators

*Figure 2.8: Supervision: competence-based skills checklist*

**Competency-based Training Skills Assessment Checklist for Active Management of the Third Stage of Labour (AMTSL)**

Date of assessment __________________________ Dates of training______________________________

Place of assessment: Clinic ___________________ Classroom______________________________________

Name of clinic site _______________________________________________________________________

Name of service provider _____________________________________________________________________

Name of assessor __________________________________________________________________________

This assessment tool contains the detailed steps that a service provider should accomplish when performing AMTSL. The checklist may be used during training to monitor the progress of the trainee as s/he acquires the new skills and during the clinical phase of training to determine whether the trainee has reached a level of competence in performing the skills. The checklist may also be used by the trainer or supervisor when following up or monitoring the trainee. The trainee should always receive a copy of the assessment checklist so that s/he may know what is expected of her/him.

**Instructions for the Assessor:**

- Always explain to the client what you are doing before beginning the assessment. Ask for the client’s permission to observe.
- Begin the assessment when the trainee greets the client.
- Only observe. Do not interfere unless the trainee misses a critical step or compromises the safety of the client.
- Rate the performance of each task/activity observed using the following rating scale:

  1. **Needs Improvement:** Step not performed correctly and/or out of sequence (if required) or is omitted.
  2. **Competently Performed:** Step performed correctly in proper sequence (if required) but lacks precision, and/or the trainer/coach/supervisor needed to assist or remind the participant in a minor way.
  3. **Proficiently Performed:** Step performed correctly in proper sequence (if required) and precisely without hesitation or need for any assistance.
  4. **Not Observed:** Step not performed by participant during observation by trainer/observer.

Continue assessing the trainee throughout the time s/he is with the client, using the rating scale.

### Table 2.14: Checklist for AMTSL when IM oxytocics not available and delivered by Skilled Birth Attendant (SBA)

<table>
<thead>
<tr>
<th>TASK/ACTIVITY</th>
<th>CASES</th>
<th>COMMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Gives 600 mcg Misoprostol orally within 1 minute after explaining what the</td>
<td></td>
<td></td>
</tr>
<tr>
<td>drug is for and the side effects</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Removes top pair or changes gloves</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Clamps and cuts cord approximately 3 minutes after birth</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Clamps cord close to perineum and applies counter traction to stabilize</td>
<td></td>
<td></td>
</tr>
<tr>
<td>the uterus. Waits for a strong uterine contraction, then very gently pulls</td>
<td></td>
<td></td>
</tr>
<tr>
<td>downward on the cord to deliver the placenta</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. As the placenta delivers, holds it with both hands and twists slowly so</td>
<td></td>
<td></td>
</tr>
<tr>
<td>the membranes are expelled intact</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Immediately checks the uterus and massages if soft</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Examines the placenta, membranes, and cord for completeness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Examines the lower vagina and perineum for lacerations/tears</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Cleanses perineum and applies a pad or cloth to vulva</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Ensures mother is warm and comfortable, and baby is with her and</td>
<td></td>
<td></td>
</tr>
<tr>
<td>encourages breastfeeding</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Adapted from www.path.org/publication/files/MNCH_popphi_amstl_participants_handbook.pdf

### Table 2.15: Checklist for AMSTL when IM oxytocics not available and delivered by CHW

<table>
<thead>
<tr>
<th>TASK/ACTIVITY</th>
<th>CASES</th>
<th>COMMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Gives 600 mcg Misoprostol orally within 1 minute after delivery of the baby,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>explaining what the drug is for and the side effects</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Removes top pair or changes gloves</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Clamps and cuts cord approximately 3 minutes after birth</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Waits until the mother expels the placenta spontaneously</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. As the placenta delivers, holds it with both hands and twists slowly so</td>
<td></td>
<td></td>
</tr>
<tr>
<td>the membranes are expelled intact</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Immediately checks the uterus and massages if soft</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Examines the placenta, membranes, and cord for completeness</td>
<td></td>
<td></td>
</tr>
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<td>8. Examines the lower vagina and perineum for lacerations/tears</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Cleanses perineum and applies a pad or cloth to vulva</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Ensures mother is warm and comfortable, and baby is with her and</td>
<td></td>
<td></td>
</tr>
<tr>
<td>encourages breastfeeding</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Adapted from www.path.org/publication/files/MNCH_popphi_amstl_participants_handbook.pdf
2.4 Magnesium Sulphate

2.4.1 Product Summary

Description
Magnesium Sulphate is an inorganic salt (chemical compound) containing magnesium, sulphur and oxygen.

Medicinal product
Magnesium Sulphate comes in solution of 20% and 50% vials.

Routes of administration
Magnesium Sulphate can be administered intravenously or intramuscularly.

Indications in obstetrics
For prevention and treatment of PE/E.

Note: Inform client she may feel warm when given Magnesium Sulphate

Dosage and administration
Prophylaxis for women with severe PE
• Administered intravenously either centrally or peripherally via an infusion pump.
• The intravenous line should not be used to inject any other drugs.
• Check expiry date of premix prior to administration.
• Loading Dose: Infuse 4 g Magnesium Sulphate (100 ml premix) over 20 minutes via infusion pump.
• Maintenance Dose: Following loading dose, infuse premix bag of Magnesium Sulphate at 1 g/hr (25 ml/hr of premix).
• Alternate dose (Pritchard Method): 14 g loading dose given as: 4 g (20% solution) IV over 10–15 minutes 10 g (50% solution) in divided doses of 5 g (deep IM) into alternate buttock, add 1 ml 2% lignocaine if available.

Maintenance dose: Give 5 g 4 hourly deep IM on alternate buttocks
• In most cases, the Magnesium Sulphate should continue for at least 24 hours after commencement.
• Adjust dosage as per regular plasma magnesium levels.
• Magnesium levels should be checked one hour after loading dose has been commenced and then six hourly thereafter, and in the event of any signs or symptoms of toxicity.
• Blood for serum levels should not be collected from the limb receiving the infusion.
• Normal therapeutic levels are 1.5–3.5 mmol/L. Toxic range 4–8 mmol/L.
• Increase dose by 12.5 ml/hr (0.5 g/hr) if level is sub-therapeutic, i.e. <1.5 mmol/L.
• Cease infusion if level above 4.0 mmol/l and contact doctor to review.

Management of eclampsia
• Control airway.
• Control hypertension.
• Control convulsions — commence Magnesium Sulphate infusion as per protocol for prophylaxis.
• If further seizures occur after the commencement of the infusion, take blood for urgent magnesium level and give a further bolus of 2 g Magnesium Sulphate over 20 minutes.
intravenously (50 ml of premix). Follow with infusion at 1g Magnesium Sulphate (25 ml/hr premix).
• If fits are not controlled, Midazolam 2 mg to 5 mg as second line agent may be given.

Side effects
• Mild: Flushing of the skin (hands, face and neck), sensation of pain or warmth in arm, and nausea (common).
• More severe: Respiratory depression, loss of reflexes, muscle paralysis, blurred or double vision, slurred speech/sleepy, cardiac conduction changes, cardiac arrest.

Toxicity
Clinical monitoring is the prime method of assessing for toxicity. Blood levels are complimentary to this monitoring.

Significant toxicity can be treated with 1g Calcium Chloride or Calcium Gluconate (10 ml in 10% w/v solution) by slow intravenous injection over 3 minutes. Calcium Chloride vials are available in the cardiac arrest trolleys.

Precautions
Administration of Magnesium Sulphate may have the following additional effects:
• Lower blood pressure (secondary to vasodilation). The dose of any current antihypertensive medication may require adjustment.
• Tocolysis.
• Decrease foetal heart rate variability.
• May cause loss of reflexes prior to toxic serum levels of magnesium being reached.
• Should be used with caution in the presence of calcium antagonists or other respiratory depressants (e.g. diazepam).
• Enhance the effects of muscle relaxants.

Contraindications
Magnesium Sulphate can be extremely hazardous in the following circumstances:
• Oliguria or renal failure (magnesium concentration can reach toxic levels as elimination is predominantly renal).
• In association with hypocalcaemic states.
• Myasthenia gravis.
• Cardiac conditions, in particular conduction problems or myocardial damage.

Observations
Close observation and assessment (maternal and foetal) is required for the duration of the infusion. When the patient’s condition is unstable, the frequency of the observations will need to be increased.
• Initial observations, done at ‘0’ hour include BP, respiration rate, pulse, temperature and reflexes.
• Hourly blood pressure: cease infusion if blood pressure < 110/70.
• Hourly respiration: cease infusion if respiratory rate <10 per minute.
• Hourly pulse.
• Hourly tendon reflexes usually knee reflexes but upper limbs if epidural or spinal anaesthetic in place: cease infusion if unable to elicit reflexes.
• **Hourly urine output**: cease infusion if urine output < 30 ml per hour for three consecutive hours.

• Foetal heart rate monitoring as clinically indicated.

• 4 hourly temperature.

• Magnesium levels are checked 1 hour after loading dose and then 6 hourly thereafter.

• Magnesium levels are checked if there are any signs or symptoms of toxicity.

• Record all observations on attached chart.

**Cessation**

Continue infusion for 24 hours following delivery or post last seizure or as per Physician or Obstetrician.

2.4.2 Service delivery

**Standards and guidelines**

**WHO guidelines**

The WHO has made recommendations on the use of Magnesium Sulphate for the prevention and treatment of PE/E, with the primary objective of providing a foundation for the strategic policy and programme development needed to ensure the sustainable implementation of effective interventions for reducing the global burden of PE/E. However, individual countries can develop or adopt guidelines that suit their country needs.

**WHO recommendation for the use of Magnesium Sulphate for the prevention and treatment of PE/E**

1. Magnesium Sulphate is recommended for the prevention of eclampsia in women with severe pre-eclampsia in preference to other anticonvulsants (strong recommendation, moderate quality of evidence).

2. Magnesium Sulphate is recommended for the treatment of women with eclampsia in preference to other anticonvulsants (strong recommendation, moderate quality of evidence).

3. For settings where it is not possible to administer the full Magnesium Sulphate regimen, the use of Magnesium Sulphate loading dose followed by immediate transfer to a higher level healthcare facility is recommended for women with severe pre-eclampsia and eclampsia (weak recommendation, very low quality of evidence).

**Protocol for administration of MgSO₄**

Magnesium Sulphate should be administered according to the following protocol:

**Table 2.16: Dosing for MgSO₄**

<table>
<thead>
<tr>
<th>Condition</th>
<th>Loading (gm)</th>
<th>Infusion rate (min)</th>
<th>Maintenance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-eclampsia and eclampsia</td>
<td>4</td>
<td>15–20</td>
<td>Infuse at 1 gram per hour via infusion pump</td>
</tr>
<tr>
<td>Recurrent eclampsia</td>
<td>2</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

Alternate protocol

The alternate protocol is as shown in table 2.17 below.

Table 2.17: Alternate protocol

<table>
<thead>
<tr>
<th></th>
<th>Loading (gm)</th>
<th>Maintenance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-eclampsia and eclampsia</td>
<td>14 g</td>
<td>4 gm (20 ml of 20%) IV, 15–20 mins</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10 g in divided doses of 5 g (10 ml of 50%) deep IM on each buttock</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 g (10 ml of 50%) deep IM alternate buttock four hourly</td>
</tr>
<tr>
<td>Recurrent eclampsia</td>
<td>2 g (10 ml of 20%)</td>
<td>20 mins</td>
</tr>
</tbody>
</table>


Note: If fit occurs 2 hours after administration of the loading dose, give 2 g (10 ml of 20%)

In the absence of 20% solution, 50% can be reconstituted as follows:
- Take 8 mls of 50% and add 12 ml of water for injection to get 20 ml of 20%

Before administering maintenance dose ensure:
- Respiration rate (RR) is more than 16 r/m
- Ton reflexes are present (if no, withhold or delay drug)
- Urine output is equal or greater than 30 ml/hr.

Magnesium Sulphate Monitoring Sheet (use along with the Partograph)

It is important to include a MgSO₄ monitoring sheet in the clinical protocols for management of PE/E. An example is given below:
**Figure 2.9: Magnesium Sulphate Monitoring Sheet (use along with the Partograph)**

Name of the Patient ____________________________________________ Date ________________

Provider in-charge _____________________ Name of Clinic/Hospital __________________________

<table>
<thead>
<tr>
<th>HOUR</th>
<th>MgSO₄ Dose</th>
<th>REFLEXES</th>
<th>BP</th>
<th>URINE OUTPUT</th>
<th>RESPIRATION</th>
<th>CONVUSIONS</th>
<th>OTHER DRUGS</th>
<th>OBSERVATIONS</th>
<th>INITIALS</th>
</tr>
</thead>
</table>
|      |            | Present/Absent  
If absent DO NOT GIVE MgSO₄, CONSULT |      | If <30ml/hr DO NOT GIVE MgSO₄, CONSULT | If <16/min DO NOT GIVE MgSO₄, CONSULT | YES/NO |             |             |         |

Maternal Health Toolkit
**Table 2.18: Side effects, toxicity and nursing intervention**

<table>
<thead>
<tr>
<th>Side effects/toxicity</th>
<th>Nursing intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cutaneous flushing, sweating, malaise, weakness and drowsiness</td>
<td>Keep room and patient cool (provide fan), educate patient about potential side effects, monitor patient movements and assist with getting out of bed</td>
</tr>
<tr>
<td>Transient decreased amplitude and frequency of contractions at the time of loading dose</td>
<td>Continuous external foetal and uterine monitoring</td>
</tr>
<tr>
<td>Soreness at IV site</td>
<td>Warm soaks or ice to site as needed</td>
</tr>
<tr>
<td>Decreased rate and depth of respiration, shortness of breath</td>
<td>Discontinue treatment if shortness of breath not relieved with oxygen</td>
</tr>
<tr>
<td>Soreness at IV site</td>
<td>Warm soaks or ice to site as needed</td>
</tr>
<tr>
<td>Decreased rate and depth of respiration, shortness of breath</td>
<td>Discontinue treatment if shortness of breath not relieved with oxygen</td>
</tr>
<tr>
<td>Diuresis</td>
<td>Strict input and output; document output per orders; magnesium sulfate is excreted exclusively in urine and an output of &lt; 30 ml/hr may lead to magnesium toxicity</td>
</tr>
<tr>
<td>Disappearance of deep tendon reflexes</td>
<td>Notify physician if absent or significant change in baseline assessment</td>
</tr>
<tr>
<td>Heart block (decreased PR interval, increased QRS), chest pain</td>
<td>Avoid use in patients with cardiac conduction abnormalities</td>
</tr>
<tr>
<td>Pulmonary oedema</td>
<td>Strict input and output, fluid restriction as ordered (usually 60–100 ml/hr)</td>
</tr>
</tbody>
</table>

2.4.3 Job aids

Figure 2.10: Managing severe pre-eclampsia and eclampsia with Magnesium Sulphate (MgSO₄)

Managing Severe Pre-Eclampsia and Eclampsia with Magnesium Sulphate (MgSO₄)

### Loading Dose

**Prepare 4 g MgSO₄ IV as 20% Solution:**

- Using one 20 mL syringe:
  - Draw 8 mL of 50% MgSO₄
  - Add 20 mL water to make it 20 mL of 20%
  - Give IV slowly over 5 minutes

**Follow promptly with 10 g as 50% MgSO₄ deep IM:**

- Using two 10 mL syringes:
  - Draw 10 mL of 50% MgSO₄ into each syringe
  - Add 1 mL of 2% Lignocaine in each syringe
  - Give deep IM in each buttock (5 g in 10 mL)

**If fits occur within 15 minutes:**

- Using one 10 mL syringe:
  - Draw 4 mL of 50% MgSO₄ (2 g)
  - Add 6 mL water to make it 10 mL of 20%
  - Give IV slowly over 5 minutes

### Maintenance Dose

**5 g as 50% MgSO₄ in alternate buttock every 4 hours:**

- Using one 10 mL syringe:
  - Draw 10 mL of 50% MgSO₄
  - Add 1 mL of 2% Lignocaine
  - Give deep IM in each alternate buttock every 4 hours
  - Continue same treatment for 24 hours after delivery or last fit, whichever is last

### Monitor for Toxicity

**Withhold or delay MgSO₄ if any of the following:**

- Respiratory rate less than 16/minute
- Patellar reflexes absent
- Urine output less than 30 mL/hr

**If respiratory arrests occurs:**

- Assist ventilation with bag and mask or ventilation
- Give calcium Gluconate 1 g (10 mL of 10%) IV slowly until respiration begins

Source: Courtesy of USAID/ACCESS: Job Aids on Managing Severe Preeclampsia and Eclampsia with Magnesium Sulphate (MgSO₄)
References


Newborn Toolkit

3.1 Background

Annually, 2.9 million babies die in the first month of life globally, largely from preventable causes; 98% of these deaths occur in developing countries. Neonatal mortality represent 34% of all under-five deaths in the sub-Saharan Africa. The world has made huge progress in reducing child mortality — but the greatest remaining challenge is to save the lives of newborn babies. While the number of total child deaths worldwide is declining, the proportion of newborn deaths is growing because the progress in reducing preventable newborn deaths has been slower than the progress made in reducing child deaths.

Two low-cost, highly effective interventions i.e. basic neonatal resuscitation and Chlorhexidine (CHX) cord care, can help to prevent and treat the two leading causes of neonatal deaths: complications of childbirth (or birth asphyxia), and severe infections. Together, these two causes account for about 50% of newborn mortality (see Figure 3.1).

CHX can prevent deadly infections in newborns. While bacterial exposure at birth is a significant factor in the development of sepsis, exposures in the hours and days that follow also are likely to be harmful. CHX has a significant residual antiseptic effect that inhibits bacterial growth for 24 to 48 hours after application. Whether the birth occurs at home or in a facility, CHX...
application at the time of birth provides continued protection during the critical first 2 days, when risk is greatest for acquiring sepsis due to bacterial exposure through the cord stump⁴.

Newborn resuscitation devices can treat the majority of cases of birth asphyxia. In general, basic equipment is needed for newborn resuscitation. Availability and proper use of a dry towel, bag and mask resuscitator and a suction device, should be promoted for all births, even in the lower health facility levels and in the community⁵. With basic equipment and effective pre- and in-service training, successful newborn resuscitation can be accomplished in about 30% of cases that would otherwise end in deaths among full term babies and 5–10% among preterm births⁶.

It is estimated that if 7.1% CHX digluconate is used for cord care in areas where infection risks are high and if access to equitable resuscitation of newborns was achieved, 758,000 neonatal lives would be saved over a five-year period⁷.

### 3.2 Chlorhexidine

#### 3.2.1 Product summary

In 2013, 7.1% CHX digluconate for umbilical cord care was added to the WHO Model List of Essential Medicines for Children and to the WHO Recommendations on Newborn Health. 7.1% CHX digluconate is available as a gel or as an aqueous solution (liquid)⁸. The global Chlorhexidine Working Group (CWG) recommends the following product sizes. These sizes account for potential wastage and provide a sufficient quantity for the specified period of application.

**Table 3.1: Different CHX formulations**

<table>
<thead>
<tr>
<th>Single-day application</th>
<th>Multiple-day application (assumes 7-day application based on WHO recommendation)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gel</td>
<td>Liquid</td>
</tr>
<tr>
<td>3 grams</td>
<td>10 millilitres</td>
</tr>
</tbody>
</table>

CHX has a long shelf life, requires no cold chain, and is extremely easy to apply with minimal training and no equipment. These factors make it suitable for hospital, health centre, and homecare alike⁹.

Both aqueous solution (liquid) and gel are equally effective for umbilical cord care. The decision about which formulation is to be used will be made by the respective Ministry of Health when the programme is implemented. When making decisions on the formulation, countries need to consider the cost and acceptability of the product formulations.

**Commonly used containers and applicators for CHX solution**

Primary containers are governed by the United States Pharmacopeia. So far, CHX solution is only available in a dropper bottle. Generally, it is applied by directly dripping it on to the umbilical cord. Countries could choose to include cotton/gauze, but this is extra cost and unnecessary.

