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Interagency list of priority medical devices for essential interventions for reproductive, maternal, newborn and child health

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Interagency list of priority medical devices for essential interventions for reproductive, maternal, newborn and child health.

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Interagency list of priority medical devices for essential interventions for reproductive, maternal, newborn and child health

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- *Interagency list of essential medical devices for reproductive health, (*2008);
- *Packages of interventions for family planning, safe abortion care, maternal, newborn and child health* (2010);
- *Essential interventions, commodities and guidelines for reproductive, maternal, newborn and child health* (2011).

The current document was developed from June 2012 to January 2014 through the continuous collaboration of a core working group of professionals from the following organizations:

- UNFPA: Agnes Chidanyika, Wilma Doedens, Isabel Lucas Manzano.
- UNICEF: Monique Supiot, Etleva Kadilli, Shauna Mullally, Helene Moller, Ludo Scheerlinck and Clara Aranda.
- WHO Department of Essential Medicines and Health Products (EMP): Yukiko Nakatani, Laura Alejandra Velez Ruiz Gaitan, Adriana Velazquez Berumen.
- Various WHO departments: Benedetta Allegranzi, Maurice Bucagu, James Farukai Tsimba Chitsva, Neelam Dhingra-Kumar, Mario Philip Festin, Claudia M. Garcia Moreno Esteva, Selma Khamassi, Viviana Mangiaterra, Meena Nathan Cherian, Teri Reynolds, Severin Ritter von Xylander, Anita Sands, Sheryl Ziemin Vanderpoel, Wilson Milton Were, Teodora Elvira Wi, Susan Wilburn and interns: Alicia De Hoyos Reyes, Jennette Leung, Nataly Mercado, Megan M Smith, Grace Wu and consultant Jean Poluta.

The document was developed under the overall coordination of Adriana Velazquez and supervision of Gilles Forte and Kees de Joncheere of the WHO Department EMP. Technical support was received from Bernadette Daelmans, WHO Department of Mother and Child Health who provided supervision for the development of the children's section, and from Kim Eva Dickson, UNICEF.

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Abbreviations

MDG	Millennium Development Goal
UN	United Nations
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
WHO	World Health Organization

Colour codes

- Family planning and reproductive health
- Pregnancy/maternal health
- Childbirth
- Post-Natal Mother
- Post-Natal Baby (Newborn)
- Infancy and childhood
- Clinical transfusion
- Laboratory
- Surgery and anesthesia
- Injection safety
- Health care facilities

Overview

This publication is composed of the following sections:

Section 1

Describes the background, objectives, methodology and related definitions in the context of the current document.

Section 2

Includes the list of essential interventions in reference with current WHO evidence-based guidelines for reproductive, maternal, newborn and child health.

Section 3

Includes the sources of medical devices for the development of each matrix of medical devices by level of health care facility.

Section 4

Presents the matrix of medical devices per continuum of care, for clinical procedures for reproductive, maternal, newborn and child health, by level of health care facility, from health post to health centre to district hospital. The information is presented in 16 tables. Specific medical devices have been grouped under one name to avoid having a complicated extensive list of devices by intervention. For further analysis, the groupings of these devices are explained in Section 3.2. For example, to find the medical devices for intervention for pregnant women in a district hospital, please see the table entitled “Medical devices for pregnancy at district hospital”.

Section 5

Lists medical devices and commodities for laboratory and blood bank. The laboratory supply is listed by 4 levels of health care facility. The essential commodities for blood bank are listed by the steps of procedure for blood transfusion.

Section 6

Notes important guidance for providing safe surgery and anaesthesia and lists common surgical instruments by surgical procedure in the matrix of medical devices in Section 4.

Section 7

Describes key programs and technical information related to infection prevention and control in health care facilities such as injection safety, sterilization and waste management.

Section 8

Guides technical point of view on health technology management including specifications and standards for quality of health products.

Section 9

Points out other health products required in health care facilities to provide comprehensive services.

Definitions

Health technology

Health technology is the application of organized knowledge and skills in the form of devices, medicines, vaccines, procedures and systems developed to solve a health problem and improve quality of life. The term is used interchangeably with "health care technology" (1).

Medical device

In the current document, the definition of medical devices, including in vitro diagnostic medical devices, is based on that documented by the Global Harmonization Task Force, a voluntary group of representatives from medical device regulatory authorities and regulated industry (2):

"Medical device" means any instrument, apparatus, implement, machine, appliance, implant, reagent for in vitro use, software, material or other similar or related article, intended by the manufacturer to be used, alone or in combination, for human beings, for one or more of the specific medical purpose(s) of:

- diagnosis, prevention, monitoring, treatment or alleviation of disease;
- diagnosis, monitoring, treatment, alleviation of or compensation for an injury;
- investigation, replacement, modification, or support of the anatomy or of a physiological process;
- supporting or sustaining life;
- control of conception;
- disinfection of medical devices;
- providing information by means of in vitro examination of specimens derived from the human body;

and does not achieve its primary intended action by pharmacological, immunological or metabolic means, in or on the human body, but which may be assisted in its intended function by such means.

Products that may be considered to be medical devices in some jurisdictions but not in others include:

- disinfection substances;
- aids for people with disabilities;
- devices incorporating animal or human tissues;
- devices for in vitro fertilization or assisted reproduction technologies.

In vitro diagnostic medical devices are medical devices, whether used alone or in combination, intended by the manufacturer for the in vitro examination of specimens derived from the human body solely or principally to provide information for diagnostic, monitoring or compatibility purposes. In vitro diagnostic medical devices include reagents, calibrators, control materials, specimen receptacles, software, and related instruments, apparatus and other articles and are used for diagnosis, aiding diagnosis, screening, monitoring, predisposition and prognosis prediction, and determination of physiological status.

In some jurisdictions, certain in vitro diagnostic medical devices may be covered by other regulations (3).

References

1. WHO 60.29 Health Technologies Resolution (http://apps.who.int/iris/bitstream/10665/22609/1/A60_R29-en.pdf?ua=1)
2. Definition of the terms "medical device" and "in vitro diagnostic (IVD) medical device". GHTF/SG1/N071:2012. Tokyo: Global Harmonization Task Force; 2012 (http://www.imdrf.org/docs/ghtf/final/sg1/technical-docs/ghtf-sg1-n071-2012-definition-of-terms-120516.pdf, accessed 22 May 2014).
3. Medical devices: managing the mismatch – an outcome of the Priority Medical Devices project. Geneva: World Health Organization; 2010 (http://whqlibdoc.who.int/publications/2010/9789241564045_eng.pdf, accessed 22 May 2014).

1. Background and methodology

1.1 Introduction

At the present, the beginning of the twenty first century, many scientific, social, economic and technological advances have been made in health care. Yet every day, approximately 1000 women die from pregnancy-related complications and childbirth, most of them in sub-Saharan Africa and South Asia (1). For every maternal death, another 30 women suffer long-lasting injury or illness that can result in lifelong pain, disability and socioeconomic exclusion. And every day, about 10 000 babies aged 28 days or younger die (2).

This situation is unacceptable, as most of these deaths can be prevented. Millennium Development Goals (MDGs) 4 and 5 call for a reduction in child mortality and improvements in maternal health, respectively (3).

New strategies have to be implemented to support the lives of these children and mothers. Innovative coordinated efforts are needed to achieve the MDGs and provide a better life for mothers and children, especially in low-resource settings.

In July 2008, the heads of the United Nations Population Fund (UNFPA), the United Nations Children's Fund (UNICEF), the World Bank and the World Health Organization (WHO) endorsed a working document that aimed to harmonize the support provided by these agencies to accelerate progress towards achieving MDGs 4 and 5 and to improve reproductive health (4). Resulting from this joint agreement, the need to prioritize the 25 countries with the highest burden of maternal mortality, and then identify the needs and gaps in those countries and define the necessary actions, was recognized. This agreement for joint work between agencies was called the H4 Partnership.

One of the partnership's objectives was to update the Interagency list of priority medical devices for essential interventions for reproductive, maternal, newborn and child health. This work was done through a UNFPA, UNICEF and WHO collaboration.

Strengthening health systems, and supporting universal health coverage, educating the population, and finding innovative technologies will support the delivery of better health services to achieve the MDGs.

Health systems should also include adequate health infrastructure, available information, good policies, available human resources for health, and appropriate, affordable health technologies, including medical devices, medicines and vaccines.

Medical devices are indispensable tools for health care in prevention, diagnosis, treatment and rehabilitation, but their selection and appropriate use pose a significant challenge for essential reproductive, maternal, newborn and child health interventions.

1.2 Objective

The objective of this project was to list the medical devices required to provide the essential reproductive, maternal, newborn and child health interventions defined by existing WHO guidelines and publications, in order to improve access to these devices in low- and middle-income countries, support quality of care, and strengthen health care system. The medical devices are allocated across the reproductive, maternal, newborn and child health continuum of care according to the level of health care delivery.

1.3 Scope

In the context of this document, the scope was defined as:

- Health interventions are limited to reproductive, maternal, newborn and child health, based on WHO recommendations.
- The level of health care delivery is defined by the publication "Essential interventions, commodities and guidelines for reproductive, maternal, newborn and child health" (5) and is detailed in the next section. This classification defines three levels of care: community level/health post, health centre and district hospital. It should be reviewed and adapted to the local context as needed.
- The lists represent the technological options currently available, by type of medical device and hospital furniture. These lists should be adapted and reviewed according to national policies and regulatory frameworks.
- The target audience of this document consists of health professionals in the areas of reproductive, maternal, newborn and child health policies, strategic planning, health technology assessment, resource allocation, procurement, biomedical engineering, regulation, facility assessment and reproductive health specialties.
- Given the importance of the intervention generated, and in order to facilitate the use of these tools, a parallel web-based medical devices database is being developed. This database will contain all the interventions, levels of care, medical devices and technical information, increasing the availability of the data and facilitating decision-making.

1.4 Background methodology, workshops and peer-review meetings

The current document was developed by a consensus of UNICEF, UNFPA and WHO to update and expand the existing publications to describe more specifically the medical devices required for essential clinical interventions in reproductive, maternal, newborn and child health (Box 1).

Box 1. Development process of the current document

JUNE 2012

UNFPA, UNICEF and WHO held the first consultation on the Interagency list of essential medical devices and medicines for reproductive, maternal, newborn and child health in Copenhagen, Denmark, to define the scope of the project and devise a workplan. The following WHO publications were reviewed to determine the scope of the project by defining the continuum of care, the level of health care facilities, and the medical devices associated with clinical interventions:

Interagency list of essential medical devices for reproductive health, 2008 (hereafter, 'Interagency list, 2008') (6);

Packages of interventions for family planning, safe abortion care, maternal, newborn and child health, 2010 (hereafter, 'Packages of interventions') (7);

Essential interventions, commodities and guidelines for reproductive, maternal, newborn and child health, 2011 (hereafter, 'Essential interventions') (5).