**CHX concentrations**

Different concentrations of CHX digluconate have specific purposes. CHX cord cleansing (7.1% CHX) should not be confused with other CHX interventions using CHX digluconate¹⁰.
### Table 3.2: Various CHX digluconate concentrations and usage

<table>
<thead>
<tr>
<th>CHX concentration</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.1% CHX digluconate</td>
<td>Cord care</td>
</tr>
<tr>
<td>0.16% – 0.60%</td>
<td>Vaginal cleansing</td>
</tr>
<tr>
<td>0.16% – 0.60%</td>
<td>Neonatal skin wiping</td>
</tr>
<tr>
<td>0.05%</td>
<td>Eye wash</td>
</tr>
<tr>
<td>0.12%</td>
<td>Dental wash</td>
</tr>
<tr>
<td>2.0%</td>
<td>Preoperative skin cleansing</td>
</tr>
</tbody>
</table>

### Single-day versus multiple-day application

The WHO recommends using CHX for the first week of life. Data show that application on the first day is the most important. Additional use until the cord falls off has also been shown to be beneficial.[11]

- However, achieving high coverage is facilitated by simplicity. The lower the cost, the easier the supply chain management; and the simpler the application regimen, the more favourable the conditions will be for achieving high coverage.[12]
- These considerations tend to favour either a single application or a size and type of packaging sufficient for multiple-day application but that minimizes additional weight or size (e.g. a tube of 20 grams rather than the 3 grams required for single use).[12] An important benefit of CHX used in the concentration recommended for cord care is that it has significant residual effect, inhibiting bacterial growth for 24–48 hours after application.
- Therefore, even for very early hospital discharge, application at the time of birth provides continued protection to the baby at home during the critical first two days, when the risk of sepsis arising from bacterial exposure through the cord stump is greatest.[12]

### 3.2.2 Service delivery

#### Standards and guidelines

**Target audience for CHX**

**Settings for CHX use[12]**

(a) **Home and/or facility use**

The WHO recommends use only on newborns that are born at home. Their recommendation is based on results from clinical trials to date that were conducted only in the home setting. However, newly released data on facility deliveries in Nepal and Bangladesh demonstrate a statistically significant reduction in mortality among those newborns randomized to receive CHX.[3] These data were not available at the time of the WHO review, and countries should take this new information into consideration when developing a CHX programme. Further, facility conditions and the amount of time spent in a facility before release should be considered when determining where to introduce CHX.[4]

Country programmes could therefore consider introducing CHX in multiple settings (i.e. home and facility).

(b) **Settings with a high neonatal mortality rate (NMR)[4]**

The WHO recommends CHX use in settings with a high NMR — greater than 30 per 1,000. Its
recommendation is based on clinical trial data collected to date from settings where the NMR was at least 30 per 1,000 live births.

Based on the country-specific situation, country programmes could:
- Determine that the entire population could benefit from this low-cost, life-saving intervention, regardless of NMR.
- Consider a regional approach to introduction depending on availability of regional NMR data.

**Application procedure of CHX**

- Wash hands with clean water and soap.
- Before application of CHX, ensure the baby is warm and is wrapped properly exposing only the naval area.
- Apply CHX within the first 24 hours after the birth.
- Follow country’s specific CHX policy regarding single-day or multiple-day application.
- Following application of CHX, apply nothing else to the cord. Keep cord clean and dry.
- Encourage caregivers to wash their hands with soap and water before handling a newborn infant.

(a) Gel
- Use sharp protuberance of the lid to pierce inner shield of the tube.
- Use CHX gel on cut surface and sides of the umbilical stump and spread it using index finger around the abdominal area within 1–2 cm of the umbilical stump.
- Gel takes 2–3 minutes to dry; cover it with light clothing so as to avoid wiping.
- Do not let any part of the tube touch the infant’s skin.

(b) Liquid
- Squeeze bottle to apply drops of liquid to the umbilical stump and the abdominal area that is in contact with the umbilical stump.
- Make sure that the entire cut surface and sides of the umbilical cord are soaked with CHX.
- Do not let any part of the dropper bottle touch the infant’s skin.

**3.2.3 Job aids**

<table>
<thead>
<tr>
<th>Box 3.1: Single-day 7.1% CHX gel product</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHX can prevent cord infection in newborn babies</td>
</tr>
<tr>
<td>Apply CHX only once within 24 hours after the birth, but preferably in the first 2 hours of life</td>
</tr>
<tr>
<td>Single application is adequate</td>
</tr>
<tr>
<td>Use all the gel in the tube</td>
</tr>
</tbody>
</table>

**STEPS**
1. Use a sharp protuberance of the lid to break the inner shield of the tube
2. Wash hands with soap and water before application of CHX
3. Apply 7.1% of CHX on the stump and the surrounding areas of the cord
4. After applying CHX gel, apply nothing on the cord and keep the cord clean and dry
**BOX 3.2: Multiple-day 7.1% CHX gel product**

- Wash hands with soap and water before application of CHX
- Use a sharp protuberance of the lid to break the inner shield of the tube
- Apply the first application of CHX gel within 24 hours after the birth, preferably within the first 2 hours of life
- Apply 7.1% of CHX on the stump and the surrounding areas of the cord
- Demonstrate this method of CHX application to mothers and other caregivers at the time of the first application
- Give the CHX tube to the family
- Advise the caregivers to apply the CHX gel once a day for 7 days after birth, irrespective of the status of the umbilical cord
- After applying CHX gel, apply nothing on the cord and keep the cord clean and dry

**Box 3.3: Single-dose 7.1% CHX liquid preparation product**

- Wash hands with soap and water before application of CHX
- Apply CHX only once within 24 hours after the birth, but preferably within the first two hours of life
- After applying CHX solution, advise the caregivers to apply nothing on the cord and keep the cord clean and dry
- Apply as much as is required to cover the stump and surrounding skin but do not apply the entire bottle of CHX

**Box 3.4: Multiple-dose 7.1% CHX liquid preparation product**

- Wash hands with soap and water before application of CHX
- Apply the first application of CHX to the cord within 24 hours after the birth, preferably within the first 2 hours of life
- Demonstrate this method of CHX application to mothers and other caregivers at the time of the first application
- Give the CHX bottle to the family
- Advise the caregivers to apply the CHX solution once a day for 7 days after birth, irrespective of the status of the umbilical cord
Box 3.5: A checklist of what each country needs in their guidelines document

- Guiding policies that are understood and used at all levels of the health care system
- Protocols/ guidelines/job aids
- Birth Registers
- Monitoring and evaluation
- Strategies for roll-out (in-service, pre-service training)

3.2.4 Performance indicators

Table 3.3 below shows some examples of the data which could be used in monitoring and evaluation of CHX use for cord care in neonates. Countries may integrate some of these indicators in their existing relevant monitoring structures. The quality of this data can be strengthened during supervisory visits of the relevant institutions.

Table 3.3: Proposed monitoring indicators †

<table>
<thead>
<tr>
<th>CHX: Population Coverage (%)</th>
<th>Numerator</th>
<th>No. of newborns having CHX (7.1% w/v) application to the umbilical cord stump initiated within 24 hours of birth</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Denominator</td>
<td>No. of all live births in the population (or home births only)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CHX Use: Home Births (%)</th>
<th>Numerator</th>
<th>No. of newborns having CHX applied to cord stump within 24 hours of birth (adding a CHX probe question to standard cord-care question in DHS, MICS; showing a sample or picture)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Denominator</td>
<td>No. of all live home births in the population</td>
</tr>
</tbody>
</table>

For countries opting to implement this programme at the facility level:

<table>
<thead>
<tr>
<th>CHX Use: Facility Births (%)</th>
<th>Numerator</th>
<th>No. of newborns having CHX (7.1% w/v) applied to cord stump within 24 hours of birth</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Denominator</td>
<td>No. of all live births in health facility</td>
</tr>
</tbody>
</table>

† These are the indicators proposed by Essential Newborn Action Plan.

3.3 Neonatal resuscitation equipment

3.3.1 Product summary

(a) Self-inflating bag and mask device

In 2006, PATH (Program for Appropriate Technology in Health) conducted an evaluation of select neonatal resuscitation devices that were available in developing countries and found a high safety profile for bag and mask devices, including evidence that bag and mask devices were sufficient to reliably achieve resuscitation by appropriately-trained providers.

Below are features of bag and mask resuscitators:
(b) **Mask**

Proper resuscitation depends on a good seal between the mask and the neonate’s face; hence neonatal masks for resuscitators generally come in two sizes to fit low and normal birth-weight babies. An important safety feature is the pressure-relief valve which is designed to limit the pressure that the resuscitator can deliver to prevent lung damage to the newborn.

(c) **Bag**

A resuscitator bag (usually 240 ml or 500 ml size volume) specifically designed for providing appropriate tidal volumes (volume of air between normal inspiration and expiration) for neonates can help reduce errors during use.

(d) **Suction devices**

Two devices, Easy Grip Transparent Baby Nasal Aspirator and the Laerdal NeoNatalie Penguin suction device, have been identified as being high-performing devices.

(e) **Resuscitation training mannequin and materials**

A training mannequin is a model of the baby permitting visualization of selected features of effective ventilation such as chest rise. Although the mannequin is not required for resuscitation of babies, it is a critical component for programmes as it allows competency-based training of health workers before practicing on babies. It is also useful for subsequent follow-up practice and during supervisory visits, especially in centres where lack of exposure to adequate cases of resuscitation results in loss of skills.
Various training materials are currently available that integrate use of this technology, including the WHO Basic Newborn Resuscitation Guide, the American Academy of Pediatrics’ (AAP) Neonatal Resuscitation Program and Helping Babies Breathe® (HBB) Program, and the UK Resuscitation Council Newborn Life Support.

3.3.2 Service delivery

Newborn resuscitation guidelines

(a) Cord cutting and drying
- If baby does not require positive-pressure ventilation (PPV), the cord should not be clamped earlier than 1 minute after birth.
- If PPV is required, the cord should be clamped and cut to allow effective ventilation to be performed.
- Babies who do not breathe spontaneously after thorough drying should be stimulated by rubbing the back 2–3 times before clamping the cord and initiating PPV.

(b) Clearing airway
- Clear amniotic fluid: If the newborn is breathing spontaneously after birth, suctioning of the mouth and nose should not be performed.
- In the presence of meconium-stained amniotic fluid:
  - Intrapartum suctioning of the mouth and nose at the delivery of the head is not recommended.
  - If the newborn is breathing spontaneously, tracheal suctioning should not be performed.
  - If the newborn is breathing spontaneously, suctioning of the mouth or nose is not recommended.
  - If the newborn does not start breathing spontaneously, tracheal suctioning should be done before initiating PPV.
  - If the newborn does not start breathing on their own, suctioning of the mouth and nose should be done before initiating PPV.
- If mechanical suctioning equipment is not available, single-use bulb syringes or mucous extractors should be used; if this is not possible, use only those devices that can be easily and thoroughly cleaned.

(c) Positive pressure ventilation
- For babies who do not start breathing despite thorough drying and additional stimulation, PPV should be initiated within 1 minute after birth.
- Term or preterm (>32 weeks gestation) babies requiring PPV:
  - Ventilation should be initiated with air.
  - Ventilation should be provided using a self-inflating bag and mask.
  - Adequacy of ventilation should be assessed by measurement of the heart rate after 60 seconds of ventilation with visible chest movements.
- For babies who do not start breathing within 1 minute after birth, priority should be given to providing adequate ventilation rather than to chest compressions.
(d) Stopping resuscitation

- Resuscitation should be stopped in newly-born babies
  - with no detectable heart rate after 10 minutes of effective ventilation.
  - who continue to have a heart rate below 60/minute and no spontaneous breathing after 20 minutes of resuscitation.

- Record the event and explain to the mother or parents that the baby has died. Give them the newborn to hold if they so wish.

(e) Anticipation for neonatal resuscitation

The need for resuscitation may be anticipated in newborns in the following situations:

- Those born to mothers with chronic illness
- Where the mother had a previous foetal or neonatal death
- A mother with pre-eclampsia
- In multiple pregnancies
- In preterm delivery
- In abnormal presentation of the foetus
- Prolapsed cord
- Where there is prolonged labour or rupture of membranes
- Meconium-stained liquor.

However, for many babies the need for resuscitation cannot be anticipated before delivery. Therefore, be prepared for resuscitation at every delivery, follow the assessment steps of charts below.
Figure 3.4: Neonatal resuscitation: flow chart.

Figure 3.5: Neonatal resuscitation: steps and process.

Neonatal resuscitation: Steps and process

There is no need to slap the infant; rubbing the back two or three times in addition to thorough drying is enough for stimulation.

A. Airway

- Keep the infant’s head in a slightly extended position to open the airway.
- Do not suction routinely. Suction the airway if there is meconium-stained fluid and the infant is not crying and moving limbs. When the amniotic fluid is clear, suction only if the nose or mouth is full of secretions.
  - Suck the mouth, nose and oropharynx by direct vision; do not suck right down the throat, as this can cause apnoea or bradycardia.

B. Breathing

- Choose a mask size that fits over the nose and mouth: size 1 for normal-weight infant, size 0 for small (< 2.5 kg) infants
- Ventilate with bag and mask at 40–60 breaths/min.
- Make sure the chest moves up with each press on the bag; in a very small infant, make sure the chest does not move too much (danger of causing pneumothorax).

C. Circulation

- Give chest compressions if the heart rate is < 60/min after 30–60 s of ventilation with adequate chest movements: 90 compressions coordinated with 30 breaths/min (three compressions: one breath every 2 s).
- Place thumbs just below the line connecting the nipples on the sternum (see below).
- Compress one third the anterior–posterior diameter of the chest.

Correct head position to open up airway and for bag ventilation. Do not hyperextend the neck. Correct position of hands for cardiac massage of a neonate. The thumbs are used for compression over the sternum.

**BOX 3.6: Counteracting respiratory depression in the newborn caused by narcotic drugs**

If the mother received Pethidine or Morphine, Naloxone is the drug to counteract respiratory depression in the newborn caused by these drugs.

*Note:* Do not administer Naloxone to newborns whose mothers are suspected of having recently abused narcotic drugs.

If there are signs of respiratory depression, begin resuscitation immediately:

- after vital signs have been established, give Naloxone 0.1 mg/kg body weight IV to the newborn.
- Naloxone may be given IM after successful resuscitation if the infant has adequate peripheral circulation. Repeated doses may be required to prevent recurrent respiratory depression.
- if there are no signs of respiratory depression, but Pethidine or Morphine was given within 4 hours of delivery, observe the baby expectantly for signs of respiratory depression and treat as above if they occur.


### (f) Post-resuscitation care

- Prevent heat loss:
  - place the baby skin-to-skin on the mother’s chest and cover the baby’s body and head;
  - alternatively, place the baby under a radiant heater.
- Examine the newborn and count the number of breaths per minute:
  - if the baby is cyanotic (bluish) or is having difficulty breathing (less than 30 or more than 60 breaths per minute, indrawing of the chest or grunting), give oxygen by nasal catheter or prongs.
- Measure the baby’s axillary temperature:
  - if the temperature is 36.5°C or more, keep the baby skin-to-skin on the mother’s chest and encourage breastfeeding;
  - if the temperature is less than 36.5°C, rewarm the baby.
- Encourage the mother to begin breastfeeding. A newborn that required resuscitation is at higher risk of developing hypoglycaemia:
  - if suckling is good, the newborn is recovering well;
  - if suckling is not good, transfer the baby to the appropriate service for the care of sick newborns.

Ensure frequent monitoring of the newborn during the next 24 hours. If signs of breathing difficulties recur, arrange to transfer the baby to the most appropriate service for the care of sick newborns.

### (g) Management of the neonate with perinatal asphyxia

Asphyxia may be the result of a lack of oxygen supply to organs before, during or immediately after birth. Initial treatment is effective resuscitation. Problems in the days after birth:

- **Convulsions:** treat with phenobarbital, check glucose.
- **Apnoea:** common after severe birth asphyxia. Sometimes associated with convulsions. Manage with oxygen by nasal catheter and resuscitation with bag and mask.
- **Inability to suck:** feed with expressed breast milk via a nasogastric tube. Beware of delayed emptying of the stomach which may lead to regurgitation of feeds.
- **Poor motor tone**: may be floppy or have limb stiffening (spasticity).

(h) **Prognosis of a baby with asphyxia**

Prognosis can be predicted by recovery of motor function and sucking ability. A baby who is normally active will usually do well. A baby who, a week after birth, is still floppy or spastic, unresponsive and cannot suck, has a severe brain injury and will do poorly. The prognosis is less grim for babies who have recovered some motor function and are beginning to suck. The situation should be sensitively discussed with parents throughout the time the baby is in hospital.

### 3.3.3 Job aids

**Figure 3.6: Neonatal resuscitation flow chart**

**Newborn Resuscitation**

*For trained health workers—Be prepared*

**Note for all newborns:**
- Practice delayed cord clamping to prevent early infant anaemia.
- Clean the cord with 7.1% Chlorhexidine Digluconate (4% Chlorhexidine) once baby stable and then daily until the cord separates.
- Ensure HIV risk known and give TEO & Vitamin K.

**Prepare before delivery — Equipment, warmth, getting help**

**A—airway**
- Check airway is clear
- If anything visible, use suction to clear
- Put head in neutral position

**B—breathing**
- Check baby is breathing
- Poor or no breathing/gasping

**C—circulation**
- Is heart rate > 60 bpm?

**Before first breath and before drying/stimulating**
- Suck/clean oro pharynx under direct vision
- Do not do deep, blind suction

**Before first breath**
- Skin to skin contact with mother to keep warm and observe
- Initiate breast feeding

**A—airway**
- Keep warm
- Count rate of breathing and heart rate
- Give oxygen if continued respiratory distress

**ABC ok**
- Continue with about 30 breaths/min.
- Reassess ABC every 1–2 mins.
- Stop using bag when breathing and heart rate OK

**CALL FOR HELP!**
- Start ventilation ensure the chest rises in first breaths, continue at about 30 breaths/min.
- Check heart rate at 1 min.

**Give 1 EFFECTIVE breath for every 3 chest compressions for 1 min.**
- Reassess ABC every 1–2 mins.
- Stop compressions when HR > 60 bpm and support breathing until OK

*Source: Ministry of Health, Republic of Kenya.*
Figure 3.7: Neonatal resuscitation

**Neonatal resuscitation**

- Neonatal self-inflating resuscitation bag with round mask

**Fitting mask over face:**

- **Right size and position of mask**
  - Right

- **Mask held too low**
  - Wrong

- **Mask too small**
  - Wrong

- **Mask too large**
  - Wrong

**Ventilating a neonate with bag and mask**

- Pull the jaw forwards towards the mask with the third finger of the hand holding the mask.
- Do not hyperextend the neck.

**Inadequate seal**

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

Table 3.4: How to score the newborn baby: APGAR score\textsuperscript{16}

Assess and score at 1 minute and 5 minutes after birth as follows:

<table>
<thead>
<tr>
<th>Sign</th>
<th>Score 0</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance/colour</td>
<td>Blue, Pale</td>
<td>Body pink, extremities blue</td>
<td>Completely pink</td>
</tr>
<tr>
<td>Pulse/heart rate</td>
<td>Absent</td>
<td>Less than 100 beats per minute</td>
<td>More than 100 beats per minute</td>
</tr>
<tr>
<td>Grimace/response to stimulus</td>
<td>Absent</td>
<td>Minimal grimace</td>
<td>Cough or sneeze</td>
</tr>
<tr>
<td>Activity/muscle tone or movement of limbs</td>
<td>Limp</td>
<td>Some flexion of limbs</td>
<td>Active</td>
</tr>
<tr>
<td>Respiration</td>
<td>Absent</td>
<td>Slow irregular granting</td>
<td>Good or crying</td>
</tr>
</tbody>
</table>

A checklist of what each country needs to improve resuscitation practices\textsuperscript{16}

1. National level

At national level, the following activities and policies will help healthcare institutions improve resuscitation practices:

- Legislation that allows every birth attendant to perform newborn resuscitation;
- National recommendations and standards for newborn resuscitation describing the minimum required practices and equipment, for different levels of care (home, health centre, hospital);
- Recommendations for selection and purchase of equipment and supplies;
- Putting basic newborn resuscitation on the curricula of midwifery, nursing and medical training;
- Development of training materials and courses for pre-service and in-service training for different levels of care;
- Development of capacity for training;
- Licensing.

2. Local level

Every healthcare institution that provides delivery care must develop its own policies and standards for newborn resuscitation. The manager or supervisor is responsible for ensuring that the institution has a plan of action that includes:

- a written policy, standards, protocol and training course for newborn resuscitation;
- a list of necessary equipment and supplies with instructions on cleaning and maintenance;
- a list of maternal and foetal complications that require the presence of persons specially qualified in newborn resuscitation, agreed by all staff;
- a contingency plan for multiple births and unusual situations;
- instructions on how to document (record) the process and outcome of resuscitation;
- a monitoring and evaluating process;
- a programme for staff training (doctors, midwives, nurses, auxiliary midwives) through initial and refresher courses.

3.3.4 Performance indicators

Each country will need to decide how this information will be collected. To maintain sustainability of the measurement of clinical quality and specific health outcomes, countries will be required to adapt their local records and to permit capture of needed data\textsuperscript{17}. 
Box 3.7: Core outcome indicators to support facility-based NR improvement efforts

- Total number of babies delivered per month
- Number/percentage of foetuses whose foetal heart rate counted and recorded on maternal admission
- Number/percentage of newborns who do not establish spontaneous breathing at birth
- Number/percentage neonates resuscitated
- Stillbirth rate
- Number/percentage of neonates who are macerated
- Number/percentage of fresh stillbirths
- Number/percentage of live births surviving to 24 hours

Table 3.5: Core and additional input, process, coverage and referral indicators to support facility-based NR improvement efforts

<table>
<thead>
<tr>
<th>Core indicators</th>
<th>Additional indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number/percentage of facility SBAs who received initial or refresher training within past 6 months</td>
<td>Funds mobilized and earmarked for maintaining NR competency of SBAs</td>
</tr>
<tr>
<td>Number/percentage of SBAs supervised in past quarter with observation of simulated NR</td>
<td>large healthcare centres/hospitals-training and supervision; regular practice using simulation</td>
</tr>
<tr>
<td>Staff assigned to monitor, check and maintain clean, functional equipment and supplies for resuscitation in delivery areas (including emergency room, labour area)</td>
<td>Number/percentage of deliveries attended by a NR-trained SBA/ month</td>
</tr>
<tr>
<td>Posted 24/7 schedule of NR-trained SBAs for 24/7 delivery room coverage (call schedule, etc.)</td>
<td>Number/percentage of providers demonstrating simulated</td>
</tr>
<tr>
<td>Referral Indicators:</td>
<td>NR competence at least every X time-period (e.g. peer-to-peer</td>
</tr>
<tr>
<td>Number/percentage of women transported to a higher level facility for late pregnancy and labour complications, including abnormal labour</td>
<td>observation using checklist)</td>
</tr>
<tr>
<td>Number/percentage of live newborns requiring advanced care who were transported to a higher level facility</td>
<td>Number/percentage of days/nights per month when NR-trained SBA present (or assigned) in delivery room</td>
</tr>
<tr>
<td></td>
<td>Equipped NR space with clean/functional NR bag and mask available</td>
</tr>
<tr>
<td></td>
<td>24/7 in delivery area</td>
</tr>
<tr>
<td></td>
<td>Equipped NR space with neonatal mannequin (to permit simulated</td>
</tr>
<tr>
<td></td>
<td>resuscitation practice)</td>
</tr>
<tr>
<td></td>
<td>Number/percentage of days per month when NR equipment/supplies checked for presence, cleanliness, and function in all delivery areas (standard daily checklist)</td>
</tr>
<tr>
<td></td>
<td>Percentage of women with prolonged labour in the facility</td>
</tr>
<tr>
<td></td>
<td>Number of women undelivered 12 hours or more after admission to labour and delivery ward</td>
</tr>
<tr>
<td></td>
<td>Percentage of facilities conducting neonatal death audits/reviews to defined standard</td>
</tr>
<tr>
<td>Referral Indicators:</td>
<td>Number/percentage of live births transferred to another facility</td>
</tr>
<tr>
<td></td>
<td>before birth/after birth</td>
</tr>
<tr>
<td></td>
<td>Number/percentage of foetuses with an auscultated heart rate on</td>
</tr>
<tr>
<td></td>
<td>arrival at transport facility</td>
</tr>
<tr>
<td></td>
<td>Measures of perinatal transport system</td>
</tr>
</tbody>
</table>
Table 3.6: Core and additional indicators of essential system functions for delivery of high-quality NR services, to inform sub-national/district results-based management

<table>
<thead>
<tr>
<th>Core Indicators to Support Information Systems, Commodities Management, and Human Resources</th>
<th>Additional Indicators to Support Information Systems, Commodities management, and Human Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Policy and Financing</strong></td>
<td><strong>Routine Information System</strong></td>
</tr>
<tr>
<td>• National Newborn Policy includes resuscitation</td>
<td>• National standard for a minimum data set for all facility births</td>
</tr>
<tr>
<td>• Designated budget for resuscitation commodities, provider/manager NR training/supervision, NR QI activities</td>
<td>• Intra-partum stillbirth rate (district level)</td>
</tr>
<tr>
<td>• National standard for a minimum data set for all facility births</td>
<td>• Number/percentage of live-born deaths in first 24 hours in district (facility and community) per month</td>
</tr>
<tr>
<td>• Routine Information System</td>
<td>• Number/percentage neonates surviving to 24 hours after resuscitation</td>
</tr>
<tr>
<td>• National and regional/district vital registry</td>
<td>• Agreed set of standard indicators to track quality of care and outcomes for newborns (specified by national, district and facility level)</td>
</tr>
<tr>
<td>• Number/percentage of fresh stillbirths per facility administrative unit per month</td>
<td><strong>Human Resources</strong></td>
</tr>
<tr>
<td>• Number/percentage of macerated stillbirths per facility administrative unit per month</td>
<td>• Number/percentage of deliveries attended by a NR-trained birth attendant per month</td>
</tr>
<tr>
<td>• Number/percentage of newborns who do not establish spontaneous breathing at birth</td>
<td>• Density of midwives (number of midwives actually deployed/1,000 births per district)</td>
</tr>
<tr>
<td>• Number/percentage of neonates resuscitated</td>
<td><strong>Commodities</strong></td>
</tr>
<tr>
<td><strong>Human Resources and Routine Information System</strong></td>
<td>• Number/percentage of delivery rooms with an equipped NR space available 24/7</td>
</tr>
<tr>
<td>• Number/percentage of SBAs trained in NR (initial or refresher) within past 6 months</td>
<td>• Number/percentage facilities with a neonatal mannequin to permit practice of simulated resuscitation</td>
</tr>
<tr>
<td>• Number/percentage of SBAs demonstrating NR competence by observation or simulation within the past 6 months</td>
<td><strong>Regulation</strong></td>
</tr>
<tr>
<td><strong>Commodities</strong></td>
<td>• Facility NR certification system and indicators</td>
</tr>
<tr>
<td>• Percentage of health facilities with the presence of bag &amp; mask (neonatal mask size) in labour and delivery wards</td>
<td>• Staff NR certification/licensure system/indicators linked to sanctions for non-compliance</td>
</tr>
<tr>
<td><strong>Regulation</strong></td>
<td></td>
</tr>
<tr>
<td>• National standards/indicators to track NR certification and licensing of staff and facilities</td>
<td></td>
</tr>
</tbody>
</table>
### Supervision

*Figure 3.8: Facility checklist for essential newborn care and resuscitation †*

<table>
<thead>
<tr>
<th>QUALITY OF ENC/R</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of supervisor</td>
<td>Designation of supervisor</td>
</tr>
<tr>
<td>Date</td>
<td>Time</td>
</tr>
</tbody>
</table>

*Fill the checklist on observations made during the facility visit*

<table>
<thead>
<tr>
<th>1. Before Delivery</th>
<th>2. Prepare for delivery</th>
</tr>
</thead>
<tbody>
<tr>
<td>History taken for high risk factors</td>
<td>Ensured delivery room temperature &gt;25°C</td>
</tr>
<tr>
<td>Physical examination conducted</td>
<td>Switched on the radiant warmer</td>
</tr>
<tr>
<td>Monitoring of labor done</td>
<td>Hand washing done with soap &amp; water</td>
</tr>
<tr>
<td>Disposable neonatal kit used</td>
<td>Double gloves used (Disposable/Sterile)</td>
</tr>
<tr>
<td><strong>Functioning of bag and mask checked</strong></td>
<td></td>
</tr>
<tr>
<td>Felt pressure on the palm as the bag is squeezed</td>
<td></td>
</tr>
<tr>
<td>Upon squeezing enough the pop off value opened and makes a sound</td>
<td></td>
</tr>
<tr>
<td>Checked that the bags re-inflates quickly when you release</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3. During delivery</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Progress of labor assisted</td>
<td>Fetal surveillance conducted</td>
</tr>
<tr>
<td>Delivery assisted</td>
<td>Conduct physical exam and monitor throughout labor</td>
</tr>
<tr>
<td>Asked for help from specialist</td>
<td>Counts and records fetal heart rate</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4. After Birth</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Immediate newborn care (First 60 min.)</td>
<td>1 to 6 hours after birth</td>
</tr>
<tr>
<td>Looked for meconium</td>
<td>Examined the newborn</td>
</tr>
<tr>
<td><strong>Immediate warmth provided</strong></td>
<td></td>
</tr>
<tr>
<td>Dried newborn with a warm cloth</td>
<td>Assessed general appearance, alertness, tone &amp; sex of the baby</td>
</tr>
<tr>
<td>Removed wet cloth</td>
<td>Checked for major congenital anomalies</td>
</tr>
<tr>
<td>Wrapped in a clean cloth and cover head to maintain warmth</td>
<td>Weight recorded</td>
</tr>
<tr>
<td><strong>Established cry/respiration</strong></td>
<td></td>
</tr>
<tr>
<td>Clean both eyes using separate clean gauze for each eye</td>
<td>Temperature recording done</td>
</tr>
<tr>
<td><strong>Do cord clamping (1-3 min)</strong></td>
<td></td>
</tr>
<tr>
<td>Tied with thread in two places (2 &amp; 5 cm from umbilicus)</td>
<td>Placed the silver end of the bulb vertically in the middle of the armpit, under the baby’s arm</td>
</tr>
<tr>
<td>Cut umbilical cord with a clean blade</td>
<td>Kept the thermometer in place for 3-5 minutes</td>
</tr>
<tr>
<td>Observed for oozing of blood</td>
<td>Observed for oozing of blood</td>
</tr>
<tr>
<td>Did not apply anything on stump</td>
<td>Temperature recorded</td>
</tr>
<tr>
<td><strong>Skin to skin contact provided</strong></td>
<td></td>
</tr>
<tr>
<td>Place the baby between the mother’s breasts on a bare chest</td>
<td>Measured respiratory rate</td>
</tr>
<tr>
<td>Put the baby in a prone position</td>
<td>Temperature taken</td>
</tr>
<tr>
<td>Turn the face of the baby on one side</td>
<td>Examined head for Fontanelles and sutures</td>
</tr>
<tr>
<td>Cover the baby’s back and head with a warm cloth</td>
<td>Examined eyes for redness, discharge</td>
</tr>
<tr>
<td>Cover the mother and baby with an additional blanket</td>
<td>Examined skin for jaundice, pallor, cyanosis</td>
</tr>
<tr>
<td>Deliver Placenta</td>
<td>Palpated abdomen and liver</td>
</tr>
</tbody>
</table>
### Breastfeeding supported for initiation

- □ Look for baby cues
- □ Supported the mother by giving the newborn to the mother to suckle
- □ Helped the mother to initiate breastfeeding
- □ Advice of advantages of colostrum feeding reinforced

- □ Examined genitals for normality, hernias
- □ Examined for muscle tone and moro reflex
- □ Examined extremities and skeletal system for symmetry, movement, and broken or dislocated bones
- □ Inspected skin for sores or breaks
- □ Examined for birth defects

### Before discharge

#### Vaccination done

- □ Administered BCG intradermally left arm
- □ Administered birth dose of Hepatitis B (IM)
- □ Administered zero dose OPV (Oral)
- □ Administered Vitamin K (IM)

#### Did the provider give advice on newborn care?

- □ Did the service provider tell the mother about child immunization?
- □ Did the service provider tell the mother when to return?
- □ Verified what the mothers understands warning signs for newborn to return to the facility
- □ Verified that the mother understands when to return for the first postpartum visit and for subsequent visits to the newborn at home.

#### Breastfeeding advice given

- □ Instructed the mothers in the health benefits of breastfeeding
- □ Told the mother to feed colostrum
- □ Told the mother that milk flow begins after 2-3 days
- □ Told the mother to breastfeed infant frequently during the 1st few days
- □ Told the mother to use both breasts, feeding from one until it is empty, then from the other
- □ Told the mother to start feeding with the breast that is not the breast she started feeding from the last time
- □ Told the mother to continue breastfeeding when she or he is ill
- □ Told the mother to keep nipples clean and dry to prevent cracking
- □ Demonstrated how to express breast milk to relieve congestion and prevent engorgement
- □ Demonstrated how to position infant’s mouth around areola for breastfeeding
- □ Told mother to return if the infant has problems in feeding

- □ Washed hands with soap before providing care
- □ Wore gloves as needed when providing care
- □ Demonstrated drying and wrapping on the mannequin
- □ Demonstrated skin-to-skin care on the mannequin
- □ Demonstrated eye care on the mannequin
- □ Demonstrated cord cutting on the mannequin
- □ Demonstrated newborn examination on the mannequin
- □ Demonstrated weighing of newborn on the mannequin
- □ Demonstrated suction on the mannequin
- □ Demonstrated using a bag and mask on the mannequin

### How to score:

Mark 1 point for each tick and total the number of ticks to add total score (TS) % Score: TS x 100 = %

### Notes

Source: †The checklist has been adapted from Maternal and Child Health integrated Program (MCHIP)

Other examples of supervision tools

Countries may refer to the following website to access for more examples of supervision and monitoring tools: [http://www.helpingbabiesbreathe.org/](http://www.helpingbabiesbreathe.org/)
References


4.1 Background

The Child Health toolkit focuses on the three essential commodities identified by the UN Commission on Life-Saving Commodities that can treat and address the leading causes of mortality for children under 5 years old:

- Oral Rehydration Salts (ORS), which is a sodium and glucose solution widely proven to prevent deadly dehydration in children with acute diarrhoea;
- Zinc, which is a vital micronutrient that helps reduce the severity and duration of diarrhoea and can help prevent future bouts;
- Amoxicillin, which is an effective, low-cost, widely used antibiotic that is proven to save the lives of children with pneumonia.

With appropriate case management, Amoxicillin dispersible tablets (DT) can reduce deaths from pneumonia by 70%. Presently, there has been an increase in the availability of high-quality, affordable Zinc, ORS, and Amoxicillin DT. Child health partners have facilitated introduction of more than 10 new Zinc and ORS products through direct engagement with local manufacturers in Africa.

4.1.1 Situational Analysis

Pneumonia and diarrhoea are the leading causes of death of children causing 18% and 15% of all deaths of children under 5 years of age worldwide. Most of these deaths are entirely preventable. Pneumonia should be diagnosed in children who are under 5 years of age and have cough and/or difficulty in breathing, with or without fever, while diarrhoea is the frequent passage of unusually loose or watery stools, usually at least three times in a 24-hour period.

Childhood pneumonia, if not detected and managed promptly can easily lead to death. In 2011, WHO updated its recommendations for the home treatment of pneumonia in the context of Integrated Management of Childhood Illnesses (IMCI), replacing Co-trimoxazole with Amoxicillin as the new first-line treatment for childhood fast breathing and chest indrawing pneumonia. A
child-friendly version in the form of Amoxicillin dispersible tablets (that easily dissolve in water) has been developed. This has replaced the bulky antibiotic syrup in glass bottles with a sometimes not-so-friendly taste. Community case management by CHWs has been shown to be a prompt and life-saving measure for both pneumonia and diarrhoea.\(^4\)\(^-\)\(^11\).

Diarrhoeal deaths can be dramatically reduced through critical therapies such as prevention and treatment of dehydration with ORS, fluids available in the home, breastfeeding, continued feeding, selective use of antibiotics and Zinc supplementation. In comparison to other diseases, diarrhoea can be well managed with health education, sanitation and homecare management using Zinc and ORS.\(^5\)\(^-\)\(^8\)\(^,\)\(^10\).

Despite 40 years of availability and promotion of Oral Rehydration Salts (ORS) as the main treatment for childhood diarrhoea, less than 40% of children with diarrhoea actually receive ORS, especially in Sub-Saharan Africa. The new formula for ORS (reduced osmolarity ORS containing lower concentrations of glucose and salts) has been scientifically proven to be more efficacious than the old one, and is now the formula recommended by WHO and UNICEF.\(^4\)\(^-\)\(^5\) Zinc is a newly proven effective adjuvant treatment for childhood diarrhoea, reducing both its duration and severity and the likelihood of subsequent episodes.\(^5\)\(^-\)\(^7\)\(^,\)\(^9\) Zinc supplementation is now being recommended by WHO and UNICEF for the treatment of all diarrhoea episodes among children.\(^8\)

ORS is easy to reconstitute and can be easily administered to children under 5 while Zinc is also packaged as a single tablet for easy use. Studies have revealed that increased uptake of ORS/Zinc has reduced the incidence of death due to diarrhoea by 40%.\(^6\)

Pneumonia causes more childhood deaths than AIDS, malaria, and tuberculosis combined. Most of these deaths occur in low and middle income countries; 60% of these occur in only 10 countries: Bangladesh, Democratic Republic of Congo (DRC), Ethiopia, India, Kenya, Niger, Nigeria, Pakistan, Tanzania and Uganda.\(^8\)\(^,\)\(^10\)

In 2014, WHO redefined the first-line antibiotic for management of childhood pneumonia and classification of pneumonia severity — pneumonia with fast breathing (non-severe pneumonia) and pneumonia with chest indrawing (severe pneumonia). Fast breathing is 50 breaths per minute or more in children aged 2 months up to 12 months, and 40 breaths per minute or more in children aged 12 months up to 5 years.\(^4\)\(^,\)\(^8\)

Most importantly, access and proper use of these commodities at both community and health facility levels will avert 1.89 and 1.56 million deaths from diarrhoea and pneumonia respectively over a five-year period.\(^12\)

Oral Amoxicillin can be used to treat both fast breathing pneumonia and chest indrawing pneumonia. Therefore, this reduces the need for referrals to higher-level facilities. With CHWs trained and able to dispense ORS, Zinc and oral Amoxicillin, access to early treatment is brought closer to home. Therefore, the probability of hospitalization and thus the risk of nosocomial and injection-borne diseases is reduced.\(^9\)

The use of the new recommended dosages of the ORS/Zinc and oral dispersible tablets reduces the probability of antimicrobial resistance due to better adherence to the simplified, convenient and affordable treatment. Since the route of administration of Amoxicillin is oral, this simplifies the training of health workers and CHWs.\(^5\)\(^,\)\(^10\)
4.2 ORS/Zinc

4.2.1 Product Summary for ORS/Zinc
ORS contains a mixture of glucose, sodium and potassium and it provides a solution containing 75 mmol/l of sodium with a total osmolarity of 245 mOsm/litre which was recommended in the WHO Drug Information in 2002. The new formulation reduces the stool output by 20% and the incidence of vomiting by 30%.