Figure 1 Previous publications

AUGUST 2012

A second meeting was held in Geneva, Switzerland during which experts in specific clinical areas could complete and verify the available information. A larger working group was invited to collaborate in the development and review of the data. The specialists were from the areas of blood transfusion, injection safety, safe surgery, diagnostic and laboratory work, reproductive health, maternal health, neonatal health, waste management, sexually transmitted infections, infertility and cancer. These peer reviews led to the first draft of the list in accordance with the latest recommendations by WHO.

NOVEMBER 2012

A third meeting (Geneva) redefined the levels of care included in the first draft of the list, reflecting the importance of having an accurate list of medical devices to accommodate complex clinical areas. The referral level of care was split into district hospital and referral hospital.

FEBRUARY 2013

The objectives of a fourth meeting (Copenhagen) were to agree on the most appropriate classification of medical devices, reviewing the specialists' inputs, and investigating an appropriate way to present the information to end users.

MAY 2013

First draft was presented to the members of the Interagency Pharmaceutical Coordination group, which includes the World Bank, the Global Fund to Fight AIDS, Tuberculosis and Malaria, UNICEF, UNFPA and WHO. The group supported the development of this tool, considered it useful for planning purposes and suggested it be linked to lists for procurement.

NOVEMBER 2013

A workshop was held during the Second WHO Global Forum on Medical Devices (Geneva), during which comments regarding the use and implementation of the tool were received by approximately 40 participants from different countries.

JANUARY 2014

A fifth meeting was held (Copenhagen) to review and agree on the final version of the document, including the grouping of commodities.

Throughout the entire process, the core working group held regular teleconferences to define medical devices necessary for each intervention at each level of health care facility related to existing WHO guidelines and publications.

1.5 Methodology

1.5.1 Identification of levels of care and health care facilities

To develop the current document, the definitions of level of care and health care facilities were derived from *Essential interventions* (5). The classifications for interventions and medical devices proposed for these facilities should be adapted to national regulations and the local context. To ensure relevance of the continuum of care in the local environment, results in a continuum of care for the patient.

According to the staff, capabilities, type of care and interventions required, three levels of delivery of care were defined (Table 1):

Table 1. Level of care and health care facility

Level of care	Health care facility
Community level	Health post
First level	Health centre
Referral level	District hospital or Referral hospital

COMMUNITY LEVEL

The health post level includes community health workers and outreach workers that deliver interventions related to safe motherhood, nutrition and simple prevention and treatment. The community level of care is context-specific depending on the availability and development of infrastructure, services and socioeconomic resources.

FIRST LEVEL

The health center level incudes trained health professionals. The interventions offered are related to maternity care (such as prenatal care, skilled birth attendance and family planning), childhood diseases (such as vaccine-preventable diseases, acute respiratory infections and diarrhoea), and prevention and treatment of major infectious diseases. These health facilities include outpatient services and observation areas for patients staying longer but do not generally include inpatient areas. They might have a labour room and outpatient surgery areas.

REFERRAL LEVEL

This level of delivery of interventions requires more complex facilities and equipment, such as hospitals where providers are professional practitioners. In the current document, only district hospitals are considered in the reference tables. District hospitals usually include outpatient and inpatient areas, emergency services, surgical areas, health professionals and infrastructure in at least the following four areas of specialization: internal medicine, surgery, paediatrics and obstetric care. Many district hospitals also include other special areas, depending on the settings, context and resources available.

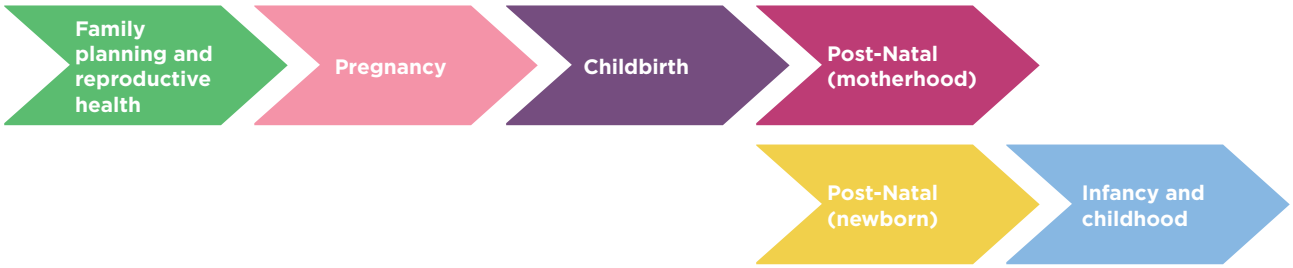
Medical devices for highly specialized hospitals and other specialized technologies such as intensive care are described in Annex 3.

1.5.2 Identification of essential interventions

With the objective of harmonizing an evidence-based set of essential interventions for reproductive, maternal, newborn and child health, two publications were used as the basis for the review and analysis for compiling the current document: *Essential interventions (5)* and *Packages of interventions (7).*

Following the same strategy as the two previous reports, the current document interventions were classified by level of care, across the reproductive, maternal, newborn and child health continuum of care stages (Figure 2):

Figure 2. Reproductive, maternal, newborn and child health continuum of health care



Source: Adapted from PMNCH fact sheet: RMNCH continuum of care. Geneva: World Health Organization; 2011 (http://www.who.int/pmnch/media/press_materials/fs/continuum_of_care/en/index.html, accessed 22 May 2014).

- family planning and reproductive health;
- pregnancy;
- childbirth;
- postnatal mother (up to six weeks after childbirth);
- postnatal baby (up to two months after birth);
- infancy and childhood (up to age five years).

Derived from this classification, research sought areas where updates were required in terms of interventions, commodities and facilities.

The continued review of interventions and sub-interventions was due to the fact that different medical devices are required by sub-interventions, for example the diagnosis and the treatment of anaemia.

Some clinical procedures for reproductive, maternal, newborn and child health and related medical devices are not presented in this publication because they do not impact on the scope of the project to reduce maternal and newborn mortality from a public health approach.

1.5.3 Systematic search for evidence and documentation

Essential interventions (5) responds to the need to deliver information on evidence-based interventions and categorize them into three groups (Table 2). Interventions with well-documented evidence and an agreed delivery strategy fall into category A. Category B includes interventions that do not have consensus on the delivery strategy. Category C includes interventions with no evidence or consensus on the delivery strategy. Further research on these interventions, mostly from category A, leads to the identification of the required commodities (medical devices and medicines) described or named in the clinical guidelines and reports.

Table 2. Classification of interventions

Category	Evidence for intervention categories	Delivery strategies	Action
A	Intervention evidence agreed	Delivery strategy agreed	Disseminate for rapid scale-up
B	Intervention evidence agreed	Delivery strategy no consensus	Collate evidence and define gaps in evidence for delivery strategies – seek consensus
C	Intervention evidence still questioned	Delivery strategy no consensus	Further research required

Source: Essential interventions, commodities and guidelines for reproductive, maternal, newborn and child health. Geneva: World Health Organization; 2011 (http://www.who.int/pmnch/topics/part_publications/essential_interventions_18_01_2012.pdf, accessed 22 May 2014).

Although evidence on the use of medicines is well documented, evidence is not widely available for medical devices, especially with regard to their performance in low-resource settings. In the literature review, case studies of medical devices used in high-income settings were found, but their applicability to low-resource settings is uncertain and not yet proven. Thus, a list of evidence-based guidelines and reports related to reproductive, maternal, newborn and child health was compiled, devices included in the current document were identified from clinical guidelines and later revised by the core working group and WHO specialists. This revision process was also applied to the interventions.

1.5.4 Identification of commodities

In the areas of reproductive, maternal, newborn and child health, the commodities listed in Essential interventions (5) considered the Interagency list, 2008 (6), Packages of interventions (7) and the recommendations from the UN Commission on Life-Saving Commodities (8), comprising 13 life-saving commodities such as female condoms, neonatal resuscitation equipment and injectable antibiotics.

The development of the medical devices section of the current document followed the methodology described in the Priority Medical Devices report from WHO (9): (1) identify the disease burden of the target population, (2) select the associated WHO evidence base clinical guidelines, (3) identify care pathways and protocols, (4) list medical devices according to the protocols and type of intervention (preventive, diagnostic, therapeutic or assistive), and (5) develop a list of medical devices needed to manage and treat the identified diseases.

The development of the medical devices list is based on the Interagency list, 2008 (6) and UNICEF's Supply Catalogue (10). Based on this methodology, the medical devices were identified according to the interventions for reproductive, maternal, newborn and child health.

The list of medical devices had to be organized into categories and sub-categories to facilitate grouping and to make the list more user-friendly. This process was challenging because no WHO global harmonized nomenclature system currently exists for medical devices. Many of the terms used in the current document are based on the UNICEF reference specifications for the devices included in the UNICEF standard product range (10). These terms were used because they are commonly used in low- and middle-income countries. The list does not represent the complete description of the medical devices, particularly complex devices; the list must therefore be used as a reference, and technical specifications for these devices must be reviewed and developed thoroughly for planning purposes.

The current document is not a restrictive list of priority medical devices: it covers only the minimum reference for the equipment of medical units to ensure that clinical interventions can be provided in a complete, safe and effective manner. Other devices can be added to match the specific infrastructure settings.

1.6 References

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2. The state of the world's children 2009: maternal and newborn health. New York: United Nations Children's Fund; 2008 (http://www.unicef.org/cotedivoire/SOWC_2009_.pdf, accessed 22 May 2014).
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10. UNICEF supply catalogue. New York: United Nations Children's Fund; 2014 (https://supply.unicef.org/unicef_b2c/app/displayApp/%28layout=7.0-12_1_66_67_115&carea=%24ROOT%29/.do?rf=y, accessed 22 May 2014).

2. Evidence-based guidelines, and essential interventions for reproductive, maternal, newborn and child health

This section includes the sources of information for the development of each table of medical devices by level of health care facility.

2.1 Essential interventions for reproductive, maternal, newborn and child health

Based on Essential interventions (1), Table 3 contains the priority clinical interventions provided during the continuum of care for reproductive, maternal, newborn and child health, divided into six different stages:

- family planning and reproductive health;
- pregnancy;
- childbirth;
- postnatal mother;
- postnatal baby (newborn);
- infancy and childhood.

The column "Continuum of care" corresponds to the six stages of the continuum of care.

The column "General action" corresponds to the interventions listed chronologically, from the first assessment with necessary emergency and pre-referral treatment through definitive diagnosis and treatment of infections and illness, and ending with surgery or in some cases further referral.

The column "Conditions" corresponds to the specific conditions related to the interventions.

The column "Steps of specific procedures" corresponds to the steps or procedures applied to deliver each intervention; the steps are labelled (a), (b), (c) and (d) to clarify the chronological steps for some procedures.

In the table, each procedure shows the health care facility (health post, health centre or district hospital) where it would be delivered according to the evidence-based guidelines presented in Tables 4–9. Note that sometimes the diagnosis can be done at a lower level than the assessment or treatment.