Zinc helps to regenerate the epithelial walls of the intestines, enhances immunity and the ability of the body to clear pathogens and also improves the absorption of water and electrolytes. It also acts by lining the walls of the gut, thereby reducing the severity and duration of the diarrhoea. Zinc supplementation has been documented to substantially reduce the incidences of severe and prolonged diarrhoea in the following 2–3 months thereby reducing mortality and malnutrition in children.

4.2.2 Service delivery for ORS/Zinc

Standards and guidelines for ORS/Zinc use
The revised recommendations by WHO/UNICEF emphasize family and community understanding of managing diarrhoea. This is aimed at ensuring that these recommendations become routine practice both in the home and healthcare facility.

Mothers and other caregivers should:
- prevent dehydration through the early administration of increased amounts of appropriate fluids available in the home, and ORS solution, if on hand;
- continue feeding (or increase breastfeeding) during, and increase all feeding after the episode;
- recognize the signs of dehydration and take the child to a healthcare provider for ORS or intravenous electrolyte solution, as well as familiarize themselves with other symptoms requiring medical treatment (e.g. bloody diarrhoea);
- provide children with 20 mg per day of Zinc supplementation for 10–14 days (10 mg per day for infants under 6 months old).

Healthcare workers should:
- counsel mothers to begin administering suitable available home fluids immediately upon onset of diarrhoea in a child;
- treat dehydration with ORS solution (or with an intravenous electrolyte solution in cases of severe dehydration);
- emphasize continued feeding or increased breastfeeding during, and increased feeding after the diarrhoea episode;
- use antibiotics only when appropriate, i.e. in the presence of bloody diarrhoea or shigellosis, and abstain from administering anti-diarrhoea drugs;
- provide children with 20 mg per day of Zinc supplementation for 10–14 days (10 mg per day for infants under 6 months old);
- advise mothers of the need to increase fluids and continue feeding during future episodes. Healthcare workers treating children for diarrhoea are encouraged to provide caretakers with two 1-litre packets of the new ORS, for home use until the diarrhoea stops;
- provide caretakers with enough Zinc supplements to continue home treatment for 10–14 days. Printed material (including text and illustrations) with advice on preventing and treating diarrhoea at home should accompany the ORS and Zinc supplements.
**Table 4.1: Recommended minimum amount of fluid by age**

<table>
<thead>
<tr>
<th>Age</th>
<th>Amount of fluid (after each loose stool)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 2 years old</td>
<td>Approximately 50–100ml (¼ large cup)</td>
</tr>
<tr>
<td>2 to 5 years</td>
<td>Approximately 100–200ml (½ to 1 large cup)</td>
</tr>
</tbody>
</table>

**Benefits of Zinc Supplementation**

Zinc decreases the length and severity of the diarrhoea. Zinc is important for the child’s immune system and will help the child fight off new episodes of diarrhoea in the 2–3 months following treatment. Zinc improves appetite and growth. These recommendations are based on a 20 mg tablet.

**Table 4.2: Dosage of Zinc by age**

<table>
<thead>
<tr>
<th>Age</th>
<th>Dosage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 6 months of age</td>
<td>½ tablet (10 mg) once a day for 10 to 14 days</td>
</tr>
<tr>
<td>6 months and older</td>
<td>1 tablet (20 mg) per day for 10 to 14 days</td>
</tr>
</tbody>
</table>

**Table 4.3: Determining amount of ORS to give during first 4 hours**

<table>
<thead>
<tr>
<th>Weight</th>
<th>&lt; 6 kg</th>
<th>6 kg &lt;10 kg</th>
<th>10 kg &lt;12 kg</th>
<th>12 kg &lt;19 kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>Up to 4 months</td>
<td>4 months – 12 months</td>
<td>12 months – 2 years</td>
<td>2 years – 5 years</td>
</tr>
<tr>
<td>ml</td>
<td>200–450</td>
<td>450–800</td>
<td>800–960</td>
<td>960–1600</td>
</tr>
</tbody>
</table>
**Figure 4.1: Assess and classify the sick child**

### ASSESS

- **Look and feel:**
  - Look at the child's general condition: Is the child:
    - Lethargic or unconscious?
    - Restless and irritable?
    - Not able to drink or drinking poorly?
    - Drinking eagerly, thirsty?
    - Pinch the skin of the abdomen: Does it go back: Very slowly (longer than 2 seconds)?
    - Slowly?

### CLASSIFY

**Diarrhoea**

- Two of the following signs:
  - Restless, irritable
  - Sunken eyes
  - Drinks eagerly, thirsty
  - Skin pinch goes back slowly.

**Dehydration**

- Two of the following signs:
  - Lethargic or unconscious
  - Sunken eyes
  - Not able to drink or drinking poorly
  - Skin pinch goes back very slowly.

### IDENTIFY TREATMENT

- **Pink:**
  - Severe Dehydration
    - If child has no other severe classification:
      - Give fluid for severe dehydration (Plan C)
      - OR
      - If child also has another severe classification:
        - Refer URGENTLY to hospital with mother giving frequent sips of ORS on the way
        - Advise the mother to continue breastfeeding
        - If child is 2 years or older and there is cholera in your area, give antibiotic for cholera

- **Yellow:**
  - Some Dehydration
    - Give fluid, zinc supplements, and food for some dehydration (Plan B)
    - If child also has a severe classification:
      - Refer URGENTLY to hospital with mother giving frequent sips of ORS on the way
      - Advise the mother to continue breastfeeding
      - Advise mother when to return immediately
      - Follow-up in 5 days if not improving

- **Green:**
  - No Dehydration
    - Give fluid, zinc supplements, and food to treat diarrhoea at home (Plan A)
    - Advise mother when to return immediately
    - Follow-up in 5 days if not improving

### Job aids for ORS/Zinc

- **Dehydration present.**
  - Pink:
    - Severe Persistent Diarrhoea
      - Treat dehydration before referral unless the child has another severe classification
      - Refer to hospital

- **No dehydration.**
  - Yellow:
    - Persistent Diarrhoea
      - Advise the mother on feeding a child who has Persistent Diarrhoea
      - Give multivitamins and minerals (including zinc) for 14 days
      - Follow-up in 5 days

- **Blood in the stool.**
  - Yellow:
    - Dysentery
      - Give ciprofloxacin for 3 days
      - Follow-up in 3 days

Figure 4.2: Treating the child — Plan A and B

GIVE EXTRA FLUID FOR DIARRHOEA AND CONTINUE FEEDING

**PLAN A: TREAT DIARRHOEA AT HOME**

Counsel the mother on the 4 Rules of Home Treatment:

1. **Give Extra Fluid**
2. **Give Zinc Supplements** (age 2 months up to 5 years)
3. **Continue Feeding**
4. **When to Return**

1. **GIVE EXTRA FLUID** (as much as the child will take)
   - **TELL THE MOTHER**:
     - Breastfeed frequently and for longer at each feed.
     - If the child is exclusively breastfed, give ORS or clean water in addition to breast milk.
     - If the child is not exclusively breastfed, give one or more of the following: ORS solution, food-based fluids (such as soup, rice water, and yoghurt drinks), or clean water.
   - It is especially important to give ORS at home when:
     - the child has been treated with Plan B or Plan C during this visit.
     - the child cannot return to the clinic if the diarrhoea gets worse.
   - **TEACH THE MOTHER HOW TO MIX AND GIVE ORS. GIVE THE MOTHER 2 PACKETS OF ORS TO USE AT HOME.**
   - **SHOW THE MOTHER HOW MUCH FLUID TO GIVE IN ADDITION TO THE USUAL FLUID INTAKE**:
     - Up to 2 years: 50 to 100 ml after each loose stool
     - 2 years or more: 100 to 200 ml after each loose stool

   Tell the mother to:
   - Give frequent small sips from a cup.
   - If the child vomits, wait 10 minutes. Then continue, but more slowly.
   - Continue giving extra fluid until the diarrhoea stops.

2. **GIVE ZINC** (age 2 months up to 5 years)
   - **TELL THE MOTHER HOW MUCH ZINC TO GIVE** (20 mg tab):
     - 2 months up to 5 months: 1/2 tablet daily for 14 days
     - 6 months or more: 1 tablet daily for 14 days

   **SHOW THE MOTHER HOW TO GIVE ZINC SUPPLEMENTS**
   - Infants - dissolve tablet in a small amount of expressed breast milk, ORS or clean water in a cup.
   - Older children - tablets can be chewed or dissolved in a small amount of water.

3. **CONTINUE FEEDING** (exclusive breastfeeding if age less than 6 months)
4. **WHEN TO RETURN**

**PLAN B: TREAT SOME DEHYDRATION WITH ORS**

In the clinic, give recommended amount of ORS over 4-hour period

<table>
<thead>
<tr>
<th>Weight (kg)</th>
<th>6 - &lt;10</th>
<th>10 - &lt;12</th>
<th>12 - 19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age*</td>
<td>4 months</td>
<td>12 months</td>
<td>2 years</td>
</tr>
<tr>
<td>&lt; 2 years</td>
<td>200 - 450</td>
<td>450 - 800</td>
<td>800 - 1200</td>
</tr>
<tr>
<td>2 years</td>
<td>900 - 1600</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Use the child’s age only when you do not know the weight. The approximate amount of ORS required (in ml) can also be calculated by multiplying the child’s weight (in kg) times 75.

- If the child wants more ORS than shown, give more.
- For infants under 5 months who are not breastfed, also give 100 - 200 ml clean water during this period if you use standard ORS. This is not needed if you use new low osmolality ORS.

**SHOW THE MOTHER HOW TO GIVE ORS SOLUTION**
- Give frequent small sips from a cup.
- If the child vomits, wait 10 minutes. Then continue, but more slowly.
- Continue breastfeednig whenever the child wants.

**AFTER 4 HOURS**
- Reassess the child and classify the child for dehydration.
- Select the appropriate plan to continue treatment.
- Begin feeding the child in clinic.

**IF THE MOTHER MUST LEAVE BEFORE COMPLETING TREATMENT**
- Show her how to prepare ORS solution at home.
- Show her how much ORS to give to finish 4-hour treatment at home.
- Give her enough ORS packets to complete rehydration. Also give her 2 packets as recommended in Plan A.
- Explain the 4 Rules of Home Treatment:
  1. **GIVE EXTRA FLUID**
  2. **GIVE ZINC** (age 2 months up to 5 years)
  3. **CONTINUE FEEDING** (exclusive breastfeeding if age less than 6 months)
  4. **WHEN TO RETURN**

**PLAN C: TREAT SEVERE DEHYDRATION QUICKLY**

FOLLOW THE ARROWS. IF ANSWER IS "YES", GO ACROSS. IF "NO", GO DOWN.

**START HERE**

Can you give intravenous (IV) fluid immediately?

- YES →
  - Start IV fluid immediately. If the child can drink, give ORS by mouth while the drip is set up. Give 100 ml/kg Ringer’s Lactate Solution (or, if not available, normal saline), divided as follows:

<table>
<thead>
<tr>
<th>AGE</th>
<th>First give 30 ml/kg in:</th>
<th>Then give 70 ml/kg in:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infants (under 12 months)</td>
<td>1 hour*</td>
<td>5 hours</td>
</tr>
<tr>
<td>Children (12 months up to 5 years)</td>
<td>30 minutes*</td>
<td>2 1/2 hours</td>
</tr>
</tbody>
</table>

  * Repeat once if radial pulse is still very weak or not detectable.

  - Reassess the child every 1–2 hours. If hydration status is not improving, give the IV drip more rapidly.
  - Also give ORS (about 5 ml/kg/hour) as soon as the child can drink: usually after 3–4 hours (infants) or 1–2 hours (children).
  - Reassess an infant after 6 hours and a child after 3 hours. Classify dehydration. Then choose the appropriate plan (A, B, or C) to continue treatment.

- NO →

**Is IV treatment available nearby (within 30 minutes)?**

- YES →
  - Refer URGENTLY to hospital for IV treatment.
  - If the child can drink, provide the mother with ORS solution and show her how to give frequent sips during the trip or give ORS by naso-gastric tube.

- NO →

**Are you trained to use a naso-gastric (NG) tube for rehydration?**

- YES →
  - Start rehydration by tube (or mouth) with ORS solution: give 20 ml/kg/hour for 6 hours (total of 120 ml/kg).
  - Reassess the child every 1–2 hours while waiting for transfer:
    - If there is repeated vomiting or increasing abdominal distension, give the fluid more slowly.
    - If hydration status is not improving after 3 hours, send the child for IV therapy.
  - After 6 hours, reassess the child. Classify dehydration. Then choose the appropriate plan (A, B or C) to continue treatment.

- NO →

**Can the child drink?**

- YES →
  - Refer URGENTLY to hospital for IV or NG treatment.

- NO

**NOTE:**

- If the child is not referred to hospital, observe the child at least 6 hours after rehydration to be sure the mother can maintain hydration giving the child ORS solution by mouth.

Does the child have diarrhoea?

**IF YES, ASK:**
- For how long?
- Is there blood in the stool?

**LOOK AND FEEL:**
- Look at the child's general condition. Is the child:
  - Lethargic or unconscious?
  - Restless and irritable?
- Look for sunken eyes.
- Offer the child fluid. Is the child:
  - Not able to drink or drinking poorly?
  - Drinking eagerly, thirsty?
- Pinch the skin of the abdomen. Does it go back:
  - Very slowly (longer than 2 seconds)? Slowly?

### CLASSIFY DIARRHOEA

#### FOR DEHYDRATION

- Two of the following signs:
  - Lethargic or unconscious
  - Sunken eyes
  - Not able to drink or drinking poorly
  - Skin pinch goes back very slowly.

#### SEVERE DEHYDRATION

- If child has no other severe classification:
  - Give fluid for severe dehydration (Plan C).
  - OR
  - If child also has another severe classification:
    - Refer URGENTLY to hospital with mother giving frequent sips of ORS on the way. Advise the mother to continue breastfeeding.
    - If child is 2 years old or over and there is cholera in your area, give antibiotic for cholera.

#### SOME DEHYDRATION

- Two of the following signs:
  - Restless, irritable
  - Sunken eyes
  - Drinks eagerly, thirsty
  - Skin pinch goes back slowly.

#### NO DEHYDRATION

- Not enough signs to classify as some or severe dehydration.
  - Give fluid, zinc supplements and food to treat diarrhoea at home (Plan A).
  - Advise mother when to return immediately.

### AND IF DIARRHOEA 14 DAYS OR MORE

- Dehydration present.
  - SEVERE PERSISTENT DIARRHOEA
    - Treat dehydration before referral unless the child has another severe classification.
    - Refer to hospital.

- No dehydration.
  - PERSISTENT DIARRHOEA
    - Advise the mother on feeding a child who has PERSISTENT DIARRHOEA.
    - Give multivitamin and minerals (including zinc) for 14 days.
    - Follow-up in 5 days.

- Blood in the stool.
  - BLOOD IN STOOL
    - Treat for 5 days with an oral antimicrobial recommended for Shigella in your area. Treat dehydration and give zinc.
    - Follow-up in 2 days.
Figure 4.5: Tips on homecare for child with diarrhoea

4.3 Amoxicillin

4.3.1 Product Summary for Amoxicillin

Amoxicillin is a penicillin-class, broad-spectrum antibiotic. It is the first line drug for treatment of pneumonia in children. It is also used to treat other illnesses, including gram positive bacterial infections of the ears, sinuses, throat, urinary tract, skin, abdomen and blood, amongst others. It is also used as part of the treatment for Severe Acute Malnutrition.

Amoxicillin is the most effective first-line treatment for childhood fast breathing and chest indrawing pneumonia.

Formulations of oral Amoxicillin include capsules, tablets, powder for oral suspension, and dispersible tablets (DT). The Amoxicillin DT is available in 250 mg tablets. The DT market is steadily increasing as more countries change their treatment protocols accordingly. Its use is currently more established in Asia than in other regions for the paediatric dosages. In Africa, the market is more established for oral suspension and capsules than in DT form.

The most suitable formulation of Amoxicillin for children is dispersible Amoxicillin. The DTs are packaged in blister packs that are easy to dispense, manage, and withstand sunlight, heat and rain. They quickly disperse in a small amount of clean water or breast milk.

Amoxicillin DTs have a longer shelf life, do not need refrigeration, are more cost effective, and are easier to administer than other formulations.

Table 4.4: Amoxicillin Product Formulations

<table>
<thead>
<tr>
<th>Amoxicillin Products</th>
<th>Purpose</th>
</tr>
</thead>
</table>
| Amoxicillin Caps     | • Amoxicillin capsules are the most widely available pharmaceutical form, available in strengths of 125 mg to 1,000 mg.  
• It is the preferred formulation for adults and can be taken without water if necessary. |
| Amoxicillin Tabs     | • Amoxicillin tablets are another conventional form, often available with scoring.  
• Scored tablets allow pharmaceutical tablets to be broken and dosing adjusted according to prescription.  
• They are not as extensively used as capsules and often need to be taken with water. |
| Amoxicillin OS       | • Amoxicillin powder for oral suspension is at present the most commonly used paediatric formulation.  
• It is available in strengths of 125 mg 5 mL and 250 mg 5 mL.  
• It is administered as a liquid which facilitates the treatment of children and those with difficulties swallowing solid dosage forms like tablets or capsules. |
| Amoxicillin DT       | • Amoxicillin dispersible tablets are the equivalent of Amoxicillin OS. with each dose compacted into a tablet, dispersible in 5-10 ml of water.  
• Amoxicillin DT is cheaper than its equivalent OS.  
• It offers logistical and supply chain advantages in term of volume and weight,  
• It is also designed to accommodate patients with difficulties in swallowing.  
• Amoxicillin DT facilitates and simplifies Community Case Management (CCM) and greater dosage accuracy compared to OS which has to be manually measured and mixed.  
• DT does not need refrigeration.  
• The new protocols combined with clear and easy instructions for prescribing and administering Amoxicillin DT provide the most effective method of treatment for pneumonia. |

Source: WHO, 2014
4.3.2 Service delivery for Amoxicillin

Standards and guidelines for Amoxicillin use

Treatment of childhood pneumonia using oral Amoxicillin can be achieved by both CHWs and health workers if the following WHO recommended standards are followed:

(a) Community level

- All children with fever, cough and fast breathing should be classified as having “pneumonia” and treated with oral Amoxicillin;
- Children with “chest indrawing” pneumonia should be referred to a higher level. However, in situations where referral is not possible, and if local health policy allows, CHWs may treat chest indrawing pneumonia with oral Amoxicillin;
- Dispersible Amoxicillin is the preferred treatment for children.

(b) Health facility level

- All children with fever, cough, fast breathing and/or chest indrawing are classified as having “pneumonia” and should be treated with oral Amoxicillin. Only those children who have:
  - general danger signs
  - HIV
  - pedal oedema
  - severe wasting and have chest indrawing need to be referred to a higher level facility for inpatient treatment with injectable antibiotics.
- In settings of low HIV prevalence, children with chest indrawing pneumonia should be treated at the lower level health facilities and will no longer need to be referred for hospitalization.
- Dispersible Amoxicillin is the preferred treatment for children.

Management of pneumonia at community level

Oral Amoxicillin should be administered in two daily doses. CHWs should be trained on management of fast breathing pneumonia and refer children with chest indrawing pneumonia. In cases where referral to a higher facility is not possible, CHWs can manage chest indrawing pneumonia with oral Amoxicillin.

In the Integrated Management of Childhood Illnesses (IMCI) recommendations for home treatment for pneumonia, Co-trimoxazole should be replaced with Amoxicillin 250 mg as the new first-line treatment for childhood pneumonia\(^a\). Fast breathing pneumonia at community level should be treated using a simple protocol for administration of oral Amoxicillin 250 mg (i.e. 10 or 20 tablets per treatment depending on age).

Table 4.5: Community case management guidance for treatment of pneumonia

<table>
<thead>
<tr>
<th>Age</th>
<th>Fast breathing pneumonia in low HIV prevalence areas</th>
<th>Fast breathing pneumonia in high HIV prevalence areas</th>
<th>Chest indrawing pneumonia</th>
<th>Pneumonia with danger signs, pedal oedema and severe wasting</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;2 months</td>
<td>1 Amoxicillin 250 mg tablet, referral to health facility for supportive therapy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2–12 months (4–10 kg)</td>
<td>1 Amoxicillin 250 mg tablet/twice a day/3 days</td>
<td>1 Amoxicillin 250 mg tablet/twice a day/5 days</td>
<td>1 Amoxicillin 250 mg tablet/twice a day/5 days</td>
<td>1 Amoxicillin 250 mg tablet, referral to health facility for supportive therapy</td>
</tr>
<tr>
<td>12–59 months (10–19 kg)</td>
<td>2 Amoxicillin 250 mg tablet/twice a day/3 days</td>
<td>2 Amoxicillin 250 mg tablet/twice a day/5 days</td>
<td>2 Amoxicillin 250 mg tablet/twice a day/5 days</td>
<td>2 Amoxicillin 250 mg tablet, referral to health facility for supportive therapy</td>
</tr>
</tbody>
</table>

Source: WHO, 2014
Clinical management of pneumonia

Table 4.6: Guidance for clinical management of childhood pneumonia

<table>
<thead>
<tr>
<th>Age</th>
<th>Fast breathing pneumonia in low HIV prevalence areas</th>
<th>Fast breathing pneumonia in high HIV prevalence areas</th>
<th>Chest indrawing pneumonia</th>
<th>Pneumonia with danger Signs, pedal oedema and severe wasting</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;2 months</td>
<td>If the child has received 1 Amoxicillin 250 mg tablet, refer for injectables. If the child has not received dose antibiotic, give 1 Amoxicillin 250 mg tablet and refer or start on injectables if available</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2–12 months (4–10 kg)</td>
<td>1 Amoxicillin 250 mg tablet/twice a day/3 days</td>
<td>1 Amoxicillin 250 mg tablet/twice a day/5 days</td>
<td>1 Amoxicillin 250 mg tablet/twice a day/5 days</td>
<td>Start on injectables. If not available, give 1 Amoxicillin 250 mg tablet, and refer for injectables and supportive therapy</td>
</tr>
<tr>
<td>12–59 months (10–19 kg)</td>
<td>2 Amoxicillin 250 mg tablet/twice a day/3 days</td>
<td>2 Amoxicillin 250 mg tablet/twice a day/5 days</td>
<td>2 Amoxicillin 250 mg tablet/twice a day/5 days</td>
<td>Start on injectables. If not available, give 2 Amoxicillin 250 mg tablet, and refer for injectables and supportive therapy</td>
</tr>
</tbody>
</table>

Source: WHO, 2014

Below are some of the recommendations from the 2014 revised WHO classification and treatment of childhood pneumonia at health facilities9.

Recommendation 1:
- Children with fast breathing pneumonia with no chest indrawing or general danger sign should be treated with oral Amoxicillin: at least 40 mg/kg/dose twice daily (80 mg/kg/day) for 5 days.
  - In areas with low HIV prevalence, give Amoxicillin for 3 days.
  - Children with fast breathing pneumonia who fail on first-line treatment with Amoxicillin should have the option of referral to a facility where there is appropriate second-line treatment.
  - A three-day course of antibiotics is as effective as a five-day course in treating children with fast breathing pneumonia.

Recommendation 2:
- Children aged 2–59 months with chest indrawing pneumonia should be treated with oral Amoxicillin — at least 40 mg/kg/day twice daily (80 mg/kg/day) for 5 days.
  - Oral Amoxicillin is as effective as injectable penicillin in the treatment of chest indrawing pneumonia in children in low-resource settings.
  - Oral Amoxicillin is equally effective for both fast breathing and chest indrawing pneumonia in high-resource settings.
  - Home therapy with oral Amoxicillin is effective in a range of settings and it is safe to treat chest indrawing pneumonia at home with oral Amoxicillin.
  - Efficacy of higher dose (80–90 mg/kg/day) vs. lower dose (45 mg/kg/day) of Amoxicillin:
    - Amoxicillin is more effective when given in higher doses.
- Amoxicillin can be given twice instead of thrice daily for children with fast breathing and chest indrawing pneumonia. The same total daily dosage of Amoxicillin given either twice or three times daily is equally effective and safe.
4.3.3 Job Aids for Amoxicillin DT

TEACH THE MOTHER TO GIVE ORAL DRUGS AT HOME
Follow the instructions below for every oral drug to be given at home. Also follow the instructions listed with each drug’s dosage table.

- Determine the appropriate drugs and dosage for the child’s age or weight.
- Tell the mother the reason for giving the drug to the child.
- Demonstrate how to measure a dose.
- Watch the mother practice measuring a dose by herself.
- Ask the mother to give the first dose to her child.
- Explain carefully how to give the drug, then label and package the drug.
- If more than one drug will be given, collect, count and package each drug separately.
- Explain that all the oral drug tablets or syrups must be used to finish the course of treatment, even if the child gets better.
- Check the mother’s understanding before she leaves the clinic.

**Figure 4.6: Giving Amoxicillin at home**

**Give an Appropriate Oral Antibiotic**

- **FOR PNEUMONIA, ACUTE EAR INFECTION:**
  - FIRST-LINE ANTIBiotic: Oral Amoxicillin

<table>
<thead>
<tr>
<th>AGE or WEIGHT</th>
<th>AMOXICILLIN*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Give twice daily for 5 days</td>
</tr>
<tr>
<td></td>
<td>TABLET 200 mg</td>
</tr>
<tr>
<td>2 months up to 12 months (4 - 10 kg)</td>
<td>1</td>
</tr>
<tr>
<td>12 months up to 3 years (10 - 14 kg)</td>
<td>2</td>
</tr>
<tr>
<td>3 years up to 5 years (14-19 kg)</td>
<td>3</td>
</tr>
</tbody>
</table>

  * Amoxicillin is the recommended first-line drug of choice in the treatment of pneumonia due to its efficacy and increasing high resistance to cotrimoxazole.

- **FOR PROPHYLAXIS IN HIV CONFIRMED OR EXPOSED CHILD:**
  - ANTIBIOTIC FOR PROPHYLAXIS: Oral Cotrimoxazole

<table>
<thead>
<tr>
<th>AGE</th>
<th>COTRIMOXAZOLE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Syrup (40/200 mg/ml)</td>
</tr>
<tr>
<td>Less than 6 months</td>
<td>2.5 ml</td>
</tr>
<tr>
<td>6 months up to 5 years</td>
<td>5 ml</td>
</tr>
</tbody>
</table>

  **FOR DYSENTERY give Ciprofloxacin**

<table>
<thead>
<tr>
<th>AGE</th>
<th>CIPROFLOXACINE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Give 15 mg/kg twice daily for 3 days</td>
</tr>
<tr>
<td>Less than 6 months</td>
<td>1/2</td>
</tr>
<tr>
<td>6 months up to 5 years</td>
<td>1</td>
</tr>
</tbody>
</table>

- **FOR CHOLERA:**
  - FIRST-LINE ANTIBIOTIC FOR CHOLERA: Oral Erythromycin
  - SECOND-LINE ANTIBIOTIC FOR CHOLERA: Oral Tetracycline

<table>
<thead>
<tr>
<th>AGE or WEIGHT</th>
<th>ERYTHROMYCIN</th>
<th>TETRACYCLINE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Give four times daily for 3 days</td>
<td>Give four times daily for 3 days</td>
</tr>
<tr>
<td>2 years up to 5 years (10 - 19 kg)</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

Assessment Tools

Figure 4.7: Assessment tools for severity of pneumonia

**CHECK FOR GENERAL DANGER SIGNS**

<table>
<thead>
<tr>
<th>Auto:</th>
<th>Levels:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Is the child able to drink or breastfeed?</td>
<td>• See if the child is lethargic or unconscious.</td>
</tr>
<tr>
<td>• Does the child vomit everything?</td>
<td>• Is the child convulsing now?</td>
</tr>
<tr>
<td>• Has the child had convulsions?</td>
<td></td>
</tr>
</tbody>
</table>

- Any general danger sign
- Pink: VERY SEVERE DISEASE
- Yellow: SEVERE PNEUMONIA OR VERY SEVERE URINARY INFECTION
- Green: COUGH OR COLD
- Yellow: PNEUMONIA
- Green: COUGH OR COLD
- Green: COUGH OR COLD
- Pink: VERY SEVERE DISEASE
- Pink: VERY SEVERE DISEASE

**URGENT attention**

A child with any general danger sign needs URGENT attention; complete the assessment and any pre-referral treatment immediately so referral is not delayed.

**THEN ASK ABOUT MAIN SYMPTOMS:**

Does the child have cough or difficult breathing?

**Classify COUGH or DIFFICULT BREATHING**

- Child must be CALM

**Look, listen, feel:**

- Count the breaths in one minute.
- Look for chest retractions.
- Look and listen for stridor.
- Look and listen for wheezing.

If wheezing with either fast breathing or chest retractions:

- Give a firm of rapid acting inhaled bronchodilator for up to three times 15-20 minutes apart. Count the breaths and look for chest retractions again and then classify.

Fast breathing is:

- 2 months up to 12 months: 50 breaths per minute or more
- 12 months up to 5 years: 40 breaths per minute or more

If the child is:

- 2 months up to 12 months: Fast breathing is 50 breaths per minute or more
- 12 months up to 5 years: Fast breathing is 40 breaths per minute or more

*If pulse oximeter is available, determine oxygen saturation and refer if < 90%.

**If referral is not possible, manage the child as described in the pneumonia section of the national referral guidelines or as in WHO Pocket Book for hospital care for children.

***If wheezing or disappeared after rapidly acting bronchodilator, give an inhaled bronchodilator for 5 days.***

- If chest retractions and coughing for more than 14 days or recurrent wheezing, refer for possible TB or asthma assessment.
- Advise mother to return immediately.
- Follow-up in 3 days.

Country checklists for initiation of use of ORS/Zinc and Amoxicillin

Before the introduction of ORS/Zinc and Amoxicillin for treatment of childhood pneumonia into a country programme, the country should:

1. develop a 3–5 year plan to reduce mortality rates from diarrhoea and childhood pneumonia;
2. assess progress in controlling diarrhoea and childhood pneumonia by monitoring usage rates of Amoxicillin DT, and home-based treatment;
3. using the media and face-to-face communication, promote and refine messages on diarrhoea and childhood pneumonia prevention, home management of diarrhoea and childhood pneumonia and appropriate care-seeking;
4. prioritize improving the availability of the low osmolarity ORS, zinc and Amoxicillin DT through private and public channels;
5. craft suitable strategies to educate healthcare workers at all levels about using the ORS/Zinc and Amoxicillin DT in treating diarrhoea and childhood pneumonia respectively;
6. promote the availability of ORS/Zinc and Amoxicillin DT that are cost-effective and easily administered to both infants and children;
7. identify obstacles to the use of ORS/Zinc and Amoxicillin DT and home-based treatments in managing diarrhoea and childhood pneumonia.
References

The three most neglected family planning commodities

The Implant

Emergency Contraceptives

The Female Condom

Source: Internet
Reproductive Health Toolkit

5.1 Background

This chapter covers the three most neglected family planning commodities: implants, female condoms and emergency contraceptives (ECs).

It is estimated that, if there is improved access in the neediest communities, then almost 230,000 maternal deaths would be averted over a five-year period\(^1\).

In Sub-Saharan Africa, a woman faces a 1 in 39 lifetime risks of maternal death, compared with a risk of 1 in 4,700 among women in developed countries\(^2\). Over 220 million women in developing countries have an unmet need for modern contraception, mainly in South Asia and Sub-Saharan Africa\(^3\). Access to choices of contraceptive methods remains lower among poorer, younger, less-educated, and rural women, while it is a key pillar in reducing maternal mortality and morbidity\(^3\). Childbirth can be particularly dangerous when the births are too soon, too close together, or too many, which can be avoided by improving access to family planning choices.

Despite the range of highly effective contraceptive options available, there is nonetheless a great unmet need for contraception, particularly in the developing world. The United Nations Population Fund (UNFPA) estimates that there are around 215 million women worldwide who would like to limit or plan the number of children they have, but who are not currently using any form of contraception\(^3\).

Evidence from recent demographic and health surveys in Sub-Saharan Africa shows that contraceptive use is still low and that:

- a high proportion of births (up to 50%) are mistimed or unwanted\(^4\);
- a low proportion of women have “ever heard” or “used” ECs. For instance, only 40% of women in Kenya have ever heard of ECs and 1.7% had ever used ECs\(^5\).
Expanding access requires a holistic approach — including accurate information; up-to-date policies, enabling environment, standards and guidelines, quality training, varied service delivery models; effective communication and marketing; and proper logistics.

Following proper steps is key to successful development and implementation of mainstreaming family activities. Any country or subnational entity wishing to develop a programme should be guided by the steps or process activities: preparation and awareness creation, rapid assessment, sharing findings and reaching consensus on priorities, and developing a plan of action. Other steps include developing health system tools, training providers monitoring and supervision, programme review and evaluation, dissemination of results, and scaling up and strengthening programme sustainability.

5.2 Implants

5.2.1 Product summary

Implants are long-acting, reversible contraceptive methods that can be safely used by most women who want to space or limit their pregnancies. They are among the most effective contraceptive methods, with a clinical efficacy and lower failure rate that is indistinguishable from that of sterilization or the intrauterine device (IUD). Implants require almost no attention on the part of the user, their effectiveness is not dependent on daily or monthly action, and a woman’s fertility returns immediately after an implant is removed.

Contraceptive implants are small rods that are inserted under the skin of a woman’s upper arm to release the hormone progestin slowly and prevent pregnancy. Contraceptive implants, which are also called subdermal implants, do not contain oestrogen; therefore, they are free from the side effects associated with that hormone.

They prevent pregnancy primarily by making cervical mucus too thick for sperm to pass through it, and they also suppress ovulation in many cycles.

5.2.1.1 Types

There are three types of implants accessible in different countries as indicated below:

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Jadelle Implant</strong></td>
<td>Effective for up to 5 years of use</td>
</tr>
<tr>
<td>(2 Rods)</td>
<td></td>
</tr>
<tr>
<td><strong>Sino-Implant II</strong></td>
<td>Effective for up to 4 years of use</td>
</tr>
<tr>
<td>(2 Rods)</td>
<td></td>
</tr>
<tr>
<td><strong>Implanon Implant</strong></td>
<td>Effective for up to 3 years of use</td>
</tr>
<tr>
<td>(1 rod)</td>
<td></td>
</tr>
</tbody>
</table>

Source: USAID LARCPM Fact sheet
Characteristics
Composition: Implanon® (and its newer versions, called Implanon NXT® or Nexplanon®) contains 68 mg of etonorgestrel in one rod. Jadelle® and Sino-implant (II)® contain 150 mg of levonorgestrel in two rods (75 mg in each rod). Implants are small and thin: 4.0–4.3 cm long and 2.0–2.5 mm in diameter.

Mechanism of action
The implant rods release ultra-low amounts of progestin continuously into the blood, which prevents pregnancy by inhibiting ovulation and thickening cervical mucus.

Effectiveness
Implants have unmatched effectiveness — only 1 pregnancy occurs among every 2,000 implant users in the first year of use (failure rate of 0.05%). This contrasts with the resupply methods of hormonal contraception, which depend on repeated human actions. Thus, in typical use, implants are 120 times more effective than injectables (6% failure rate) and 180 times more effective than the pill (9% failure rate).

Labelled duration of use
Jadelle® is labelled for 5 years of use, Sino-implant (II)® for 4 years, and Implanon® for 3 years, though a client need not plan or commit to use the implant for the full length of its labelled use to receive it.

Advantages and benefits of using contraceptive implants
Contraceptive benefits
As a method of contraception, contraceptive implants are highly effective and safe, and they have significant benefits:

- Contraception is immediate if inserted within the first 7 days of menstrual cycle, or within the first 5 days for Implanon.
- There is no delay in return to fertility.
- They offer continuous, long-term protection.

Non-contraceptive health benefits
Implants:

- Do not affect breastfeeding;
- Reduce menstrual flow;
- Help prevent ectopic pregnancy (but do not eliminate the risk altogether);
- Protect against iron-deficiency anaemia;
- Help protect from symptomatic pelvic inflammatory disease (PID).

Limitations and side effects of contraceptive implants
This contraceptive method has the following limitations:

- Contraceptive implants must be inserted and removed by trained providers. This requires a minor surgical procedure with appropriate infection prevention practices.
- Common side effects of using implants include menstrual changes, such as irregular light spotting or bleeding, prolonged bleeding, infrequent bleeding, and amenorrhea.
- Non-menstrual side effects include headache, dizziness, nausea, breast tenderness, mood changes, weight change, and mild abdominal pain.
- Contraceptive implants do not protect against STIs, including HIV. Individuals at risk should use condoms in addition to the implants.
Eligibility for using contraceptive implants

Implants can be used by almost all women of reproductive age. Implants are suitable for women who want to delay their first pregnancy, space their pregnancies or have no more children. Implants are particularly useful for women who want a highly effective medium- or long-term method of contraception that does not require resupply, or action at the time of sexual intercourse.

All of the following categories of women are eligible to use implants, although they are sometimes incorrectly denied implants:

- young women (i.e. under 20 years old);
- nulligravid and nulliparous women (women who have not yet been pregnant or had children);
- unmarried women;
- women who have just had an abortion, miscarriage or ectopic pregnancy;
- women who smoke cigarettes (regardless of women’s age or number of cigarettes smoked);
- breastfeeding women (starting 6 weeks after childbirth);
- women who have varicose veins;
- anaemic women;
- obese women;
- HIV-positive women, or those who have AIDS, regardless of whether they are on antiretroviral (ARV) therapy or not.

The only condition for which the World Health Organization recommends that implants should not be used is current breast cancer.

Conditions for which the method is not usually recommended unless other more appropriate methods are not available or not acceptable include:

- less than 6 weeks postpartum;
- unexplained vaginal bleeding (before evaluation);
- acute deep vein thrombosis/pulmonary embolism;
- severe (decompensated) cirrhosis;
- hepatocellular adenoma;
- malignant liver tumor;
- some forms of systemic lupus erythematosus (a type of rheumatic disease).

Complications

Complications are uncommon but may include infection at the insertion site (3–7% of insertions), expulsion (extremely rare), and difficult removal.

Return to fertility

Implants are readily reversible upon removal. Return to fertility is not delayed or negatively affected. Ovulation can resume within seven days after implant removal, so women who still want to avoid pregnancy need to be counselled to start using another contraceptive method or have another implant inserted.
Return visits and follow-up

Routine follow-up is not needed once implants are in place. However, the client should be told she can and should return (or call) at any time she wants, whether for advice, reassurance, treatment of minor side effects, or removal of the implant. But in low resource setting like Africa it is recommended to do a follow up within 7 days to confirm that all is well. This is seen as a quality issue.

Continuation

Continuation rates for implants are high: 78–96% for the first year of use in clinical trials and studies in a number of countries, and 50–86% at 3 years. Menstrual irregularities are a chief reason why women discontinue implant use.

Removal services

Programmes need to ensure routine, regular, and reliable removal services for clients, beginning by planning for removal at the outset of service expansion efforts. Programmes should provide clients with a written date by which the implant needs to be removed or replaced; keep adequate records; and have a functional system of follow-up for removals.