Table 3. Essential interventions for reproductive, maternal, newborn and child health

Continuum of Care	General action, chronological: first assessment/ emergency pre-referral treatment /diagnosis and treatment/ surgery / referral if needed	Conditions	Steps of specific procedures	HEALTH POST	HEALTH CENTER	DISTRICT HOSPITAL
Family Planning and Reproductive Health	Basic Medical Examination	Routine care	a) Check-up vital signs / measuring weight and height / Anthropometry	X	X	X
			b) Pelvic examination	X	X	X
	Preventative Immunization	Routine care	a) Vaccine for Hepatitis B	X	X	X
	Provision of contraceptives	Contraceptive method selection	a) Provision of oral contraceptives	X	X	X
			b) Provision of injectable contraceptives		X	X
			c) Insertion and removal of Intrauterine device (IUD)s		X	X
			d) Insertion and removal of contraceptive implants with local anaesthesia		X	X
			e) Provision of barriers methods	X	X	X
			f) Provision of emergency contraception	X	X	X
			g) Provision of vaginal rings and patches		X	X
			h) Vasectomy with local anaesthesia		X	X
			i) Tubal ligation			X
	Detection and management of Sexually Transmitted Infection (STI) and other infections	Syphilis	a) Screening / diagnosis of Syphilis by laboratory test	X	X	X
			b) Treatment for Syphilis		X	X
		Human Immunodeficiency Virus (HIV)	a) Screening of Human Immunodeficiency Virus (HIV)	X	X	X
			b) Treatment for Human Immunodeficiency Virus (HIV) (Antiretroviral Therapy (ART))	X	X	X
			c) Provide post exposure prophylaxis for Human Immunodeficiency Virus (HIV) discordant couple	X	X	X
		Gonorrhoea	a) Screening / diagnosis of Gonorrhoea		X	X
			b) Treatment for Gonorrhoea		X	X
		Chlamydia	a) Screening / diagnosis of Chlamydia		X	X
			b) Treatment for Chlamydia		X	X
		Malaria	a) Prophylactic antimalarial (Intermittent Preventive Treatment (IPT))	X	X	X
			b) Diagnosis of malaria	X	X	X
			c) Management of malaria	X	X	X
		Other infections	a) Diagnosis and treatment for urinary tract infections: bacteriuria, pyelonephritis		X	X
			b) Diagnosis and treatment for bacterial vaginosis, trichomonas, candidiasis		X	X
	Screening and management of cancers of the reproductive system	Cervix cancer	a) Papanicolaou test		X	X
			b) Visual Inspection with Acetic Acid (VIA)/Magnified VIA (VIAM)		X	X
			c) Human Papilloma Virus (HPV) test		X	X
			d) Colposcopy			X
			e) Colposcopy and Biopsy / Pathology lab-test			X
			f) Treatment for precancerous lesion (cryotherapy)			X
		Breast cancer	a) Breast examination	X	X	X
			b) Diagnostic by image (mammography, ultrasound)			X
			c) Biopsy / Pathology lab-test			X
	Management of gender-based violence (GBV)	Post-rape care	a) Management of post-rape care	X	X	X

Table 3. Essential interventions for reproductive, maternal, newborn and child health

Continuum of Care	General action, chronological: first assessment/ emergency pre-referral treatment /diagnosis and treatment/ surgery / referral if needed	Conditions	Steps of specific procedures	HEALTH POST	HEALTH CENTER	DISTRICT HOSPITAL
Pregnancy	Basic Medical Examination	Routine care	a) Check-up vital signs / measuring weight and height / Anthropometry/ Vaginal examination	X	X	X
	Preventative Immunization	Routine care	a) Vaccine for Tetanus	X	X	X
	Triage and basic emergency care	Acute symptoms during pregnancy	a) Basic emergency care and pre-referral treatment	X	X	X
	Detection and management of Sexually Transmitted Infection (STI) and other infections	Syphilis	a) Screening / diagnosis of Syphilis by laboratory test	X	X	X
			b) Treatment for Syphilis		X	X
		Human Immunodeficiency Virus (HIV)	a) Screening of Human Immunodeficiency Virus (HIV)	X	X	X
			b) Prevention Mother To Child Transmission (PMTCT)	X	X	X
			c) Treatment for Human Immunodeficiency Virus (HIV) (Antiretroviral Therapy (ART))	X	X	X
		Malaria	a) Prophylactic antimalarial (Intermittent Preventive Treatment (IPT))	X	X	X
			b) Diagnosis of malaria	X	X	X
			c) Management of malaria	X	X	X
		Rubella	a) Diagnosis and treatment for rubella		X	X
		Tuberculosis	a) Diagnosis and treatment for tuberculosis		X	X
		Other infections	a) Diagnosis and treatment for urinary tract infections: bacteriuria, pyelonephritis		X	X
			b) Diagnosis and treatment of other Sexually Transmitted Infection (STI) /Reproductive Tract Infections (RTI): Candida vaginitis, gonorrhoea, chlamydia, bacterial vaginosis and trichomoniasis		X	X
	Detection and management of maternal chronic medical conditions	Iron Deficiency Anaemia	a) Diagnosis of Anaemia	X	X	X
			b) Iron and folic acid supplementation	X	X	X
			c) Anthelminthic (deworm)	X	X	X
			d) Management of severe Anaemia (considering blood transfusion)			X
		Hypertension and pre-eclampsia	a) Diagnosis of Preclampsia-Eclampsia		X	X
			b) Supplemment calcium		X	X
			c) Low-dose aspirin		X	X
			d) Antihypertensive drugs		X	X
			e) Magnesium sulfate		X	X
			f) Fetal monitoring			X
			g) Induction of labour			X
		Diabetes	a) Glucose testing for detection	X	X	X
			b) Treatment for insulin-dependent diabetic mother		X	X
	Management of prelabour rupture of the membranes (PRM)	Assessment of PRM	a) Diagnosis and laboratory test		X	X
			b) Fetal monitoring		X	X
		Preterm	a) Provision antibiotics if indicated		X	X
			b) Provision of tocolytics to prolong pregnancy if indicated			X
			c) Provision of corticosteroids for prevention of neonatal respiratory distress syndrome			X
			d) Provision of magnesium sulfate for neuroprotection of the newborn			X
		Term	a) Provision antibiotics if indicated			X
			b) Induction of labour			X
	Management of malpresentation at term	Malpresentation at term	a) Diagnosis of breech at term			X
			b) External Cephalic Version			X
			c) Monitoring progress of labour			X
	Management of female genital mutilation	Female genital mutilation	a) Perineal incision with local anaesthesia			X
			b) Identify the need of caesarean section			X

Table 3. Essential interventions for reproductive, maternal, newborn and child health

Continuum of Care	General action, chronological: first assessment/ emergency pre-referral treatment /diagnosis and treatment/ surgery / referral if needed	Conditions	Steps of specific procedures	HEALTH POST	HEALTH CENTER	DISTRICT HOSPITAL
	Management of ectopic pregnancy	Ectopic pregnancy	a) Pregnancy test			X
			b) Ultrasound scan			X
			c) Laparotomy			X
			d) Blood transfusion			X
	Management of miscarriage and abortion	Miscarriage and abortion	a) Pregnancy test			X
			b) Ultrasound scan			X
		Miscarriage	a) Treatment of infections			X
			b) Management of bleeding (considering Vacuum Aspiration and blood transfusion)			X
			c) Management of major injuries (considering laparotomy)			X
		Safe abortion when indicated and legally permitted	a) Medical uterine evacuation for the first trimester			X
			b) Vacuum Aspiration for the first trimester			X
			c) Medical uterine evacuation beyond the first trimester			X
Childbirth	Basic Medical Examination	Routine care	a) Check-up vital signs / Vaginal examination		X	X
	Triage and basic emergency care	Active labor with complications	a) Basic emergency care and pre-referral treatment		X	X
	Mother care	Childbirth	a) Monitoring progress of labour		X	X
			b) Active management of the third stage of labour (AMTSL): Prophylactic use of uterotonics		X	X
			c) Spontaneous delivery		X	X
			d) Assisted delivery (vacuum extraction) if needed		X	X
	Management of complications of labour and delivery	Assessment for complications	a) Diagnosis of complications		X	X
			b) Fetal monitoring		X	X
		Postpartum haemorrhage (PPH)	a) Use of uterotonics of choice for the treatment of PPH		X	X
			b) Manual removal of placenta (include use of antibiotics and uterotonics)			X
			c) Blood transfusion			X
			d) Use of balloon tamponade			X
			e) Use of artery embolization			X
			f) Hysterectomy			X
		Caesarean section due maternal/fetal indication	a) Use of prophylactic antibiotic			X
			b) Caesarean section			X
			c) Use of uterotonics			X
		Other surgical procedures depending on the complication	a) Episiotomy			X
			b) Repair of ruptured uterus			X
			c) Correct uterine inversion			X
			d) Laparotomy or other abdominal surgical interventions during childbirth			X
			e) Craniotomy and craniocentesis			X
		Human Immunodeficiency Virus (HIV) positive women	a) Screening of Human Immunodeficiency Virus (HIV)		X	X
			b) Prevention Mother To Child Transmission (PMTCT)		X	X

Table 3. Essential interventions for reproductive, maternal, newborn and child health

Continuum of Care	General action, chronological: first assessment/ emergency pre-referral treatment /diagnosis and treatment/ surgery / referral if needed	Conditions	Steps of specific procedures	HEALTH POST	HEALTH CENTER	DISTRICT HOSPITAL
Post-Natal Mother	Basic Medical Examination	Routine care	a) Check-up vital signs	X	X	X
			b) Screening for cervix and breast cancer		X	X
		Support for breast feeding	a) Management of mastitis / breast abscess		X	X
	Triage and basic emergency care	Acute symptoms post-natal	a) Basic emergency care and pre-referral treatment		X	X
	Prevention and management of post partum bleeding	Anaemia	a) Management of post partum bleeding		X	X
			b) Diagnosis of anaemia		X	X
			c) Iron supplementation		X	X
			d) Anthelminthic (deworm)		X	X
			e) Management of severe anaemia (considering blood transfusion)			X
	Detection and management of post partum infection	Human Immunodeficiency Virus (HIV)	a) Diagnosis and treatment for Human Immunodeficiency Virus (HIV) (Antiretroviral Therapy (ART))		X	X
		Malaria	a) Diagnosis and management of malaria		X	X
		Other infection	a) Diagnosis and management of postpartum endometritis and salpingitis		X	X
			a) Diagnosis and treatment for urinary tract infections: bacteriuria, pyelonephritis		X	X
	Postoperative care	Assessment of postoperative care	a) Postcaesarean care			X
			b) Diagnosis of pelvic abscess, peritonitis or other postoperative complication			X
		Surgical procedure	c) Surgical management of pelvic abscess, peritonitis or other postoperative complication with laparotomy			X
Post-Natal Baby (Newborn)	Childbirth: Essential newborn care	Immediate care at birth	a) Dry baby thoroughly on mother's chest skin to skin and cover		X	X
			b) Assess breathing		X	X
			c) Clamp and cut cord / Check cord vessels / Check for bleeding and signs of cord infection		X	X
			d) Prevent hypothermia when skin to skin is not possible		X	X
			e) Support breastfeeding within the first hour		X	X
	Triage and basic emergency care	Acute symptoms in neonate	a) Basic neonatal resuscitation		X	X
			b) Management of brain injury and intracranial haemorrhage (ICH)			X
	Essential newborn care	Routine care	a) Full clinical examination / Check vital signs / measuring weight	X	X	X
			b) Thermal Care	X	X	X
			c) Breastfeeding support	X	X	X
			d) Vitamin K prophylaxis and Immunization	X	X	X
			e) Cord care	X	X	X
			f) Prophylaxis for eye infection		X	X
			g) Prophylactic antibiotics for neonates at risk of infection		X	X
	Detection and management of congenital infections	Congenital infections	a) Diagnosis of congenital syphilis		X	X
			b) Prophylactic treatment for congenital syphilis		X	X
			c) Screening of Human Immunodeficiency Virus (HIV) (Dried Blood Spot (DBS))		X	X
			d) Prophylactic treatment for Human Immunodeficiency Virus (HIV) (Antiretroviral Therapy (ART))		X	X

Table 3. Essential interventions for reproductive, maternal, newborn and child health

Continuum of Care	General action, chronological: first assessment/ emergency pre-referral treatment /diagnosis and treatment/ surgery / referral if needed	Conditions	Steps of specific procedures	HEALTH POST	HEALTH CENTER	DISTRICT HOSPITAL
	Detection and management of common infections, illness and complications in the neonate and young infant	Cord infection	a) Detection and management of cord infection		X	X
		Jaundice	a) Diagnosis of jaundice			X
			b) Management of jaundice			X
		Anaemia	a) Diagnosis of anaemia			X
			b) Management of anaemia			X
			c) Pre-referral treatment for severe anaemia (blood transfusion)			X
		Pneumonia	a) Diagnosis of pneumonia		X	X
			b) Management of pneumonia and its complications			X
		Diarrhoea	a) Detection and management of diarrhoea		X	X
		Septicaemia and/or meningitis	a) Diagnosis of septicaemia and/or meningitis: Blood Culture, Lumbar Puncture, Urine Analysis			X
			b) Management of septicaemia and/or meningitis and its complications			X
	Specific interventions for small, low weight birth and pre-term babies	Apnoea	a) Prevention of Apnoea			X
		Respiratory Distress Syndrome (RDS)	a) Diagnosis of RDS and provision of prophylaxis surfactant			X
			b) Apply Continuous Positive Airway Pressure (CPAP) with nasal cannula or face mask			X
			c) Ventilatory support and oxygen therapy including mechanical ventilation and Continuous Positive Airway Pressure (CPAP)			X
		Necrotizing enterocolitis	a) Diagnosis of necrotizing enterocolitis			X
			b) Management of necrotizing enterocolitis			X
	Supportive care for all sick neonate and sick young infant	Acute symptoms in the sick neonate and young infant	a) Monitor blood glucose and management of hypoglycaemia			X
			b) Monitor nutrition and provision of tube feeding support			X
			c) Provision of intravenous therapy			X
			d) Monitor temperature and management of hypothermia (Kangaroo mother care)			X
			e) Monitor oxygenation and management of hypoxia			X
			a) Detection of emergency signs, emergency care and pre-referral treatment		X	X
			b) Advanced resuscitation			X
	Further assessment for all young infant	Clinical visit	a) Full clinical examination / check vital signs / measuring weight / check haemoglobin	X	X	X
			b) Provision of vaccines (Diphtheria Pertussis Tetanus (DPT) + Haemophilus Influenza type B (HIB), Oral Polio Vaccine (OPV), Hepatitis B)	X	X	X
			c) Breastfeeding support and replacement feeding if necessary	X	X	X
			d) Monitoring growth and development	X	X	X
		Optional interventions	a) Male circumcision			X

Table 3. Essential interventions for reproductive, maternal, newborn and child health

Continuum of Care	General action, chronological: first assessment/ emergency pre-referral treatment /diagnosis and treatment/ surgery / referral if needed	Conditions	Steps of specific procedures	HEALTH POST	HEALTH CENTER	DISTRICT HOSPITAL
Infancy and childhood	Essential care for monitoring growth and early childhood development	Routine care	a) Full clinical examination / check vital signs / measuring weight	X	X	X
			b) Provision of vaccines	X	X	X
			c) Growth monitoring	X	X	X
			d) Early childhood development monitoring	X	X	X
			e) Breastfeeding support and replacement feeding if necessary	X	X	X
			f) Vitamin A supplementation	X	X	X
			g) Deworming (Mebendazole)	X	X	X
	Detection and management of common infections, illness and complications in infancy and childhood	Severe Acute Malnutrition (SAM)	a) Diagnosis of SAM	X	X	X
			b) Feeding support		X	X
			c) Pre-referral treatment for SAM		X	X
		Anaemia	a) Diagnosis of anaemia		X	X
			b) Management of anaemia		X	X
			c) Pre-referral treatment for severe anaemia (Blood transfusion)			X
		Pneumonia	a) Differential diagnosis for pneumonia	X	X	X
			b) Management of pneumonia and its complications	X	X	X
		Wheeze (Asthma, Bronchiolitis)	a) Diagnosis of condition with wheeze	X	X	X
			b) Management of condition with wheeze	X	X	X
		Tuberculosis	a) Diagnosis of tuberculosis		X	X
			b) Management of tuberculosis		X	X
		Diarrhoea	a) Differential diagnosis and management of diarrhoea and dysentery	X	X	X
		Septicaemia and/or meningitis	a) Diagnosis of septicaemia and/or meningitis : Blood Culture, Lumbar Puncture, Urine Analysis			X
		Septicaemia and/or meningitis	b) Management of septicaemia and/or meningitis and its complications			X
		Malaria	a) Diagnosis and management of malaria		X	X
		Dengue fever	a) Diagnosis and management of dengue fever		X	X
		Measles	a) Diagnosis and management of measles		X	X
		Human Immunodeficiency Virus (HIV)	a) Diagnosis of Human Immunodeficiency Virus (HIV)	X	X	X
			b) Treatment for Human Immunodeficiency Virus (HIV) (Antiretroviral Therapy (ART))	X	X	X
			c) Management of other opportunistic infections in Human Immunodeficiency Virus (HIV)	X	X	X
		Eye infection	a) Detection and management of eye infection / conjunctivitis	X	X	X
		Ear infection	a) Detection and management of ear infection	X	X	X
		Mouth infection	a) Detection and management of mouth infection / thrush	X	X	X
		Skin infection	a) Diagnosis and management of skin infections	X	X	X
		Chicken pox	a) Detection and management of chicken pox	X	X	X
	Supportive care for all sick infant and child	Acute symptoms in the sick infant and child	a) Management of hypoglycaemia			X
			b) Tube feeding support			X
			c) Intravenous therapy			X
			d) Management of hypothermia			X
			e) Management of hypoxia			X
			f) Pain control			X
			a) Detection of emergency signs, emergency care and pre-referral treatment		X	X
			b) Advanced resuscitation			X
	Further assessment for all infant and child	Optional interventions	a) Male circumcision			X

2.2 Relevant evidence-based guidelines supporting essential interventions for reproductive, maternal, newborn and child health

This section contains the priority clinical interventions provided during the continuum of care for reproductive, maternal, newborn and child health presented in Tables 4–9 with respect to the relevant evidence-based guidelines published by WHO that support the procedures. Annex 1 lists more references to guide clinicians and other health workers in medical procedures.

Table 4. Evidence-based guidelines supporting essential interventions for family planning and reproductive health

Continuum of Care	General action, chronological: first assessment/ emergency pre-referral treatment /diagnosis and treatment/ surgery / referral if needed	Conditions	Steps of specific procedures	Evidence based guidelines
Family Planning and Reproductive Health	Basic Medical Examination	First assessment	a) Check-up vital signs / measuring weight and height / Anthropometry	Family planning: a global handbook for providers (2)
			b) Pelvic examination	
	Preventive Immunization		a) Vaccine for Hepatitis B	
	Provision of contraceptives	Contraceptive method selection	a) Provision of oral contraceptives	
			b) Provision of injectable contraceptives	
			c) Insertion and removal of Intrauterine device (IUD)s	
			d) Insertion and removal of contraceptive implants with local anaesthesia	
			e) Provision of barriers methods	
			f) Provision of emergency contraception	
			g) Provision of vaginal rings and patches	
			h) Vasectomy with local anaesthesia	
			i) Tubal ligation	
	Detection and management of Sexually Transmitted Infection (STI) and other infections	Syphilis	a) Screening / diagnosis of Syphilis by laboratory test	
			b) Treatment for Syphilis	
		Human Immunodeficiency Virus (HIV)	a) Screening of Human Immunodeficiency Virus (HIV)	
			b) Treatment for Human Immunodeficiency Virus (HIV) (Antiretroviral Therapy (ART))	
			c) Provide post exposure prophylaxis for Human Immunodeficiency Virus (HIV) discordant couple	
		Gonorrhoea	a) Screening / diagnosis of Gonorrhoea	
			b) Treatment for Gonorrhoea	
		Chlamydia	a) Screening / diagnosis of Chlamydia	
			b) Treatment for Chlamydia	
		Malaria	a) Prophylactic antimalarial (Intermittent Preventive Treatment (IPT))	
			b) Diagnosis of malaria	
			c) Management of malaria	
		Other infections	a) Diagnosis and treatment for urinary tract infections: bacteriuria, pyelonephritis	

Evidence based guidelines			
Optimizing health worker roles to improve access to key maternal and newborn health interventions through task shifting (3)			
Medical eligibility criteria for contraceptive use (4)	Selected practice recommendations for contraceptive use (5)	A guide to family planning for community health workers and their clients (6)	Reproductive choices and family planning for people living with HIV - Counselling tool (7)
		WHO Guidelines for safe surgery (8)	
Reproductive choices and family planning for people living with HIV - Counselling tool (7)	WHO laboratory manual for the examination and processing of human semen (9)	Service delivery approaches to HIV testing and counselling (HTC): A strategic policy framework (10)	
Updated WHO Policy Recommendation: Intermittent Preventive Treatment of malaria in pregnancy using Sulfadoxine-Pyrimethamine (IPTp-SP) (11)			

Continuum of Care	General action, chronological: first assessment/ emergency pre-referral treatment /diagnosis and treatment/ surgery / referral if needed	Conditions	Steps of specific procedures	Evidence based guidelines
			a) Diagnosis and treatment for bacterial vaginosis, trichomonas, candidiasis	
	Screening and management of cancers of the reproductive system	Cervix cancer	a) Papanicolaou test	
			b) Visual Inspection with Acetic Acid (VIA)/Magnified VIA (VIAM)	
			c) Human Papilloma Virus (HPV) test	
			d) Colposcopy	
			e) Colposcopy and Biopsy / Pathology lab-test	
			f) Treatment for precancerous lesion (cryotherapy)	
		Breast cancer	a) Breast examination	
			b) Diagnostic by image (mammography, ultrasound)	
			c) Biopsy / Pathology lab-test	
	Management of gender-based violence (GBV)	Post-rape care	a) Management of post-rape care	WHO guidelines: Use of cryotherapy for cervical intraepithelial neoplasia (12)

Evidence based guidelines
WHO guidelines: Use of cryotherapy for cervical intraepithelial neoplasia (12)
WHO laboratory manual for the examination and processing of human semen (9)