5.2.2 Service delivery

Standards and guidelines

Box 5.1: Key points to remember

- Implants are small flexible rods or capsules placed just under the skin of the upper arm.
- Implants provide long-term pregnancy protection. Very effective for 3 to 5 years, depending on the type of implant; immediately reversible.
- Require specifically trained provider to insert and remove. A woman cannot start or stop implants on her own.
- Little required of the client once implants are in place.
- Bleeding changes are common but not harmful. Typically, prolonged irregular bleeding over the first year, and then lighter, more regular bleeding or infrequent bleeding.
- Male partner/spouse involvement is encouraged


Infection prevention practices

Although insertion and removal of implants are minor surgical procedures, careful infection prevention procedures must be followed with every client. Infection prevention during insertion and removal involves aseptic technique (performing the procedures under sterile conditions). Proper infection prevention procedures minimize the chances of blood-borne infections such as HIV and hepatitis B and infections at the insertion site. Infection at the insertion site may require early removal or cause spontaneous expulsion of implants.
**Screening to confirm eligibility for the procedure**

It is advisable that a healthcare provider should complete the Checklist for screening clients who want to initiate contraceptive implants before inserting the implant(s). In some settings, the responsibility for initiating implants may be shared — by a counsellor who completes the checklist and an appropriately trained healthcare provider who performs the counselling, takes the blood pressure and records the weight. But in the absence of this, there should be no barrier to the services.

**Key messages for providers and clients**

Before inserting the implant, the provider is encouraged to recap the following advantages and benefits with the client and check that she understands them:

- very effective;
- easy to use;
- provide continuous protection for up to 3–5 years (depending on product);
- convenient, comfortable and reversible;
- immediate return to fertility;
- side effects resolve immediately after removal;
- suitable for nearly all women;
- high continuation rates;
- it will hurt a bit to get the implant inserted and probably a bit more to get it removed;
- the implant will change your bleeding pattern and probably will cause lighter bleeding and fewer days of bleeding, irregular bleeding that lasts more than 8 days, infrequent bleeding, or no monthly bleeding;
- the insertion and removal procedures may bruise your arm and leave a small visible scar;
- the implant does not protect you or your partner from sexually transmitted infections, including HIV.

**Procedure checklist**

Family planning providers are encouraged to use the procedure checklist to ensure that the procedure is done safely after screening to confirm eligibility:

**Getting ready**

- Have the client wash her entire arm and hand (the one she uses less often) with soap and water, and dry with clean towel or air-dry.
- Cover the procedure table and arm support with a clean cloth.
- Ask the client to lie on her back on the table so that the arm in which the implants will be placed is turned outwards and bent at the elbow and is well supported.
- Prepare a clean instrument tray and open the sterile instrument pack without touching the instruments or other items.
- For Jadelle and Sino-Implant (II), carefully open the sterile pouch containing the implants by pulling apart the sheets of the pouch and, without touching the rods, allowing them to fall into a sterile cup or bowl.
- For Implanon, remove the sterile applicator with the preloaded implant from the package by allowing it to fall on the sterile tray without touching it.

**Before insertion**

- Wash hands thoroughly with soap and water and dry with clean towel or air-dry.
- Put sterile gloves on both hands before each procedure.
- Clean the insertion site with a sterile cotton or gauze swab soaked in antiseptic solution and held in a sterile or high-level disinfected forceps.
• Use a sterile surgical drape with a hole in it to cover the arm. The hole should be large enough to expose the entire area where the implants will lie once they are inserted.
• When giving local anaesthetic, use a new disposable syringe and needle, from a sealed package. An auto-disable syringe is preferable.
• Inject 2 ml of 1% lidocaine applied just under the skin, raising a wheal at the insertion point and advancing up to 5 cm along the insertion track. Gently massage the area of infiltration.
• Check for anaesthetic effect before making skin incision.

During insertion

_Jadelle_ and _Sino-Implant (II)_:
• To minimize risk of infection and/or expulsion, make sure that the ends of the rods nearest to the incision are not too close (not less than 5 mm) to the incision. If the tip of the rod protrude from or is too close to the incision, it should be carefully removed and reinserted in the proper position. Also, to enable easy removal of both rods from a single incision, it is important that the ends of the rods closest to the incision are not farther apart, one from the next, than the width (not length) of one implant.
• While inserting the implants, try not to remove the trocar from the incision. Keeping the trocar in place minimizes tissue trauma, decreases the chances of infection, and minimizes insertion time.
• Insert trocar directly subdermally superficially.
• While tenting the skin, advance trocar and plunger to mark (1) nearest hub of trocar.
• Remove plunger and load first rod into trocar with gloved hand or forceps.
• Reinsert plunger and advance it until resistance is felt.
• Hold plunger firmly in place with one hand and slide trocar out of incision until it reaches plunger handle.
• Withdraw trocar and plunger together until mark (2) nearest trocar tip, just clear of incision (do not remove trocar from skin).
• Move tip of trocar away from end of rod and hold rod out of the path of the trocar.
• Redirect trocar about 15° and advance trocar and plunger to mark (1).
• Insert the second rod using the same technique.
• Palpate rods to check that two rods have been inserted in a V-distribution.
• Palpate incision to check that both rods are 5 mm clear of incision.
• Remove trocar only after insertion of second rod.
• Optionally ask the client to palpate the two rods prior to dressing.

_Implanon_
• Using no-touch technique, remove the sterile disposable one-rod implant applicator from its blister pack and remove the needle shield. (Make sure not to touch the part of the needle to be introduced into the body).
• Hold the applicator just above the needle at the textured surface area and remove the transparent protection cap from the needle containing the implant.
• Visually verify the presence of the implant inside the metal part of the needle.
• Stretch the skin around the insertion site with thumb and index finger or alternatively, stretch the insertion site skin by slightly pulling with thumb.
• Using the needle, puncture the skin at a 30° angle and insert only up to the bevel of the needle.
• Lower the applicator to the horizontal position so that it is parallel to the surface of the skin while continuing to tent or lift the skin with the needle tip.
• While lifting the skin with the tip of the needle, slide the needle to its full length toward the guide mark.
• Make sure that the entire length of the needle is inserted under the skin.
• While keeping the applicator in the same position and the needle inserted to its full length with one hand.
• Unlock the purple slider by pushing it slightly down using the other free hand.
• Move the slider fully back until it stops, leaving the implant now in its final subdermal position and locking the needle inside the body of the applicator.
• After confirming that the rod is in the applicator, remove the needle shield. Without the needle shield, the implant can fall out, so keep the applicator in the upright position until the moment of insertion. If it falls out or if contamination otherwise occurs, use a new package with a new sterile applicator.
• Remove the applicator.
• Palpate to check that one rod is in place. Optionally ask the client to palpate the implant prior to dressing.

**After insertion**

- Press down on the incision with gauze for a minute or so to stop any bleeding, and then clean the area around the insertion site with an antiseptic solution on a swab.
- Use an adhesive bandage or surgical tape with sterile cotton to cover the insertion site. Check for any bleeding. Cover with a dry compress and wrap gauze around arm tight enough to provide some compression to minimize bleeding under the skin (haematoma), but not so tight that it will cause pain and paleness in the arm.
- Dispose of the single-use applicator (for Implanon) and used disposable syringes and needles in a puncture-resistant container.
- Dispose of contaminated objects (gauze, cotton, and other waste items) in a properly marked leak-proof container with a tight-fitting lid or in a plastic bag.
- Remove drape and wipe the client’s skin with alcohol.
- Bring edges of incision together and close it using surgical tape, then cover it with a Band-Aid or tape on a sterile gauze.
- Apply pressure dressing snugly.
- Before removing gloves, dispose materials by:
  - placing used needle (without capping) and trocar in sharps container, and
  - placing waste materials in leak-proof container or plastic bag.
- Remove gloves by turning inside out and place in leak-proof container or plastic bag.
• Wash hands thoroughly and dry them.
• Complete client record, including drawing position of rods.

**Specific instructions to client after insertion**

- Keep insertion area dry for 4–5 days
- Can remove bandage after 2 days but leave adhesive plaster for 5 days
- Come back to the clinic after 7 days or if there is any concern, e.g.
  - fever
  - swelling of the arm
  - bleeding from site
  - severe pain

**Note:** Sites that offer insertion must provide removal facilities, including counselling and other alternative methods.

**Removal**

Providers must not refuse or delay when a woman asks to have her implants removed, whatever her reason, whether it is personal or medical. All staff must understand and agree that she must not be pressured or forced to continue using implants.

**Explaining the removal procedure**

A woman needs to know what will happen during removal. The following description can help explain the procedure to her. The same removal procedure is used for all types of implants.

- The provider uses proper infection prevention procedures.
- The woman receives an injection of local anaesthetic under the skin of her arm to prevent pain during implant removal. This injection may sting. She stays fully awake throughout the procedure.
- The healthcare provider makes a small incision in the skin on the inside of the upper arm, near the site of insertion.
- The provider uses an instrument to pull out each implant. A woman may feel tugging, slight pain, or soreness during the procedure and for a few days after.
- The provider closes the incision with an adhesive bandage. Stitches are not needed. An elastic bandage may be placed over the adhesive bandage to apply gentle pressure for 2 or 3 days and keep down swelling.
- If a woman wants new implants, they are placed above or below the site of the previous implants or in the other arm.

**Service delivery models or approaches for use**

Expanding access to and use of implants requires a holistic approach — including accurate information; up-to-date policies and guidelines; quality training, supervision, and services; effective communication and marketing; and proper logistics.

Effective approaches for expanding access to implant services help service providers implement a variety of implant-related activities:

- **Integrated services:** Increasingly more women are accessing integrated maternal, newborn and child health services — attending antenatal clinics, giving birth in facilities, and bringing their children for immunization, nutrition, and other child health services. Reaching women who are already at facilities is an effective way to educate, counsel, and offer family planning services, including implants.
- **Post-abortion:** In general, all modern methods of FP, including implants can be used immediately after uterine evacuation, provided there are no severe complications requiring further treatment. The client receives adequate counselling, and the client makes an informed and voluntary choice of method.

- **Immunization:** Routine immunization sessions offer an opportunity to reach many women at one time with information about postpartum family planning and contraceptive options. Immunization providers can use the Systematic Screening tool to identify and offer or refer women who want family planning to the appropriate service delivery point — often a service within the same facility. Dedicated providers who have been trained can also participate in immunization sessions — either through mobile visits or as dedicated providers based at the facility — enabling women who choose implants to receive this service before returning home.

- **Nutrition and other child health services:** The content and timing of postpartum family planning and nutrition messages are mutually reinforcing. Following birth, women are encouraged to breastfeed exclusively for 6 months, which coincides with the period for practicing the lactation amenorrhea. At 6 months, complementary feeding is introduced for the baby, and the mothers who are practicing lactation amenorrhea should transition to another modern contraceptive method. Nutritional feedings should be continued for the infant through 2 years of age, and mothers are advised to continue using a family planning method and wait until the child is at least 2 years old before attempting to become pregnant. Other child health visits — to the household by community health workers or at the facility — are opportunities for health workers to discuss women's contraceptive needs and offer or refer them for family planning services.

- **Use in HIV:** Demand for and use of contraceptives among HIV-positive women mirrors that of the general population of women. HIV-positive women can enjoy a long and full life and should have access to the same counselling and voluntary choice of family planning methods, including implants like all women of reproductive age.

- **Screening for cervical and breast cancers:** These services can be used as entry points for contraceptives information and services, including implants.

- **Mobile outreach:** Mobile outreach for family planning is defined as family planning services provided by a mobile team of trained providers from a higher-level health facility or non-governmental organization (NGO) to a lower-level facility or area with limited or no family planning or health services. Mobile outreach services are a way to provide a full range of family planning methods to underserved communities or to bring complementary family planning services for implants to facilities and communities where only short-acting methods (pills, injections, condoms) are available. Critical components for mobile outreach family planning services include providing information about and mobilizing the community for the visit, counselling clients to ensure informed and voluntary choice, a setting where quality family planning services can be safely provided, and ensuring a process for follow-up or referral for management of side effects.

- **Task shifting/sharing:** Many countries are experiencing human resource shortages or inequitable distribution of highly skilled health staff, particularly physicians and midwives. As a result, there have been concerted efforts to address these shortages and inequities by training other cadres of health workers to provide long-term methods like implants insertion and removal. Clinical officers are being trained in tubal ligation and no-scalpel vasectomy. Nurses and midwifery assistants are being trained in implants and IUDs. District health officers are being trained as supervisors.

- **Social franchise private providers:** Social franchises for family planning are a branded network of private providers who agree to offer a package of family planning and reproductive health services and adhere to quality standards into their practices. They can be trained to offer implant services within their package of family planning services, and many integrate these services with maternal and child health services that they provide. Social marketing approaches are
often used to advertise these services and their prices to consumers. To expand further access to family planning, some private providers offer vouchers to low-income women and men to offset the costs of these family planning services.

### 5.2.3 Job aids for implants

1. Contraceptive methods comparing effectiveness
2. How to be reasonably sure a client is not pregnant
3. Checklist for screening clients who want to initiate contraceptive implants
4. Quick reference chart for the WHO medical eligibility criteria for contraceptive use
5. Samples of the implant
6. IMPLANON™: Reference guide
7. Arm model
8. Locally available tools including the electronic version of instruction available in Malawi and Zambia
9. Job Aid for warning signs

*Figure 5.4: Contraceptive methods comparing effectiveness*

![Contraceptive methods comparing effectiveness](image-url)
5.3 The female condom

5.3.1 Product Summary
The female condom is made of thin, transparent soft plastic (polyurethane)\textsuperscript{13}.
- Has flexible rings at both ends
- One ring at the closed end helps to insert the condom
- The ring at the open end holds part of the condom and covers the vulva
- It works by forming a barrier that keeps sperm out of the vagina, preventing pregnancy. Also keeps infections in semen or vaginal fluid from infecting the other partner\textsuperscript{14}.

\textbf{Figure 5.5: Female condom samples}

\textbf{Types}
The types of female condoms include latex and rubber. Brand names include Care, Dominique, FC Female Condom, Femidom, Femy, Myfemy, Protectiv', Reality and Woman's Condom, L'amour, Reddy Female Condom, V Amour, and VA w.o.w. Condom Feminine, which are made of latex, and the FC 2 Female Condom lubricated with a silicone-based lubricant on the inside and outside.

5.3.2 Service delivery
\textbf{Standards and guidelines}

\begin{itemize}
\item Female condoms help protect against sexually transmitted infections, including HIV. Condoms are the only contraceptive method that can protect against both pregnancy and sexually transmitted infections.
\item Require correct use with every act of sex for greatest effectiveness.
\item A woman can initiate female condom use, but the method requires her partner’s cooperation.
\item May require some practice. Inserting and removing the female condom from the vagina becomes easier with experience.
\end{itemize}

\textbf{Box 5.2: Key points for providers and clients}

Who can use the female condom?15

All women of reproductive age of any parity, including nulliparous women, can use a female condom. The female condom is appropriate in many circumstances:

• women who need to rule out possible pregnancy before proceeding with another method;
• women who need a backup method;
• women who need temporary methods of contraception;
• post-abortion clients before initiating other methods;
• women who need dual protection if they are using another method for pregnancy prevention, but are at a risk of acquiring an STI or HIV/AIDS (e.g. a woman who has more than one partner, or a woman whose partner has more than one partner);
• women who do not want any hormonal contraceptive;
• women on their menstrual periods.

Advantages and benefits of using female condoms15

(a) Contraceptive benefits

• They are effective in preventing pregnancy if used consistently and correctly. When used correctly with every act of sex, about 95 pregnancies are prevented per 100 women using female condoms over the first year.
• They offer contraception only when needed.
• They do not disrupt clients’ fertility.

(b) Other benefits

• With consistent and proper use, condoms are highly effective protection against STIs, including HIV/AIDS.
• They protect against PID.
• No health risk is associated with the method.
• Few pregnancies or infections occur due to incorrect use, slips, or breaks.
• The woman can control this method.
• Almost every woman is eligible to use this method.
• It can be inserted 8 hours before an anticipated sexual act.
• There is no need to see a healthcare provider before use.
• Condoms are easy to use with a little practice.
• Unlike latex rubber, there is no known allergy to polyurethane, the material from which female condoms are made.

Limitations of female condoms

Female condoms have the following limitations:

• The effectiveness of the female condom is slightly less than the male condom. The failure rate is about 5% in perfect use, and 21% in typical use16.
• Condom must be inserted before sexual intercourse (although they can be inserted in advance — as much as eight hours)14.

Follow-up14

Assure every client that she and her partner are welcome to come back any time — for example, if they have, questions, or want another method; she has any major change in health status; or she thinks she might be pregnant. Also if:

• she has difficulty using female condoms correctly.
• she recently had unprotected sex and wants to avoid pregnancy. She may be able to use ECPs
### Facts about female condoms

- Cannot get lost in the woman’s body.
- Are not difficult to use, but correct use needs to be learned.
- Do not have holes through which HIV can pass.
- Can be used by married couples. They are not only for use outside marriage.
- Do not cause illness in a woman because they prevent semen or sperm from entering her body.
- Adolescents can use them.
- No medical conditions prevent the use of this method.

### Table 5.1: The 5 basic steps of using a female condom

<table>
<thead>
<tr>
<th>Basic steps</th>
<th>Important details</th>
</tr>
</thead>
</table>
| 1. Use a new female condom for each round of sex | • Check the condom package. Do not use if torn or damaged. Avoid using a condom past the expiration date  
• If possible, wash your hands with mild soap and clean water before inserting the condom  
• Avoid using sharps or your teeth to open the pack |
| 2. Before any physical contact, insert the condom into the vagina | • Can be inserted up to 8 hours before sex. For the most protection, insert the condom before the penis comes in contact with the vagina  
• Choose a position that is comfortable for insertion — squat, raise one leg, sit at the edge of the chair or bed or lie down  
• Rub the sides of the female condom together to spread the lubricant evenly.  
• Grasp the ring at the closed end, and squeeze with your thumb and index finger to form a figure of eight  
• With the other hand, separate the outer lips (labia) and locate the opening of the vagina  
• Gently push the inner ring into the vagina as far up as it will go. Insert a finger into the condom to push it into correct & comfortable position. About 2 to 3 centimetres of the condom and the outer ring remain at the vulva |
| 3. Ensure that the penis enters the condom and stays inside the condom | • The woman should carefully guide the tip of his penis inside the condom — not between the condom and the wall of the vagina. If his penis goes outside the condom, withdraw and try again  
• If the condom is accidentally pulled out of the vagina or pushed into it during sex, put the condom back in place |
| 4. After the man withdraws his penis, hold the outer ring of the condom, twist to seal in fluids, and gently pull it out of the vagina | • The female condom does not need to be removed immediately after sex  
• Remove the condom before standing up, to avoid spilling semen  
• If the couple has sex again, they should use a new condom  
• Reuse of female condoms is not recommended |
| 5. Dispose of the used condom safely | • Wrap the condom in its package and put it in the rubbish and burn or throw into the pit latrine. Do not put the condom into a flush toilet, as it can cause problems with plumbing |

### Table 5.2: Supporting the new user

<table>
<thead>
<tr>
<th>Basic steps</th>
<th>Important details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Ensure client understands correct use</strong></td>
<td>• Ask the client for a return demonstration on a model if a model is available, the client can practice inserting the condom in the model and then taking it out • Suggest to a new user that she practices putting in and taking out the condom before the next time she has sex • Reassure her that correct use becomes easier with practice. A woman may need to use the female condom several times before she is comfortable with it • The female condom is slippery. Some women find insertion easier if they put it in slowly, especially the first few times • If a client is switching from another method to the female condom, suggest that she continue with the previous method until she can use the female condom with confidence</td>
</tr>
<tr>
<td><strong>2. Ask the client how many condoms she thinks she will need until she can return</strong></td>
<td>• Give plenty of condoms • Tell the client where she can get female condoms, if needed</td>
</tr>
<tr>
<td><strong>3. Explain why using a condom with every act of sex is important</strong></td>
<td>• Just one unprotected act of sex can lead to pregnancy or STI — or both • If a condom is not used for one act of sex, try to use one the next time. A mistake once or twice does not mean that it is pointless to use condoms in the future</td>
</tr>
<tr>
<td><strong>4. Explain about emergency contraceptive pills (ECPs)</strong></td>
<td>• Explain ECP use in case of errors in condom use to help prevent pregnancy. Advise on and give ECPs, if available</td>
</tr>
<tr>
<td><strong>5. Discuss ways to talk about using condoms</strong></td>
<td>• Discuss skills and techniques for negotiating condom use with partners</td>
</tr>
</tbody>
</table>


### Helping continuing users
- Ask how the client is doing with the method and whether she is satisfied or has any questions or anything to discuss, especially if she has any trouble using female condoms correctly. Give her any information or help that she needs.
- Give her more female condoms and encourage her to come back for more before her supply runs out. Remind her where else she can obtain female condoms.
- Ask a long-term client about major life changes that may affect her needs — particularly plans for having children and STI/HIV risk. Follow up as needed.
- Inform the client that she should always have an extra condom at hand.