Table 5. Evidence-based guidelines supporting essential interventions for pregnancy

Continuum of Care	General action, chronological: first assessment/ emergency pre-referral treatment /diagnosis and treatment/ surgery / referral if needed	Conditions	Steps of specific procedures	Evidence based guidelines
Pregnancy	Basic Medical Examination	Routine care	a) Check-up vital signs / measuring weight and height / Anthropometry/ Vaginal examination	Guidelines on maternal, newborn, child and adolescent health: Recommendations on maternal and perinatal health (11)
	Preventative Immunization	Routine care	a) Vaccine for Tetanus	
	Triage and basic emergency care	Acute symptoms during pregnancy	a) Basic emergency care and pre-referral treatment	
	Detection and management of Sexually Transmitted Infection (STI) and other infections	Syphilis	a) Screening / diagnosis of Syphilis by laboratory test	
			b) Treatment for Syphilis	
		Human Immunodeficiency Virus (HIV)	a) Screening of Human Immunodeficiency Virus (HIV)	
			b) Prevention Mother To Child Transmission (PMTCT)	
			c) Treatment for Human Immunodeficiency Virus (HIV) (Antiretroviral Therapy (ART))	
		Malaria	a) Prophylactic antimalarial (Intermittent Preventive Treatment (IPT))	
			b) Diagnosis of malaria	
			c) Management of malaria	
		Rubella	a) Diagnosis and treatment for rubella	
		Tuberculosis	a) Diagnosis and treatment for tuberculosis	
		Other infections	a) Diagnosis and treatment for urinary tract infections: bacteriuria, pyelonephritis	
			a) Diagnosis and treatment of other Sexually Transmitted Infection (STI) / Reproductive Tract Infections (RTI): Candida vaginitis, gonorrhoea, chlamydia, bacterial vaginosis and trichomoniasis	
	Detection and management of maternal chronic medical conditions	Iron Deficiency Anaemia	a) Diagnosis of anaemia	
			b) Iron and folic acid supplementation	
			c) Anthelminthic (deworm)	
			d) Management of severe anaemia (considering blood transfusion)	
		Hypertension and pre-eclampsia	a) Diagnosis of Pre-eclampsia-Eclampsia	
			b) Supplement calcium	
			c) Low-dose aspirin	
			d) Antihypertensive drugs	
			e) Magnesium sulfate	
			f) Fetal monitoring	
			g) Induction of labour	

Evidence based guidelines			
WHO recommended interventions for improving maternal and newborn health (14)	Optimizing health worker roles to improve access to key maternal and newborn health interventions through task shifting (3)	Counselling for maternal and newborn health care, a handbook for building skills (15)	Guideline: Vitamin A supplementation in pregnant women (16)
		Updated WHO Policy Recommendation: Intermittent Preventive Treatment of malaria in pregnancy using Sulfadoxine-Pyrimethamine (IPTp-SP) (11)	Guidelines for the treatment of Malaria (17)
		Weekly iron-folic acid supplementation in women of reproductive age: its role in promoting optimal maternal and child health (18)	Guideline: Daily iron and folic acid supplementation in pregnant women (19)
		Prevention and treatment of pre-eclampsia and eclampsia (20)	WHO recommendations for induction of labour (21)

Table 5. Evidence-based guidelines supporting essential interventions for pregnancy

Continuum of Care	General action, chronological: first assessment/ emergency pre-referral treatment /diagnosis and treatment/ surgery / referral if needed	Conditions	Steps of specific procedures	Evidence based guidelines
		Diabetes	a) Glucose testing for detection	Guidelines on maternal, newborn, child and adolescent health: Recommendations on maternal and perinatal health
			b) Treatment for insulin-dependent diabetic mother	
	Management of prelabour rupture of the membranes (PRM)	Assessment of PRM	a) Diagnosis and laboratory test	
			b) Fetal monitoring	
		Preterm	a) Provision antibiotics if indicated	
			b) Provision of tocolytics to prolong pregnancy if indicated	
			c) Provision of corticosteroids for prevention of neonatal respiratory distress syndrome	
			d) Provision of magnesium sulfate for neuroprotection of the newborn	
		Term	a) Provision antibiotics if indicated	
			b) Induction of labour	
	Management of malpresentation at term	Malpresentation at term	a) Diagnosis of breech at term	
			b) External Cephalic Version	
			c) Monitoring progress of labour	
	Management of female genital mutilation	Female genital mutilation	a) Perineal incision with local anaesthesia	
			b) Identify the need of caesarean section	
	Management of ectopic pregnancy	Ectopic pregnancy	a) Pregnancy test	
			b) Ultrasound scan	
			c) Laparotomy	
			d) Blood transfusion	
	Management of miscarriage and abortion	Miscarriage and abortion	a) Pregnancy test	
			b) Ultrasound scan	
		Miscarriage	a) Treatment of infections	
			b) Management of bleeding (considering Vacuum Aspiration and blood transfusion)	
			c) Management of major injuries (considering laparotomy)	
		Safe abortion when indicated and legally permitted	a) Medical uterine evacuation for the first trimester	
			b) Vacuum Aspiration for the first trimester	
			c) Medical uterine evacuation beyond the first trimester	

Evidence based guidelines			
		Managing complications in pregnancy and childbirth: A guide for midwives and doctors (22)	WHO recommendations for induction of labour (21)
		Managing complications in pregnancy and childbirth: A guide for midwives and doctors (22)	Safe abortion: technical and policy guidance for health systems (23)

Table 6. Evidence-based guidelines supporting essential interventions for childbirth

Continuum of Care	General action, chronological: first assessment/ emergency pre-referral treatment /diagnosis and treatment/ surgery / referral if needed	Conditions	Steps of specific procedures	Evidence based guidelines
Childbirth	Basic Medical Examination	Routine care	a) Check-up vital signs / Vaginal examination	WHO recommended interventions for improving maternal and newborn health (14)
	Triage and basic emergency care	Acute symptoms during childbirth	a) Basic emergency care and pre-referral treatment	
	Mother care	Childbirth	a) Monitoring progress of labour	
			b) Active management of the third stage of labour (AMTSL): Prophylactic use of uterotonics	
			c) Spontaneous delivery	
			d) Assisted delivery (vacuum extraction) if needed	
	Management of complications of labour and delivery	Assessment for complications	a) Diagnosis of complications	
			b) Fetal monitoring	
		Postpartum haemorrhage (PPH)	a) Use of uterotonics of choice for the treatment of PPH	
			b) Manual removal of placenta (include use of antibiotics and uterotonics)	
			c) Blood transfusion	
			d) Use of balloon tamponade	
			e) Use of artery embolization	
			f) Hysterectomy	
		Caesarean section due maternal/fetal indication	a) Use of prophylactic antibiotic	
			b) Caesarean section	
			c) Use of uterotonics	
		Other surgical procedures depending on the complication	a) Episiotomy	
			a) Repair of ruptured uterus	
			a) Correct uterine inversion	
			a) Laparotomy or other abdominal surgical interventions during childbirth	
			a) Craniotomy and craniocentesis	
		Human Immunodeficiency Virus (HIV) positive women	a) Screening of Human Immunodeficiency Virus (HIV)	
			b) Prevention Mother To Child Transmission (PMTCT)	

Evidence based guidelines		
Optimizing health worker roles to improve access to key maternal and newborn health interventions through task shifting (3)	Managing complications in pregnancy and childbirth: A guide for midwives and doctors (22)	WHO Guidelines for safe surgery (8)

Table 7. Evidence-based guidelines supporting essential interventions for the postnatal mother

Continuum of Care	General action, chronological: first assessment/ emergency pre-referral treatment /diagnosis and treatment/ surgery / referral if needed	Conditions	Steps of specific procedures	Evidence based guidelines
Post-Natal Mother	Basic Medical Examination	Routine care	a) Check-up vital signs	WHO recommended interventions for improving maternal and newborn health (14)
			b) Screening for cervix and breast cancer	
		Support for breast feeding	a) Management of mastitis / breast abscess	
	Triage and basic emergency care	Acute symptoms post-partum	a) Basic emergency care and pre-referral treatment	
	Prevention and management of post partum bleeding	Anaemia	a) Management of post partum bleeding	
			b) Diagnosis of anaemia	
			c) Iron supplementation	
			d) Anthelminthic (deworm)	
			e) Management of severe anaemia (considering blood transfusion)	
	Detection and management of post partum infection	Human Immunodeficiency Virus (HIV)	a) Diagnosis and treatment for Human Immunodeficiency Virus (HIV) (Antiretroviral Therapy (ART))	
		Malaria	a) Diagnosis and management of malaria	
		Other infection	a) Diagnosis and management of postpartum endometritis and salpingitis	
			a) Diagnosis and treatment for urinary tract infections: bacteriuria, pyelonephritis	
	Postoperative care	Assessment of postoperative care	a) Postcaesarean care	
			b) Diagnosis of pelvic abscess, peritonitis or other postoperative complication	
		Surgical procedure	c) Surgical management of pelvic abscess, peritonitis or other postoperative complication with laparotomy	

Evidence based guidelines		
Optimizing health worker roles to improve access to key maternal and newborn health interventions through task shifting (3)	WHO guidelines: Use of cryotherapy for cervical intraepithelial neoplasia (12)	
	WHO recommendations for the prevention and treatment of postpartum haemorrhage (24)	
	Updated WHO Policy Recommendation: Intermittent Preventive Treatment of malaria in pregnancy using Sulfadoxine-Pyrimethamine (IPTp-SP) (11)	Guidelines for the treatment of Malaria (17)
	Managing complications in pregnancy and childbirth: A guide for midwives and doctors (22)	

Table 8. Evidence-based guidelines supporting essential interventions for the postnatal baby

Continuum of Care	General action, chronological: first assessment/ emergency pre-referral treatment /diagnosis and treatment/ surgery / referral if needed	Conditions	Steps of specific procedures	Evidence based guidelines
Post-Natal Baby (Newborn)	Basic medical exam to newborn	Immediate care at birth	a) Dry baby thoroughly on mother's chest skin to skin and cover	Guidelines on maternal, newborn, child and adolescent health: Recommendations on newborn health (25)
			b) Assess breathing	
			c) Clamp and cut cord / Check cord vessels / Check for bleeding and signs of cord infection	
			d) Prevent hypothermia when skin to skin is not possible	
			e) Support breastfeeding within the first hour	
	Triage and basic emergency care	Acute symptoms in neonate	a) Basic neonatal resuscitation	
			b) Management of brain injury and intracranial haemorrhage (ICH)	
	Essential newborn care	Routine care	a) Full clinical examination / Check vital signs / measuring weight	
			b) Thermal Care	
			c) Breastfeeding support	
			d) Vitamin K prophylaxis and Immunization	
			e) Cord care	
			f) Prophylaxis for eye infection	
			g) Prophylactic antibiotics for neonates at risk of infection	
	Detection and management of congenital infections	Congenital infections	a) Diagnosis of congenital syphilis	
			b) Prophylactic treatment for congenital syphilis	
			c) Screening of Human Immunodeficiency Virus (HIV) (Dried Blood Spot (DBS))	
			d) Prophylactic treatment for Human Immunodeficiency Virus (HIV) (Antiretroviral Therapy (ART))	
	Detection and management of common infections, illness and complications in the neonate and young infant	Cord infection	a) Detection and management of cord infection	
		Jaundice	a) Diagnosis of jaundice	
			b) Management of jaundice	

Evidence based guidelines				
Pocket book of hospital care for children: guidelines for the management of common illnesses (26)	Integrated management of childhood illness (IMCI): Caring for Newborns and Children in the Community. Caring for the Sick Child, Chart Booklet (27)	Recommendations for management of common childhood conditions (28)	Baby-Friendly Hospital Initiative(BFHI), Breastfeeding promotion and support in a baby-friendly hospital: a 20-hour course for maternity staff (30)	
			Guidelines on basic newborn resuscitation (31)	
			Baby-Friendly Hospital Initiative(BFHI), Breastfeeding promotion and support in a baby-friendly hospital: a 20-hour course for maternity staff (30)	
		Integrated management of childhood illness(IMCI) for high HIV settings, chart booklet (31)	Antiretroviral therapy for HIV infection in infants and children: towards universal access, recommendations for a public health approach (32)	WHO recommendations on the diagnosis of HIV infection in infants and children (33)
		Recommendations for management of common childhood conditions (28)		

Table 8. Evidence-based guidelines supporting essential interventions for the postnatal baby

Continuum of Care	General action, chronological: first assessment/ emergency pre-referral treatment /diagnosis and treatment/ surgery / referral if needed	Conditions	Steps of specific procedures	Evidence based guidelines
Post-Natal Baby (Newborn)		Anaemia	a) Diagnosis of anaemia	Guidelines on maternal, newborn, child and adolescent health: Recommendations on newborn health (25)
			b) Management of anaemia	
			c) Pre-referral treatment for severe anaemia (blood transfusion)	
		Pneumonia	a) Diagnosis of pneumonia	
			b) Management of pneumonia and its complications	
		Diarrhoea	a) Detection and management of diarrhoea	
		Septicaemia and/or meningitis	a) Diagnosis of septicaemia and/ or meningitis: Blood Culture, Lumbar Puncture, Urine Analysis	
			b) Management of septicaemia and/or meningitis and its complications	
	Specific interventions for small, low weight birth and pre-term babies	Apnoea	a) Prevention of Apnoea	
		Respiratory Distress Syndrome (RDS)	a) Diagnosis of RDS and provision of prophylaxis surfactant	
			b) Apply Continuous Positive Airway Pressure (CPAP) with nasal cannula or face mask	
			c) Ventilatory support and oxygen therapy including mechanical ventilation and Continuous Positive Airway Pressure (CPAP)	
		Necrotizing enterocolitis	a) Diagnosis of necrotizing enterocolitis	
			b) Management of necrotizing enterocolitis	
	Supportive care for all sick neonate and sick young infant	Acute symptoms in the sick neonate and young infant	a) Monitor blood glucose and management of hypoglycaemia	
			b) Monitor nutrition and provision of tube feeding support	
			c) Provision of intravenous therapy	
			d) Monitor temperature and management of hypothermia (Kangaroo mother care)	
			e) Monitor oxygenation and management of hypoxia	
	Triage and basic emergency care	Acute symptoms in the sick neonate and young infantl	a) Detection of emergency signs, emergency care and pre-referral treatment	
			b) Advanced resuscitation	
	Further assessment for all young infant	Clinical visit	a) Full clinical examination / check vital signs / measuring weight / check haemoglobin	
			b) Provision of vaccines (Diphtheria Pertussis Tetanus (DPT) + Haemophilus Influenza type B (HIB), Oral Polio Vaccine (OPV), Hepatitis B)	
			c) Breastfeeding support and replacement feeding if necessary	
			d) Monitoring growth and development	
		Optional interventions	a) Male circumcision	

Evidence based guidelines			
Pocket book of hospital care for children: guidelines for the management of common illnesses (26)	Integrated management of childhood illness (IMCI): Caring for Newborns and Children in the Community. Caring for the Sick Child, Chart Booklet (27)	Optimal feeding of low birthweight infants in low- and middle-income countries (34)	
		Manual for the health care of children in humanitarian emergencies (35)	
		Manual for early infant male circumcision under local anaesthesia (36)	

Table 9. Evidence-based guidelines supporting essential interventions for infancy and childhood

Continuum of Care	General action, chronological: first assessment/ emergency pre-referral treatment /diagnosis and treatment/ surgery / referral if needed	Conditions	Steps of specific procedures	Evidence based guidelines
Infancy and childhood	Essential care for monitoring growth and early childhood development	Routine care	a) Full clinical examination / check vital signs / measuring weight	Guidelines on maternal, newborn, child and adolescent health: Recommendations on child health (37)
			b) Provision of vaccines	
			c) Growth monitoring	
			d) Early childhood development monitoring	
			e) Breastfeeding support and replacement feeding if necessary	
			f) Vitamin A supplementation	
			g) Deworming (Mebendazole)	
	Detection and management of common infections, illness and complications in infancy and childhood	Severe Acute Malnutrition (SAM)	a) Diagnosis of SAM	
			b) Feeding support	
			c) Pre-referral treatment for SAM	
		Anaemia	a) Diagnosis of anaemia	
			b) Management of anaemia	
			c) Pre-referral treatment for severe anaemia (Blood transfusion)	
		Pneumonia	a) Differential diagnosis for pneumonia	
			b) Management of pneumonia and its complications	
		Wheeze (Asthma, Bronchiolitis)	a) Diagnosis of condition with wheeze	
			b) Management of condition with wheeze	
		Tuberculosis	a) Diagnosis of tuberculosis	
			b) Management of tuberculosis	
		Diarrhoea	a) Differential diagnosis and management of diarrhoea and dysentery	
		Septicaemia and/ or meningitis	a) Diagnosis of septicaemia and/or meningitis : Blood Culture, Lumbar Puncture, Urine Analysis	
		Septicaemia and/ or meningitis	b) Management of septicaemia and/or meningitis and its complications	
		Malaria	a) Diagnosis and management of malaria	
		Dengue fever	a) Diagnosis and management of dengue fever	
		Measles	a) Diagnosis and management of measles	

Evidence based guidelines				
Pocket book of hospital care for children: guidelines for the management of common illnesses (26)	Integrated management of childhood illness(IMCI): Caring for Newborns and Children in the Community. Caring for the Sick Child, Chart Booklet (27)	Integrated management of childhood illness (IMCI): Chart Booklet, standard (38)	Recommendations for management of common childhood conditions (28)	Baby-Friendly Hospital Initiative(BFHI), Breastfeeding promotion and support in a baby-friendly hospital: a 20-hour course for maternity staff (29) Optimal feeding of low birthweight infants in low- and middle- income countries (34)

Table 9. Evidence-based guidelines supporting essential interventions for infancy and childhood

Continuum of Care	General action, chronological: first assessment/ emergency pre-referral treatment /diagnosis and treatment/ surgery / referral if needed	Conditions	Steps of specific procedures	Evidence based guidelines
Infancy and childhood		Human Immunodeficiency Virus (HIV)	a) Diagnosis of Human Immunodeficiency Virus (HIV)	Guidelines on maternal, newborn, child and adolescent health: Recommendations on child health (37)
			b) Treatment for Human Immunodeficiency Virus (HIV) (Antiretroviral Therapy (ART))	
			c) Management of other opportunistic infections in Human Immunodeficiency Virus (HIV)	
		Eye infection	a) Detection and management of eye infection / conjunctivitis	
		Ear infection	a) Detection and management of ear infection	
		Mouth infection	a) Detection and management of mouth infection / thrush	
		Skin infection	a) Diagnosis and management of skin infections	
		Chicken pox	a) Detection and management of chicken pox	
	Triage, supportive care and basic emergency care	Acute symptoms in the sick infant and child	a) Management of hypoglycaemia	
			b) Tube feeding support	
			c) Intravenous therapy	
			d) Management of hypothermia	
			e) Management of hypoxia	
			f) Pain control	
			a) Detection of emergency signs, emergency care and pre-referral treatment	
			b) Advanced resuscitation	
	Further assessment for all infant and child	Optional interventions	a) Male circumsicion	

Evidence based guidelines					
Pocket book of hospital care for children: guidelines for the management of common illnesses (26)	Integrated management of childhood illness(IMCI): Caring for Newborns and Children in the Community. Caring for the Sick Child, Chart Booklet (27)	Integrated management of childhood illness (IMCI): Chart Booklet, standard (38)	Integrated management of childhood illness(IMCI) for high HIV settings, chart booklet (31)	Antiretroviral therapy for HIV infection in infants and children: towards universal access, recommendations for a public health approach (32)	WHO recommendations on the diagnosis of HIV infection in infants and children (33)
			Recommendations for management of common childhood conditions (28)		
			Optimal feeding of low birthweight infants in low- and middle- income countries (34)		
			Manual for the health care of children in humanitarian emergencies (35)		
			Manual for early infant male circumcision under local anaesthesia (36)		