### Managing problems
Problems may or may not be due to the method:
- Problems with condoms affect clients’ satisfaction and use of the method. Clients deserve the provider’s attention. If the client reports any problems, listen to her concerns and give advice.
- Offer to help the client choose another method — now, if she wishes, or if problems cannot be overcome — unless condoms are needed for protection from STIs, including HIV.

#### Inner ring uncomfortable or painful
- Suggest that she reinsert or reposition the condom so that the inner ring is tucked back behind the pubic bone and out of the way.

#### Condom squeaks or makes noise during sex
- Suggest adding more lubricant to the inside of the condom or onto the penis.
Condom slips, is not used, or is used incorrectly

- EC can help prevent pregnancy
- Advice client to use post-exposure prophylaxis (PEP) in case a condom breaks, slips, or is not used correctly.
- If the client has signs or symptoms of STIs after having unprotected sex, assess or refer.
- If a client reports slips, she may be inserting the female condom incorrectly. Ask her to show how she is inserting the condom, using a model and correct any errors.

Difficulty persuading partner to use condoms or not able to use a condom every time

- Discuss ways to talk with her partner about the importance of condom use for protection from pregnancy and STIs.

Mild irritation in or around the vagina or penis (itching, redness, or rash)

- Usually goes away on its own without treatment.
- Suggest adding lubricant to the inside of the condom or onto the penis to reduce rubbing that may cause irritation.
- If symptoms persist, assess and treat for possible vaginal infection or STI, as appropriate.
  - If there is no infection, help the client choose another method unless the client is at risk for STIs, including HIV
  - For clients at risk of STIs, including HIV, suggest using male condoms. If using male condoms is not possible, urge continued use of female condoms despite discomfort.
  - If neither partner has an infection, a mutually faithful sexual relationship provides STI protection without requiring condom use but does not protect against pregnancy.

Suspected pregnancy

- Assess for pregnancy.
- A woman can safely use female condoms during pregnancy for continued STI/HIV protection.

Creating demand, increasing access

In Africa, the female condom (FC) is poorly known. It is therefore most important to the programme to invest in awareness raising, the creation of demand and increased access to the female condom. This may be done in a variety of ways and should ideally involve a range of sectors and stakeholders.

This section highlights building partnerships with parties in both the non-commercial public and the commercial private sectors, and how these may contribute to increased access to the female condom.

There are different sectors in the communities that may team up with a view to ensuring access to the female condom. There is the non-commercial not-for-profit sector that makes the female condom available in public centres like clinics, family planning centres, HIV/AIDS voluntary counselling and testing centres, and at some NGOs and/or community-based organisations (CBOs). Then there is the private sector that sells the female condom for a profit. Sales in this sector are often fueled by rebranding campaigns that help to attract consumers. Additionally, social marketing may prove to be an effective way to further create demand by addressing a common public health concern.

There is need to identify and partner with these different sectors and their subsequent approaches to creating demand and access.
(a) **Training of providers on values clarification towards attitude change on female condom**

Values clarification for attitude transformation (VCAT) is a vital training component of behavior change communication (BCC) towards realizing women’s human right to FC. Values clarification is a process in which individuals engage in honest, open-minded and critical reflection and evaluation of new or reframed information and situations, challenge deeply-held assumptions and myths and discover or potentially transform their values. Individuals also express intentions to act in a manner consistent with their affirmed values. Values clarification can produce measurable changes in attitude and behavioral intention, in turn, improving access to FC utilization.

(b) **Partnerships with public and private sectors to improve access**

Female condoms may be made available through public and private partnership by the following different players:

(i) **Non-commercial, not-for-profit**

   - **Government, (public) health:**
     - Female condoms may be made accessible through public channels, at government clinics and hospitals. Often, governments collaborate with international partners, e.g. UNFPA, to procure female condoms.
     - FCs are usually offered for free to women who come for health check, for advice on family planning, or when they visit a HIV/AIDS voluntary counselling and testing centre (VCT) or maternity clinic.

Despite being a free commodity, in many cases, the FC does not receive equal attention and promotion when compared to the male condom and other contraceptive methods. Furthermore, it tends to reach only a small proportion of the population: those who visit public health centres for sexual and reproductive health matters, often women only.

   - **Non-governmental organizations:**
     - International and national NGOs and CBOs may provide education and counselling with regard to how to use the female condom and they may distribute it. Often, an international donor or a United Nations agency, such as UNFPA, contracts these organizations to conduct female condom programming and to distribute the female condom for free.

(ii) **Social marketing:**

   - As explained in (a) above, in both sectors — public and private — demand for the female condom is often lagging behind. Social marketing has proven to be a useful strategy that can be used in creating demand and increasing access to the female condom. At the same time, both the public and private sectors are strengthened as social marketing works from within existing (distribution) structures. Overall demand for the female condom can be generated through a carefully marketed strategy, which will benefit both sectors.

(c) **Awareness and promotion**

Successful promotion of female condom use starts at micro level. Individual mindsets and attitudes need to be addressed and changed in order to encourage utilization of the product. In the areas where female condom activities are taking place, it is important to recognize and engage the community leaders and gatekeepers to galvanize their support.

For effective community education, programme managers should develop appropriate tools for community approaches and describe the engagement with private sector partners (such as hairdressers) and public sector partners (such as health clinics) and how their capacities may be built to educate and demonstrate female condom use. Awareness and promotion requires:
• Sensitization of the most subtle kind, which often means that face-to-face and repeated interaction is needed to actually reach potential users in a meaningful way.

• Collaboration with people within the communities who are in a position to invest in education, counseling and distribution of the female condom is needed. People from within the community speak the appropriate languages, are more accepted, and have networks which can all help to reach people within communities.

• Collaboration with partners at community level to help in selecting, training and supporting appointed lead trainers, community health workers/volunteers and peer educators.

Reproductive managers should note that FC programming is not finished after supplying health facilities and CBOs with female condoms, models and displaying posters. That is just the beginning. The essence of FC programming lies in working in the communities. Those who do know of the female condom will not always have a positive view of it. A lot of work needs to be done to improve utilization. The acceptance and the use of the female condom requires much education and counselling, preferably in interpersonal communication.

(d) Training female condom agents

At the community level, there is hesitance, ignorance and taboos relating to sex, sexuality and the female condom as a female controlled contraceptive method. The programme managers therefore need to identify and train female condom agents who will collaborate with people and organizations at community level that are in a position to adequately address these challenges.

There is need to have these female condom agents available within the communities to address the questions and concerns of women, men, community leaders and gatekeepers. These people will also have various networks within the community that may contribute to creating an environment in which female condom use is increasingly accepted and, hence, will eventually encourage female condom use.

(e) Male involvement

Couples are at stake when it comes to decision-making regarding sexual and reproductive health (SRH) and family planning. Key points to note:

• In female condom promotion, men are an important part of the equation too.
• Female condom promotion is not merely a matter of explaining to women how to use the product. Rather, in order to be successful, you need to address a variety of issues that may be socially or culturally sensitive. Sexual relationships, sexual pleasure and sex negotiation between men and women are not topics that many people will discuss openly.
• It is important to be aware of the fact that men and women need to be targeted equally in your programming.
• Use media campaigns, by adapting specific messages so that they will appeal to men and adolescents.
• The involvement of men in the campaign will portray the female condom as an attractive product for men who care for their partners. When broadcasting a video clip or commercial, there should be an appropriate balance between the number of men and women that are being shown.
• In some countries, so-called “men engagement/male champions” networks mobilize men who will stir the public debate on gender equality, masculinities, and the sexual and reproductive health of men and women.

(f) Media engagement

• Use the media for promotional purposes: communications should initially focus on the couple (married or unmarried).
• Community radio stations offer another communication channel with which to reach out to a large population and should be used to pass FC messages.
• When designing a promotion campaign, the concerns of men and adolescents should be included.
• Use stories and case studies from the field on the benefits of FC.

(g) Using role models to spread the word

An effective way to convince many communities to try the female condom is by having role models in society spread the positive message.

These may include:
• musicians
• football players
• religious leaders or politicians.

These role models will need support from the stakeholders involved in the female condom programme to convey accurate messages.

5.3.3 Job aids for female condoms

1. Female condom samples
2. Female condom model
3. Demonstration kit

Demonstration kit for inserting the female condom is essential. This kit includes a model depicting the vulva, which is made from soft silicone. Three non-lubricated female condoms are also included for demonstration purposes, as well as a colour plate illustrating the female anatomy and 50 leaflets on how to use the female condom.

**LINDI Pelvic Model** from Ortho Pharmaceutical is a clear plastic “cutaway” model that shows the female anatomy.
1. How to use FC2 Female Condom - Card
2. Female condom leaflets & posters
3. Chart for insertion positions
4. Frequently asked questions
Box 5.3: Frequently Asked Question and Answers about Female Condoms

1. Is the female condom difficult to use?
   No, but it does require practice and patience.

2. Can female condoms effectively prevent both pregnancy and STIs, including HIV?
   Yes. Female condoms offer dual protection, against both pregnancy and STIs, including HIV, if used consistently and correctly. Many people, however, do not use condoms every time they have sex, or do not use them correctly. This reduces protection from both pregnancy and STIs.

3. Can a female condom and a male condom be used at the same time?
   No. Male and female condoms should not be used together. This can cause friction that may lead to slipping or tearing of the condoms.

4. What is the best way to make sure the penis goes into the condom and not outside the condom?
   To avoid incorrect use, the man should carefully guide his penis and place the tip inside the outer ring of the condom. If the penis goes between the wall of the vagina and the condom, the man should withdraw and try again.

5. Can the female condom be used more than once?
   Reuse of the female condom is not recommended. Reuse of currently available female condoms has not been tested.

6. Can the female condom be used while a woman is having her monthly bleeding?
   Women can use the female condom during their monthly bleeding. The female condom cannot be used at the same time as a tampon, however. The tampon must be removed before inserting a female condom.

7. Isn’t the female condom too big to be comfortable?
   No. Female condoms are the same length as male condoms, but wider. They are very flexible and fit to the shape of the vagina. Female condoms have been carefully designed and tested to fit any woman, whatever the size of her vagina, and any man, whatever the size of his penis.

8. Can a female condom get lost inside a woman’s body?
   No. The female condom remains in a woman’s vagina until she takes it out. It cannot go past a woman’s cervix and into the womb (uterus) because it is too large for that.

9. Can the female condom be used in different sexual positions?
   Yes. The female condom can be used in any sexual position.


5.4 Emergency contraception (EC)

5.4.1 Product Summary

The term “emergency contraception” refers to several contraceptive methods that can be used to prevent pregnancy after sex. Depending on the method used, emergency contraception can reduce a woman’s risk of becoming pregnant from a single act of intercourse by 75–99%, yet this has been underutilized. 18
Types of ECs
This section is divided into two subsections:
• Emergency Contraceptive Pills (ECPs)
• Intrauterine Devices (IUDs)

Despite the availability of highly effective methods of contraception, many pregnancies are mistimed or unwanted. These pregnancies may carry a high risk of morbidity and mortality, particularly in settings where safe abortion is not accessible or where quality obstetric services are not available for those women continuing a pregnancy to term. Many of these unintended pregnancies can be avoided using ECPs.

ECPs do not cause abortion because they work before implantation. Thus ECPs prevent pregnancy by:
• Preventing or delaying ovulation,
• Inhibiting or slowing down transportation of the egg and sperm through the fallopian tubes, which prevents fertilization and implantation.

What are emergency contraceptive pills?
These are pills that contain a progestin alone, or a progestin and an estrogen together — hormones like the natural hormones progesterone and estrogen in a woman’s body.
• ECPs are sometimes called “morning after” pills or postcoital contraceptives.
• ECPs work primarily by preventing or delaying the release of eggs from the ovaries (ovulation). They do not work if a woman is already pregnant.

ECP regimens
Some pills are packaged and labeled specifically for emergency contraception (EC).

• 1 tablet of levonorgestrel 1.5 mg, or 2 tablets of levonorgestrel 0.75 mg, also known as Postinor 2 labelled to be taken twice 12 hours apart (but can safely be taken together).
• Certain types of ordinary birth control pills can also be used as EC (known as the “Yuzpe regimen”). For example, combined oral contraceptives (Nordette, Microgynon, Femiplan) — 4 start and then repeat 4 after 12 hours or mini-pills (Microval, Microlut and Ovrette) — 20 start and repeat 20 after 12 hours.
• All ECPs can be taken up to 5 days after unprotected sex but are more effective the sooner they are taken.

Note: Like all oral contraception, ECPs and intrauterine devices (IUDs) used for EC do not provide protection against sexually transmitted infections (STIs) or HIV/AIDS.

Indication
ECPs are indicated to prevent pregnancy after unprotected or inadequately protected sex.

Eligibility
ECPs should not be used in place of regular family planning methods. It should be emphasized that ECPs contain a much higher dose of the hormones compared to the regular hormonal contraceptive methods.
They should be used only in an emergency, for example:
- sex took place without contraception, and the woman wants to avoid pregnancy;
- a woman has run out of oral contraceptives, has missed 2 or more progesting-only pills (POPs), or is more than 4 weeks late for her depot medroxyprogesterone acetate (DMPA) injection and has had unprotected intercourse;
- a woman has had coerced sexual intercourse, such as rape;
- a condom has broken;
- an IUD has come out of place.

**When to take emergency contraceptive pills**²⁰
- Preferably as soon as possible after unprotected sex but up to 5 days after unprotected sex.

**Effectiveness of emergency contraceptive pills**¹⁹
- The levonorgestrel regimen reduces pregnancy risk by at least half and possibly by as much as 80–90% for one act of unprotected intercourse.
- Regular oral contraceptives used as EC (the “Yuzpe regimen”) are less effective (75–89%).

**Mechanism of action**¹⁹
- The primary mechanism is disruption of ovulation. Other mechanisms have been postulated but are not well supported by data.
- No evidence supports the theory that ECPs interfere with the implantation of a fertilized egg. ECPs do not cause abortion of an existing pregnancy.

**Safety**¹⁹
ECPs have no known medically serious complications. Side effects may include:
- altered bleeding patterns
- nausea and vomiting
- headache
- abdominal pain
- breast tenderness
- dizziness and fatigue.

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*Note: ECPs do not appear to be harmful if inadvertently taken in pregnancy.*

**Precautions and contraindications:** ECPs have no medical contraindications. They should not be taken to terminate pregnancy because they will not work.

**Clinical screening:** No need for any examinations or laboratory tests before taking ECPs.

**Repeated ECP use:** ECPs are not intended for deliberate repeated use or use as a regular, routine contraceptive method. After using ECPs, women who do not wish to become pregnant in the future are advised to initiate or resume using an established ongoing contraceptive. No specific data are available about the efficacy or safety of frequent use of current ECP regimens. However, at least 10 studies have confirmed that levonorgestrel 0.75 mg administered multiple times per cycle causes no serious adverse effects; the most common side effect was irregular bleeding²¹. Some experts recommend that no more than one dose is needed in a 24-hour period.
ECPs can be used as often as needed, but do not need to be taken more than once every 24 hours if multiple acts of unprotected sex occur. Repeat use of ECPs is perfectly safe, but ECPs are not recommended as a regular, routine contraceptive method because they are not the most effective contraceptive method available.

**Drug interactions:** No specific data are available about interactions of ECPs with other drugs. However, it seems reasonable to assume that drug interactions with the levonorgestrel regimen might be similar to those with regular daily oral contraceptive pills. Thus, efficacy of this regimen may be reduced by concomitant use of drugs that may reduce oral contraceptive efficacy (including but not limited to rifampicin, griseofulvin, and certain anticonvulsant drugs).

Women who are using these drugs or have taken them in the past month and need emergency contraception should consider using a copper-bearing IUD. If the levonorgestrel ECP regimen is selected, some experts recommend taking double the dose (3 mg levonorgestrel).

**Follow-up after ECP:** No scheduled follow-up is required after ECP use. But if one has not had a menstrual period by 3 weeks after taking ECPs, she should consider that she may be pregnant. However, she should be encouraged to follow-up care if she:
- needs ongoing contraception or wishes to switch methods;
- has not had a menstrual period by 3 weeks after taking the ECPs, as this could be a sign of pregnancy;
- has irregular bleeding with lower abdominal pain more than a few days after taking ECPs, as these could be symptoms of an ectopic pregnancy;
- desires evaluation for sexually transmitted infections;
- needs management of issues related to rape;
- has any other health concerns.

**Possible reasons for EC failure:**
- taking EC after stipulated time
- inappropriate dosing
- expired drugs
- poor drug storage
- poor quality.

**Intrauterine Device (IUDs)**

While emergency contraceptive pills (ECPs) are commonly used, a copper intrauterine device (IUD) placed after unprotected sex is the most effective form of EC. Placing a copper IUD within 5 days of unprotected sex offers usually an effectiveness of 99.2–99.4% yet copper IUDs are rarely recommended by health providers. The efficacy of Copper T380 IUD has been confirmed to be up to 12 years and beyond.

Although a copper IUD must be inserted by a trained clinician, it has three main advantages over ECPs:
- IUDs are much more effective than ECPs at reducing a woman’s chance of pregnancy after unprotected intercourse.
- IUDs can be inserted up to 5 days after unprotected intercourse with no reduction in effectiveness over time.
- IUDs can be left in place for as long as 12 or more years to provide reversible contraception that is as effective as sterilization.

IUDs have been safely used to prevent pregnancy by millions of women around the world, and as emergency contraception for at least 35 years.
**Effectiveness of the copper IUD for EC**

Pregnancy rates in the month following placement of a copper-bearing IUD for EC are very low. A systematic review of IUDs used as EC including 7,034 women found a pregnancy rate of less than 0.1%24. So, if 1,000 women have a copper IUD inserted for EC, zero or 1 would be expected to become pregnant that month25.

**How the IUD works as EC**

The copper-bearing IUD primarily works by inhibiting fertilization, although the mechanism of action when inserted post-coitally is less clear26. These IUDs release copper particles that disrupt the sperm and ovum function before they meet and cause physiologic changes in the uterus and Fallopian tubes. Post-coital placement of an IUD for EC likely involves the same mechanisms of interference with fertilization, but may also prevent implantation of a fertilized egg27.

**Eligibility for IUD use for EC**

Any woman who is not pregnant and wishes to avoid pregnancy can use an IUD.

**Can women at risk of STIs use IUDs?**

The risk of infection following copper IUD insertion for EC is low. Women presenting for emergency contraception are likely to be at some risk for sexually transmitted infections (STIs) as they probably have not used barrier methods effectively. Clinicians should assess the individual’s STI risk, and test as needed. Women diagnosed with gonorrhea or chlamydia infections should be rapidly treated along with their partners, and tested for reinfection three months after treatment. Women who have been sexually assaulted may be at particular risk of STIs. Thus, screening should be done routinely if possible at the time of IUD EC insertion for any women presenting for EC after rape.

**Can adolescents use IUDs?**

IUDs are a safe and effective method of EC for adolescents and offer the added benefit of continued highly effective contraception. IUDs can be used by women who have not previously had a pregnancy. IUDs may be a highly effective birth control method for adolescents given that adolescents have higher birth control continuation rates and lower unintended pregnancy rates with methods that do not require daily adherence or decisions at the time of intercourse. Providers should clearly explain to clients how to identify signs of expulsion and how to proceed if the IUD is no longer in place.