Table 10. References

Subject	Title	Year	Link
REPRODUCTIVE HEALTH	Monitoring national cervical cancer prevention and control programmes: quality control and quality assurance for visual inspection with acetic acid (VIA)-based programmes	2013	http://apps.who.int/iris/bitstream/10665/79316/1/9789241505260_eng.pdf
	A guide to family planning for community health workers and their clients (6)	2012	http://www.who.int/reproductivehealth/publications/family_planning/9789241503754/en/index.html
	Optimizing health worker roles to improve access to key maternal and newborn health interventions through task shifting (3)	2012	http://www.who.int/reproductivehealth/publications/maternal_perinatal_health/978924504843/en/
	Cryosurgical equipment for the treatment of precancerous cervical lesions and prevention of cervical cancer	2012	http://apps.who.int/iris/bitstream/10665/75853/1/9789241504560_eng.pdf
	Female Condom: generic specification, prequalification and guidelines for procurement	2012	http://www.unfpa.org/webdav/site/global/shared/procurement/08_QA/Female%20Condom%20Generic%20Specification%20EN.pdf
	Family planning: a global handbook for providers (2)	2011	http://www.who.int/reproductivehealth/publications/family_planning/9780978856304/en/
	WHO guidelines: Use of cryotherapy for cervical intraepithelial neoplasia (12)	2011	http://whqlibdoc.who.int/publications/2011/9789241502856_eng.pdf
	Male Latex Condom: Specification, Prequalification and Guidelines for Procurement	2011	http://www.who.int/reproductivehealth/publications/family_planning/9789241599900/en/
	WHO laboratory manual for the examination and processing of human semen (9)	2010	http://www.who.int/reproductivehealth/publications/infertility/9789241547789/en/
	The TCu380A Intrauterine Contraceptive Device (IUD): Specification, Prequalification and Guidelines for Procurement	2010	http://www.who.int/reproductivehealth/publications/family_planning/9789241500999/en/
	Medical eligibility criteria for contraceptive use (4)	2009	http://whqlibdoc.who.int/publications/2010/9789241563888_eng.pdf
	Selected practice recommendations for contraceptive use (5)	2008	http://www.who.int/reproductivehealth/publications/family_planning/9241562846index/en/ http://whqlibdoc.who.int/hq/2008/WHO_RHR_08.17_eng.pdf
	Reproductive choices and family planning for people living with HIV - Counselling tool (7)	2007	http://www.who.int/reproductivehealth/publications/family_planning/9241595132/en/index.html
	Comprehensive cervical cancer control, a guide to essential practice	2006	http://whqlibdoc.who.int/publications/2006/9241547006_eng.pdf
	Decision making tool for family planning clients and providers	2005	http://www.who.int/reproductivehealth/publications/family_planning/9241593229/en/index.html
	Clinical management of rape survivors: Developing protocols for use with refugees and internally displaced persons	2004	http://whqlibdoc.who.int/publications/2004/924159263X.pdf
	Guidelines for medico-legal care for victims of sexual violence	2003	http://whqlibdoc.who.int/publications/2004/924154628X.pdf
MATERNAL HEALTH	Guidelines on maternal, newborn, child and adolescent health: Recommendations on maternal and perinatal health (13)	2013	http://www.who.int/maternal_child_adolescent/documents/guidelines-recommendations-maternal-health.pdf
	Guideline: Daily iron and folic acid supplementation in pregnant women (19)	2012	http://apps.who.int/iris/bitstream/10665/77770/1/9789241501996_eng.pdf
	Safe abortion: technical and policy guidance for health systems (23)	2012	http://apps.who.int/iris/bitstream/10665/70914/1/9789241548434_eng.pdf
	Updated WHO Policy Recommendation: Intermittent preventive treatment of malaria in pregnancy using Sulfadoxine-Pyrimethamine (IPTp-SP) (11)	2012	http://www.who.int/malaria/iptp_sp_updated_policy_recommendation_en_102012.pdf
	WHO recommendations for the prevention and treatment of postpartum haemorrhage (24)	2012	http://apps.who.int/iris/bitstream/10665/75411/1/9789241548502_eng.pdf
	Guideline: Vitamin A supplementation in pregnant women (16)	2011	http://www.who.int/nutrition/publications/micronutrients/guidelines/vas_pregnant/en/
	Prevention and treatment of pre-eclampsia and eclampsia (20)	2011	http://whqlibdoc.who.int/publications/2011/9789241548335_eng.pdf
	WHO recommendations for induction of labour (21)	2011	http://whqlibdoc.who.int/publications/2011/9789241501156_eng.pdf
	Guidelines for the treatment of Malaria (17)	2010	http://whqlibdoc.who.int/publications/2010/9789241547925_eng.pdf
	Weekly iron-folic acid supplementation in women of reproductive age: its role in promoting optimal maternal and child health (18)	2009	http://www.who.int/nutrition/publications/micronutrients/weekly_iron_folicacid.pdf
	Counselling for maternal and newborn health care, a handbook for building skills (15)	2009	http://www.who.int/maternal_child_adolescent/documents/9789241547628/en/

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Subject	Title	Year	Link
	Managing complications in pregnancy and childbirth: A guide for midwives and doctors (22)	2007	http://whqlibdoc.who.int/publications/2007/9241545879_eng.pdf
	WHO recommended interventions for improving maternal and newborn health (14)	2007	http://www.who.int/maternal_child_adolescent/documents/who_mps_0705/en/index.html
CHILD HEALTH	Consolidated guidelines on the use of antiretroviral drugs for treating and preventing HIV infection, recommendations for a public health approach	2013	http://www.who.int/hiv/pub/guidelines/arv2013/download/en/
	Guidelines on maternal, newborn, child and adolescent health: Recommendations on child health (37)	2013	http://www.who.int/maternal_child_adolescent/documents/guidelines-recommendations-child-health.pdf
	Guidelines on maternal, newborn, child and adolescent health: Recommendations on newborn health (25)	2013	http://www.who.int/maternal_child_adolescent/documents/guidelines-recommendations-newborn-health.pdf
	Pocket book of hospital care for children: guidelines for the management of common illnesses (26)	2013	http://www.who.int/maternal_child_adolescent/documents/child_hospital_care/en/index.html
	Born too soon: The global action report on preterm birth	2012	http://www.who.int/pmnch/media/news/2012/preterm_birth_report/en/
	Caring for the newborn at home: A training course for community health workers	2012	http://www.who.int/maternal_child_adolescent/documents/caring_for_newborn/en/index.html
	Guidelines on basic newborn resuscitation (30)	2012	http://www.who.int/maternal_child_adolescent/documents/basic_newborn_resuscitation/en/
	Recommendations for management of common childhood conditions (28)	2012	http://www.who.int/maternal_child_adolescent/documents/management_childhood_conditions/en/index.html
	Integrated management of childhood illness(IMCI): Caring for Newborns and Children in the Community. Caring for the Sick Child, Chart Booklet (27)	2011	http://whqlibdoc.who.int/publications/2011/9789241548045_Chart_Booklet_eng.pdf
	Manual for early infant male circumcision under local anaesthesia (36)	2011	http://www.who.int/hiv/pub/malecircumcision/manual_infant/en/index.html
	Optimal feeding of low birthweight infants in low-and middle-income countries (34)	2011	http://www.who.int/maternal_child_adolescent/documents/9789241548366.pdf
	Antiretroviral therapy for HIV infection in infants and children: towards universal access, recommendations for a public health approach (32)	2010	http://apps.who.int/iris/bitstream/10665/43556/1/9789241594691_eng.pdf
	WHO recommendations on the diagnosis of HIV infection in infants and children (33)	2010	http://whqlibdoc.who.int/publications/2010/9789241599085_eng.pdf
	Baby-Friendly Hospital Initiative(BFHI), Breastfeeding promotion and support in a baby-friendly hospital: a 20-hour course for maternity staff (29)	2009	http://whqlibdoc.who.int/publications/2009/9789241594981_eng.pdf
	Home visits for the newborn child: a strategy to improve survival	2009	http://whqlibdoc.who.int/hq/2009/WHO_FCH_CAH_09.02_eng.pdf
	Integrated management of childhood illness(IMCI) for high HIV settings, chart booklet (31)	2008	http://whqlibdoc.who.int/publications/2008/9789241597388_eng.pdf
	Integrated management of childhood illness(IMCI): Chart Booklet, standard (38)	2008	http://whqlibdoc.who.int/publications/2008/9789241597289_eng.pdf
	Manual for the health care of children in humanitarian emergencies (35)	2008	http://whqlibdoc.who.int/publications/2008/9789241596879_eng.pdf
	Emergency Triage Assessment and Treatment(ETAT), Manual for participants	2005	http://www.who.int/maternal_child_adolescent/documents/9241546875/en/index.html
	Kangaroo mother care, a practical guide	2003	http://whqlibdoc.who.int/publications/2003/9241590351.pdf
	Managing newborn problems: a guide for doctors, nurses, and midwives	2003	http://whqlibdoc.who.int/publications/2003/9241546220.pdf
CLINICAL TRANSFUSION	Screening Donated Blood for Transfusion Transmissible Infections - Recommendations	2010	http://www.who.int/bloodsafety/ScreeningDonatedBloodforTransfusion.pdf
	Screening Donated Blood for Transfusion Transmissible Infections - Recommendations	2009	http://whqlibdoc.who.int/publications/2009/9789241547888_eng.pdf
	Safe Blood and Blood Products: Module 1 - Safe Blood Donation	2009	http://www.who.int/entity/bloodsafety/transfusion_services/Module1.pdf
	Safe Blood and Blood Products: Module 3 - Blood Group Serology	2009	http://www.who.int/entity/bloodsafety/transfusion_services/Module3.pdf
	Safe Blood and Blood Products: Manual on the management, maintenance and use of blood cold chain equipment	2005	http://apps.who.int/iris/bitstream/10665/43359/1/9241546735_eng.pdf
	External Quality Assessment of Transfusion Laboratory Practice - Guidelines on Establishing an EQA Scheme in Blood Group Serology	2004	http://www.who.int/entity/bloodsafety/EQA_in_Blood_Group_Serology.pdf
	The Blood Cold Chain - Guide to the selection and procurement of equipment and accessories	2002	http://www.who.int/entity/bloodsafety/testing_processing/components/en/BloodColdChain.pdf

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Subject	Title	Year	Link
	The Clinical Use of Blood - Handbook	2002	http://www.who.int/entity/bloodsafety/clinical_use/en/Handbook_EN.pdf
	The Clinical Use of Blood in General Medicine, Obstetrics, Paediatrics, Surgery & Anaesthesia, Trauma & Burns	2001	http://www.who.int/entity/bloodsafety/clinical_use/en/Manual_EN.pdf
LABORATORY	Service delivery approaches to HIV testing and counselling (HTC): A strategic policy framework	2012	http://www.who.int/hiv/pub/vct/htc_framework/en/
	WHO expert meeting report on short, medium, and longer term product development priorities in HIV-related diagnostics (10)	2012	http://apps.who.int/iris/bitstream/10665/75971/1/9789241504522_eng.pdf
	Development of National Health Laboratory Policy and Plan	2011	http://www.wpro.who.int/health_technology/documents/docs/Nationalhealthlab2_0F38.pdf
	WHO Global Malaria Programme - Good practices for selecting and procuring rapid diagnostic tests for malaria	2011	http://whqlibdoc.who.int/publications/2011/9789241501125_eng.pdf
	Laboratory quality management system training toolkit	2009	http://www.who.int/ihr/training/laboratory_quality/en/index.html
	Malaria Microscopy Quality Assurance Manual - verison 2	2016	http://apps.who.int/iris/bitstream/10665/204266/1/9789241549394_eng.pdf
	Parasitological confirmation of malaria diagnosis, Report of a WHO technical consultation	2009	http://whqlibdoc.who.int/publications/2010/9789241599412_eng.pdf
	Manual for Laboratory Equipmentm Maintenance	2008	http://whqlibdoc.who.int/publications/2008/9789241596350_eng_low.pdf
	Guidelines for assuring the accuracy and reliability of HIV rapid testing: Applying a quality system approach	2005	http://whqlibdoc.who.int/publications/2005/9241593563_eng.pdf
	HIV rapid test training package	2005	http://www.who.int/diagnostics_laboratory/documents/guidance/hivrttraining_overview/en/index.html
	Laboratory biosafety manual	2004	http://apps.who.int/iris/bitstream/10665/204834/1/B3217.pdf
	Basic Laboratory Procedure in Clinical Bacteriology	2003	http://whqlibdoc.who.int/publications/2003/9241545453.pdf
	Manual of Basic Techniques for a Health Laboratory	2003	http://whqlibdoc.who.int/publications/2003/9241545305.pdf
	Guidelines for Appropriate Evaluations of HIV Testing Technologies in Africa	2002	http://apps.who.int/iris/bitstream/10665/164358/1/9789241598057_eng.pdf
SURGERY AND ANESTHESIA	WHO Emergency and essential surgical care	2013	http://www.who.int/surgery/en/ http://www.who.int/surgery/activities/en/
	WHO Integrated management for emergency and essential surgical care (IMEESC) toolkit	2009	http://www.who.int/surgery/publications/imeesc/en/index.html http://apps.who.int/bookorders/anglais/detart1.jsp?codlan=1&codcol=99&codcch=42
	WHO Guidelines for safe surgery (8)	2009	http://whqlibdoc.who.int/publications/2009/9789241598552_eng.pdf
	WHO Aide memoire on surgical and emergency obstetrical care at first referral level	2003	http://www.who.int/surgery/publications/en/Aide-Memoire_surgery.pdf
INJECTION SAFETY	Department of Vaccines and Biologicals: Safety of mass immunization campaigns, aide-memoire and check list	2013	http://www.who.int/entity/injection_safety/toolbox/en/AM_SafetyCampaigns.pdf
	Safe management of wastes from health-care activities	2013	http://apps.who.int/iris/bitstream/10665/85349/1/9789241548564_eng.pdf
	Safe Injection Global Network. Advocacy Booklet	2011	http://www.who.int/injection_safety/sign/sign_advocacy_booklet.pdf
	WHO Best practices for injections and related procedures	2010	http://whqlibdoc.who.int/publications/2010/9789241599252_eng.pdf
	A guide for the Quality Assurance of Single Use Injection Equipment	2003	http://www.who.int/entity/injection_safety/toolbox/docs/en/InjEquQualityGuiden.pdf
	WHO Guiding principles to ensure injection device security. Document No. WHO/BCT/03	2003	http://www.who.int/entity/injection_safety/toolbox/docs/en/Guiding_Principle_Inj.pdf
	WHO Aide memoire on injection safety	1999	http://www.who.int/injection_safety/about/country/en/AMENG.pdf
	WHO, UNICEF, UNFPA Joint statement on the use of auto disable syringes in immunization services. Document No. WHO/V&B/99.25	1999	http://www.who.int/entity/injection_safety/toolbox/en/Bundling.pdf