The American College of Obstetricians and Gynaecologists (ACOG) encourages providers to consider the IUD as a first-line choice of contraception for adolescents. However, studies have shown that very few adolescents and young women use IUDs, many physicians do not offer the IUD to their younger patients, and knowledge of IUDs is low among adolescents and young women.

**Who can insert IUD?**

The IUD has significantly more service delivery requirements: it must be inserted by a trained reproductive healthcare provider in a health facility.

**5.4.2 Service delivery**

*Standards and guidelines*

National service delivery norms often set policies for provision of contraceptives. While they may not be legally binding, these norms lay out what is expected of public sector service providers.
These methods include several kinds of Emergency Contraceptives (ECs) as well as insertion of an intrauterine device (IUD). While ECPs are commonly used, a copper intrauterine device (IUD) placed after unprotected sex is the most effective form of EC. They offer women an important second chance to prevent pregnancy when a regular method fails, no method was used, or sex was forced or condom breaks.28

To increase access to emergency contraception, national norms should include clear guidance for provision of EC to all women who seek it, including advance provision of prescriptions or products to appropriate candidates. Policies set by professional groups — such as nursing and midwifery associations, OB/GYN societies, and pharmacy boards — may also influence access to EC since professional opinions and statements can sway policymakers who might be uninformed about the science of EC.28

It is also recommended that, for anybody providing ECs, the messaging should include information on voluntary counselling testing (VCT) and post exposure prophylaxis (PEP) to ensure no missed opportunity for HIV prevention. All staff offering FP services should be encouraged to provide information and counselling to women with questions about EC.

Integrating VCAT training into EC skills and knowledge training: values clarification for attitude transformation (VCAT) is a vital training component of behavior change communication (BCC) towards realizing women's human right to EC.

Values clarification is a process in which individuals engage in honest, open-minded and critical reflection and evaluation of new or reframed information and situations, challenge deeply-held assumptions and myths, and discover or potentially transform their values. Individuals also express intentions to act in a manner consistent with their affirmed values. Values clarification can produce measurable changes in attitude and behavioral intention. The training contributes towards provider attitude change which is perceived as one of the barriers to EC in most of the countries.

Service delivery models
Due to the short timeframe during which the ECs are effective, unique service delivery models are recommended to ensure access so that women and young girls can benefit maximally through different service delivery models.

Box 5.4: Key points for providers and clients

- Emergency contraceptives help to prevent pregnancy when taken up to 5 days after unprotected sex. The sooner they are taken, the better.
- They do not disrupt an existing pregnancy.
- Safe for all women — even women who cannot use ongoing hormonal contraceptive methods.
- Provide an opportunity for women to start using an ongoing family planning method.
- Many options can be used as emergency contraceptives. Dedicated products, progestin-only pills, and combined oral contraceptives all can act as emergency contraceptives.
- Male partner/spouse involvement is encouraged.

Clinical model

Regionally, millions of refugees and internally displaced persons (IDPs) have left their homes due to conflicts, wars, and natural disasters. Forced displacement, exposure to violence and poverty, and separation from families and communities expose refugees and IDPs to extraordinary difficulties, including increased risk of rape and other gender-based violence. Women and adolescents are vulnerable to sexual abuse committed by combatants, as well as by men wielding power in the refugee camps, host-country, and even humanitarian communities.

To make matters worse, women in conflict settings often do not have access to regular family planning methods to protect against unwanted pregnancies. For these women and girls, access to EC is a critical need. Access to EC can help these women and girls to maintain control over their fertility during these otherwise extremely difficult, unpredictable circumstances.

Emergency contraception provides women and girls with the opportunity to avoid unplanned pregnancies and can reduce the risk of death or illness due to complications from childbirth or unsafe abortion.

Emergency contraception is a critical component of comprehensive post-rape care for women. However, sexual assault survivors often face obstacles in accessing EC products and information. Not all public healthcare systems or police stations, where women often report sexual violence, stock EC. Nor do many front-line rape responders, such as law enforcement officers and social workers, receive training on EC. Global guidance from international policy-making bodies suggests that failure to ensure on-site EC provision to rape survivors jeopardizes women’s health and violates their human rights. Governments should implement and enforce policies that guarantee EC provision in these situations. Health care facilities should support EC for sexual assault survivors, and where appropriate non-health professionals should be authorized to provide ECs or referrals.

Youth-friendly services

For many adolescent girls, protection against pregnancy can be a matter of life and death, as complications from adolescent pregnancy and childbirth are the leading causes of death among adolescent girls ages 15–19 in low- and middle-income countries.

While abstinence is the most reliable way to prevent pregnancy and STIs, the majority of people become sexually active as adolescents. Unfortunately, young women often lack information about and access to ongoing family planning methods and services, face social mores that discourage them from “planning” to have sex, and experience difficulty negotiating contraceptive use. These factors make EC a particularly critical option for young women by offering them a valuable second chance to avoid an unplanned pregnancy. The services can be offered through:

- youth centres
- youth-friendly clinics
- community safe spaces
- peer providers.

Community level model

When a woman must visit a health facility prior to accessing ECs, she often has to delay due to many factors in rural communities in Africa. This presents a significant barrier for many women, especially those who lack access to transportation or who live in the hard to reach rural areas without easy access to health providers or pharmacies. Moreover, requiring a prescription makes access to ECs on weekends and at night (when many contraceptive mishaps occur) more difficult.
Because of the short timeframe during which ECs are effective, unique service delivery issues arise in ensuring that women can benefit maximally from ECs thus the need to decentralize services to the community level.

To facilitate access, ECs should be readily available where other medicines are traditionally dispensed in the region. Because no clinician screening or assessment is needed and women can decide on their own whether it is needed, ECs may appropriately be sold over-the-counter, as they are in most countries. However, if women may have difficulty obtaining ECs because a prescription is required or for some other reason, providers and programmes may use the following approaches to ensure that women can obtain and use this treatment quickly:

• provide an advance prescription or supply;
• prescribe by telephone — tele-prescription.

**Health education and promotion for demand creation**

Every effort should be made to ensure that all women and men are informed about ECs before the need arises. Culturally appropriate messages should be developed to reach large audience for awareness creation.

**Key messages include:**

- A woman who does not want to be pregnant should consider using ECs any time she has sex that was not adequately protected by effective contraception;
- She should try to obtain and use the emergency contraceptive as promptly as possible;
- ECs are not intended for ongoing, routine contraception; an established method is recommended for that purpose;
- Every woman should know where and how she can obtain ECs in her community;
- Men should be adequately informed about the use of ECs.

Providers and programmes may disseminate these messages through numerous approaches. These include:

- routinely informing women about ECs at all visits to clinics, pharmacies, or other facilities where health care is provided, including during community visits;
- informing post-abortion clients about ECs;
- including information about ECs on maternal health/family planning clinic or pharmacy fliers;
- distributing information about ECs as part of other contraceptive services;
- integrating information about ECs in gender-based violence and health education programmes in schools, youth centres, or other venues;
- including information about ECs and ideally ECP supplies as part of post-rape care.

**Bridging EC users to other RH services**

Emergency contraception providers are expected to explain the mode of action of ECPs to the client, including the fact that EC is not 100% effective at preventing pregnancy. Unless in the case of rape (and woman is not sexually active), providers are expected to discuss the use of a regular FP method and emphasize that ECPs are for emergency use only. All providers are supposed to inform users of all FP methods available and that the FP methods (except condoms) do not protect women against STIs, including HIV/AIDS. Many women who need EC also need protection from STIs and HIV. Counselling on EC is an opportunity to discuss the risks and prevention options for STIs, including HIV/AIDS, and the need for counselling and testing services. Refer client for regular FP and other RH services. Women who have been raped or traumatized need also to be referred for more comprehensive medical and psychosocial care, including PEP.
**Initiating regular contraceptives after EC use method**

The following table describes contraceptive methods for use following EC. Key information should include available contraceptives, benefits of the methods, and where methods can be accessed.

**Table 5.3: Methods and when to start**

<table>
<thead>
<tr>
<th>Method</th>
<th>When to start</th>
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<tbody>
<tr>
<td>Condoms or other barrier methods</td>
<td>• Start using immediately at the next sexual act</td>
</tr>
<tr>
<td>Hormonal methods</td>
<td>• Start using immediately – that is the same day or the following day. Use a</td>
</tr>
<tr>
<td>- Oral Contraceptives</td>
<td>    barrier method until menses resume</td>
</tr>
<tr>
<td>- Injectables</td>
<td>• Oral contraceptives:</td>
</tr>
<tr>
<td>- Implants</td>
<td>    • new users should begin a new pill pack</td>
</tr>
<tr>
<td>- Intrauterine systems</td>
<td>    • a continuing user who needed ECPs due to error can resume use as before</td>
</tr>
<tr>
<td>- All women need to use a backup method for the first 7 days of using their method</td>
<td>    • If an IUD was used as an EC method, then it can be left in situ as a regular</td>
</tr>
<tr>
<td>- Alternatively start after the next menstrual period</td>
<td>    method if preferred by the client</td>
</tr>
<tr>
<td>Copper-bearing Intrauterine device</td>
<td>• A copper-bearing IUD inserted within 5 days after sex will provide highly</td>
</tr>
<tr>
<td>Fertility awareness methods</td>
<td>        effective emergency contraception</td>
</tr>
<tr>
<td>Standard days method</td>
<td>• If a woman wants a copper bearing IUD inserted more than five days after</td>
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<td></td>
<td>        using ECPs, it may be inserted after the start of her next menstrual period</td>
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**Table 5.4: Steps for developing and mainstreaming a family planning programme**

<table>
<thead>
<tr>
<th>Key steps</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>A. Preparation, advocacy, and creation of awareness</td>
<td>This step involves organizing meetings of key persons or officials in the departments responsible for reproductive health matters including FP and those responsible for registration and regulation of drugs as well as distribution of FP commodities. The purpose of this step is to agree on the main issues and next steps jointly by both the private stakeholders. In countries, where the commodities have already been registered, this step can be skipped or can be brief depending on local context.</td>
</tr>
<tr>
<td>B. Rapid assessment</td>
<td>Rapid assessment of service needs, regulatory requirements, and service delivery capabilities among other things is a critical step in the provision of information to guide the mainstreaming plan for the program. Important activities during the assessment include:</td>
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<td>• Identifying factors that influence patterns of choice and potential use in both public and private sectors;</td>
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<td></td>
<td>• Understanding user perspectives and the service delivery system;</td>
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<td></td>
<td>• Identifying the service delivery and managerial adaptations necessary to provide quality services;</td>
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<tr>
<td></td>
<td>• Assessing providers’ knowledge, attitudes, and practices and</td>
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<tr>
<td></td>
<td>• Using the outcomes of these activities to develop national strategies for the introduction and subsequent widespread availability of the methods.</td>
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<tr>
<td>Section</td>
<td>Description</td>
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<tr>
<td><strong>C. Sharing findings and reaching consensus on priorities</strong></td>
<td>Involving a broad range of stakeholders to participate in sharing the results of the rapid assessment is an important strategy for cultivating ownership. For instance, the pharmaceutical society could make presentations on findings from the private sector while government officials could make presentations on findings from the public sector facilities. Findings on user perspectives could be presented by a research institution. This participatory approach also presents a good opportunity for identifying various skills among in-country teams. A key step in consensus building is for the in-country team to choose products and discuss procurement plans. In-country teams are advised to choose products that are already registered in the country.</td>
</tr>
<tr>
<td><strong>D. Developing a plan of action</strong></td>
<td>After reviewing the findings from the rapid assessment, the next logical step for the in-country teams is to develop a plan of action based on the agreed priority activities.</td>
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<tr>
<td><strong>E. Strengthening health system tools (e.g. registers, stock cards, others)</strong></td>
<td>In order to track progress regarding the mainstreaming of M&amp;E tools — e.g., family planning registers, stock cards, reporting forms — will have to be modified or redesigned to incorporate additional columns that health care providers will use to enter new related data. This step should also include the development of job aids or mass media messages for clients on the use of the methods and where to obtain them, among others.</td>
</tr>
<tr>
<td><strong>F. Training providers</strong></td>
<td>Providers will need training in issues related to attitude change and skills including the special counseling needs of special clients. Of key importance is ensuring that providers treat women respectfully and maintain a non-judgmental attitude while providing services. The training related service delivery provides an opportunity to strengthen provider knowledge and skills concerning the new contraceptive methods; the importance of their routine use; and sexually transmitted infections (STIs/HIV risk) assessment, diagnosis, and management. Information must also be incorporated as part of overall training on family planning, including all basic and refresher training for service providers. It must be stressed in all training activities, however, that EC does not protect against STIs/HIV or subsequent unprotected intercourse.</td>
</tr>
<tr>
<td><strong>G. Introduction and distribution</strong></td>
<td>This step focuses on introducing the new products into the market and distributing them through acceptable or authorized channels so as to reach clients. In addition to the normal family planning programme service delivery points, such as MCH/FP clinics and community-based distribution systems, the distribution should be considered through a variety of other channels. These include private health practitioners, hospital emergency rooms, pharmacies, social marketing programs, school or university-based clinics, and sexual assault crisis centres.</td>
</tr>
<tr>
<td><strong>H. Monitoring and supervision</strong></td>
<td>Monitoring and supervision should be conducted routinely to assess key components of the programme including the functioning of the logistics system, provider activities, whether users are accessing the services and emerging challenges, among others.</td>
</tr>
<tr>
<td>I. Program evaluation</td>
<td>Evaluation activities should include assessments of user and provider perceptions and experiences and of the service delivery channels through which they are being provided. Evaluation activities can assist in ensuring that the implantation is on track.</td>
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</table>
| J. Dissemination of results | • The evaluation results should be disseminated to a broad group of stakeholders.  
• The results should form the basis of developing strategies for scaling up with emphasis on the need to enhance quality services. |
| K. Scaling up and strengthening programme sustainability | In-country stakeholders will, on the basis of evaluation results, plan for the scale-up of the activities in other parts of the country so as to increase national coverage. Such a plan has to be agreed upon by many stakeholders given its financial and administrative implications. The interest of in-country stakeholders, including MOH, in sustaining the activities is to ensure that current programme activities and the proposed ones together with the benefits they produce are continued long after the initial funding would have stopped, especially from development partners. Hence the need for in-country teams to develop sustainable FP programmes. Such programmes should consider taking into account factors such as the need to provide high-quality services, providing management support for activities such as planning and supervision, ensuring broad-based commitment by policymakers and public–private partnerships which are critical elements in ensuring programme sustainability. |

5.4.3 Job Aids for Emergency Contraceptives

1. Three things to know about ECs (http://www.cecm.info.org/custom-content/uploads/2013/03/2013RH_ECToolkit.pdf)

   - EC pills are 60-90% effective at reducing the risk of pregnancy if taken within five days after unprotected sex
   - The earlier EC is taken, the better it works

2. Checklist for Screening Clients Who Want to Initiate Use of the (Copper IUD)

3. Balanced Counseling Strategy brochures

4. How to Be Reasonably Sure a Client is Not Pregnant

5. Quick Reference Chart for the WHO Medical Eligibility Criteria for Contraceptive Use

6. Samples of IUD

7. Hand-held uterine model.
References


## Appendix - List of Contributors

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<td>46</td>
<td>Mr Norman Lufesi</td>
<td>Ministry of Health, Malawi</td>
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<td>47</td>
<td>Professor Ellen Chirwa</td>
<td>Kamuzu College of Nursing, University of Malawi</td>
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<td>48</td>
<td>Mrs Fannie Kachale</td>
<td>Director, Reproductive Health Services, Ministry of Health, Malawi</td>
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<td>Attafu Getachew Asfaw</td>
<td>UNICEF, Malawi</td>
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<td>John Phuka</td>
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<td>Harriete Chanza</td>
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<td>52</td>
<td>Beatrice M. Zulu</td>
<td>General Nursing Council, Zambia</td>
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<td>Dr Samson Chisele</td>
<td>University Teaching Hospital, Lusaka, Zambia</td>
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<td>Mary Kaoma</td>
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<td>Dr Nancy Zongwe</td>
<td>FHI 360 Zambia</td>
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<td>Dr George Mukupa Chansa</td>
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<td>57</td>
<td>Dr Thulani Magwali</td>
<td>Department of Obstetrics and Gynaecology, College of Health Sciences, University of Zimbabwe</td>
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<td>Dr Abebe Gobeze</td>
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<td>Banyana Moatshe</td>
<td>Marina Hospital, Ministry of Health, Botswana</td>
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<td>Veronica Leburu</td>
<td>Sexual Reproductive Health Unit, Ministry of Health, Botswana</td>
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<td>62</td>
<td>Makhabiso Ramphoma</td>
<td>Lesotho</td>
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<td><strong>FRANCOPHONE PARTICIPANTS</strong></td>
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<td>63</td>
<td>Dr Elhadj Ousseynour Faye</td>
<td>Direction de la Santé Reproduction et de la Survie de l'Enfant/Ministere de la Santé et de l\’Action Sociale</td>
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<td>64</td>
<td>Dr Yaay Joor Dieng</td>
<td>Hôpital d'Enfants Albert Royer</td>
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<td>65</td>
<td>Mme Fall Marieme</td>
<td>Intrahealth International Sacre–Coeur Pyrotechnique</td>
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<td>Hadje Falmata Boukar Kaila</td>
<td>Hôpital de la Mère et l\’Enfant (HME)</td>
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<td>67</td>
<td>Dr Mahamat Pierre</td>
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<td>Dr Adoum Attimer Khadija</td>
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<td>69</td>
<td>Dr M’bortche Bingo Kignomon</td>
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<td>70</td>
<td>Dr Azoumah Deladem Komi</td>
<td>Ecole Nationale des Sages-Femmes/CHU</td>
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<td>71</td>
<td>Mme Adandogou D’almeida Heloise Adjowa</td>
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## Appendix - List of Contributors

### BENIN
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<th>No.</th>
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<td>72</td>
<td>Dr Agbohoui Olga</td>
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<td>73</td>
<td>Prof De Souza Jose</td>
<td>Centre Hospitalier Universitaire</td>
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<td>74</td>
<td>Mme Monteiro Laurence</td>
<td>Centre Hospitalier Universitaire</td>
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### NIGER
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<tr>
<td>75</td>
<td>Dr Hinsa Solange Diori</td>
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<tr>
<td>76</td>
<td>Dr Garba Madeleine</td>
<td>Maternite Issaka GAZOBI</td>
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<td>77</td>
<td>Mme Zaharatou Gaoh</td>
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### MALI
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<td>78</td>
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<td>80</td>
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### BURKINA FASO
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<td>Mme Traore Augusta Binta</td>
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<td>Hospital Universitaire Yalgado Ouedraogo</td>
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### COTE D’IVOIRE
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### LUSOPHONE PARTICIPANTS

#### MOZAMBIQUE
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<td>87</td>
<td>Adrianno Guiruggo</td>
<td>Ministry of Health, Mozambique</td>
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<td>88</td>
<td>Ms Anchieta Mario Mujovo</td>
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<td>89</td>
<td>Ms Ernestina F. S. Maia</td>
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<td>90</td>
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<td>91</td>
<td>Ms. Olga Antonio Sigaúque</td>
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<td>Mrs Sibone Mocumbi</td>
<td>Hospital Central de Maputo</td>
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<td>Ms Natália Chilaule</td>
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<td>Prof Dr Nafissa Osman</td>
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<td>96</td>
<td>Dr Ivone Zilhão</td>
<td>Pathfinder International</td>
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#### GUINEA BISSAU
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<td>97</td>
<td>Mrs Delfim R. Silva Cabral</td>
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<td>98</td>
<td>Ms Lenira Sibino Sa Gomes</td>
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#### SÃO TOME AND PRINCIPE
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<td>Ms Eulalia Sebastiana Bandeira</td>
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<td>100</td>
<td>Ms Swaslanne da Silva Batista de Sousa Bandeira</td>
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