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Subject	Title	Year	Link
HEALTH CARE FACILITIES	Mercury and health. Fact sheet No. 361	2013	http://www.who.int/mediacentre/factsheets/fs361/en/
	Safe management of wastes from health-care activities	2013	http://www.healthcarewaste.org/fileadmin/user_upload/resources/Safe-Management-of-Wastes-from-Health-Care-Activities-2.pdf
	Replacement of mercury thermometers and sphygmomanometers in health care: Technical guidance	2011	http://whqlibdoc.who.int/publications/2011/9789241548182_eng.pdf
	Natural Ventilation for Infection Control in Health-Care Settings	2009	http://whqlibdoc.who.int/publications/2009/9789241547857_eng.pdf
	Sterilization manual for health centres	2009	http://www2.paho.org/hq/dmdocuments/2009/sterilization_manual_2009.pdf
	WHO guidelines on Hand Hygiene in healthcare	2009	http://whqlibdoc.who.int/publications/2009/9789241597906_eng.pdf
	Standard precautions in healthcare	2007	http://www.who.int/csr/resources/publications/EPR_AM2_E7.pdf
	Mercury in health care, Policy paper	2005	http://www.who.int/water_sanitation_health/medicalwaste/mercurypolpap230506.pdf
	Infection control	2004	http://www.who.int/injection_safety/AM_InfectionControl_Final.pdf
	Safe health-care waste management, policy paper	2004	http://www.who.int/water_sanitation_health/medicalwaste/en/hcwmpolicye.pdf
	Healthcare worker safety, aide-memoire	2003	http://www.who.int/injection_safety/toolbox/docs/en/AM_HCW_Safety.pdf
	Safe health-care waste management, aide-memoire	2000	http://www.who.int/water_sanitation_health/medicalwaste/aidemem.pdf
	Useful site for Healthcare Waste Management	n/a	http://www.healthcarewaste.org/ http://healthcarewaste.org/resources/technologies

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3. Medical devices for different health care facilities

3.1 Medical devices for different health care facilities

Table 11 contains the complete list of medical devices needed for the application of the clinical interventions described in Table 3. To identify the location of the medical devices, the UNICEF classification of product groups was followed (first column), with each of the six major categories divided into sub-groups (second column). All products from this list are identified with a short general description. The technical specifications, accessories and disposables related to such products are mostly based on UNICEF's Supply Catalogue (1). There are also two separate lists for the medical devices needed in the laboratory and the blood bank to complete the implementation of reproductive, maternal, newborn and child health interventions.

Table 11. Medical devices for different health care facilities

Colour coding used below

X	Disposable Generic item line - see Table 19 (Medical device consumables by size and capacity) with related items covered by each Generic line
X	Equipment grouping - see Table 12-18 (Medical equipment groups)

Grouping	General type	Specific area / type	Name of devices	Health post	Health center	District hospital
	Blood Bank devices	Blood Transfusion devices	Anti-A blood group reagent, monoclonal			X
	Blood Bank devices	Blood Transfusion devices	Anti-B blood group reagent, monoclonal			X
	Blood Bank devices	Blood Transfusion devices	Anti-D blood group reagent (Saline/monoclonal)			X
	Blood Bank devices	Blood Transfusion devices	Blood administration set, sterile			X
	Blood Bank devices	Blood Transfusion devices	Glass slides, 25x75mm			X
	Blood Bank devices	Blood Transfusion devices	Markers, fine point, permanent black, for glassware			X
	Blood Bank devices	Blood Transfusion devices	Pasteur pipettes with integral bulb, disposable, plastic non-sterile, 3 ml			X
	Blood Bank devices	Blood Transfusion devices	Wooden or plastic applicator sticks			X
	Clinical laboratory devices	Clinical laboratory devices - Disposable	Container, sample, 50 ml		X	X
X	Clinical laboratory devices	Clinical laboratory devices - Disposable	Lancet, blood, safety, sterile (Sizes*)	X	X	X
	Clinical laboratory devices	Clinical laboratory devices - Disposable	Needle holder, vacuum tubes			X
X	Clinical laboratory devices	Clinical laboratory devices - Disposable	Needle, vacuum tube, sterile (Size*)			X
	Clinical laboratory devices	Clinical laboratory devices - Disposable	Paper, dry blood spot,			X
	Clinical laboratory devices	Clinical laboratory devices - Disposable	Swab, cotton-tip, tube, sterile	X	X	X
	Clinical laboratory devices	Clinical laboratory devices - Disposable	Tube, blood collection, newborn cord blood, sterile			X
	Clinical laboratory devices	Clinical laboratory devices - Disposable	Tube, capillary, Ethylene Diamine Tetra-acetic Acid (EDTA)			X
	Clinical laboratory devices	Clinical laboratory devices - Disposable	Tube, capillary, heparin			X
X	Clinical laboratory devices	Clinical laboratory devices - Disposable	Tube, vacuum, Ethylene Diamine Tetra-acetic Acid (EDTA), sterile (Capacity*)			X
X	Clinical laboratory devices	Clinical laboratory devices - Disposable	Tube, vacuum, plain/dry, sterile (Capacity*)			X

Grouping	General type	Specific area / type	Name of devices	Health post	Health center	District hospital
	Clinical laboratory devices	Clinical laboratory devices - Equipment	Analyzer, blood gas			X
	Clinical laboratory devices	Clinical laboratory devices - Equipment	Blood glucometer, with accessories	X	X	X
	Clinical laboratory devices	Clinical laboratory devices - Equipment	Hemoglobinometer, with accessories	X	X	X
	Clinical laboratory devices	Clinical laboratory devices - Test kits	Cytology stain, kit		X	X
	Clinical laboratory devices	Clinical laboratory devices - Test kits	Enzyme Immuno Assay (EIA), gonorrhea Ag, kit			X
	Clinical laboratory devices	Clinical laboratory devices - Test kits	Enzyme Immuno Assay (EIA), Human Immunodeficiency Virus (HIV), kit			X
	Clinical laboratory devices	Clinical laboratory devices - Test kits	Enzyme Immuno Assay (EIA), Rubella, kit			X
	Clinical laboratory devices	Clinical laboratory devices - Test kits	Haemoglobin colour scale (refill kit)	X	X	
	Clinical laboratory devices	Clinical laboratory devices - Test kits	Haemoglobin colour scale (starter kit)	X	X	
	Clinical laboratory devices	Clinical laboratory devices - Test kits	Nucleic Acid Test (NAT), chlamydia, kit			X
	Clinical laboratory devices	Clinical laboratory devices - Test kits	Nucleic Acid Test (NAT), gonorrhea, kit			X
	Clinical laboratory devices	Clinical laboratory devices - Test kits	Nucleic Acid Test (NAT), Human Papilloma Virus (HPV), kit		X	X
	Clinical laboratory devices	Clinical laboratory devices - Test kits	Rapid Diagnostic Test (RDT), Human Immunodeficiency Virus (HIV), kit	X	X	X
	Clinical laboratory devices	Clinical laboratory devices - Test kits	Rapid Diagnostic Test (RDT), malaria, kit	X	X	X
	Clinical laboratory devices	Clinical laboratory devices - Test kits	Rapid Diagnostic Test (RDT), Treponemal, syphilis, kit	X	X	X
	Clinical laboratory devices	Clinical laboratory devices - Test kits	Rapid Plasma Reagin (RPR), syphilis, kit		X	X
	Clinical laboratory devices	Clinical laboratory devices - Test kits	Treponema Pallidum Haemagglutination Assay (TPHA), syphilis, kit			X
	Clinical laboratory devices	Clinical laboratory devices - Test strips	Test strip, pregnancy	X	X	X
	Clinical laboratory devices	Clinical laboratory devices - Test strips	Test strip, urinalysis (10 parameter)	X	X	X
	Clinical laboratory devices	Clinical laboratory devices - Test strips	Test strip, vaginal infection, pH		X	X
	Family planning devices	Family planning devices - Disposable	Cervical cap			X
	Family planning devices	Family planning devices - Disposable	Diaphragm			X
	Family planning devices	Family planning devices - Disposable	Female condoms	X	X	X
	Family planning devices	Family planning devices - Disposable	Intra-Uterine Devices (only prequalified copper IUDs)		X	X
	Family planning devices	Family planning devices - Disposable	Levonorgestrel Intra-Uterine Device (IUD)			X
	Family planning devices	Family planning devices - Disposable	Lubricants	X	X	X
	Family planning devices	Family planning devices - Disposable	Male condoms	X	X	X
	Family planning devices	Family planning devices - Disposable	Sub-dermal implants (included the insertion device)			X

Grouping	General type	Specific area / type	Name of devices	Health post	Health center	District hospital
	Medical devices - Disposable	Dressing devices	Bandage, elastic, 7.5cmx5m, roll	X	X	X
	Medical devices - Disposable	Dressing devices	Blanket, survival, 220x140cm, non-sterile	X	X	X
X	Medical devices - Disposable	Dressing devices	Bracelet, identification (Sizes*)		X	X
X	Medical devices - Disposable	Dressing devices	Compress, gauze,sterile & non-sterile, single use	X	X	X
	Medical devices - Disposable	Dressing devices	Cotton wool, 500g, roll, non-sterile	X	X	X
X	Medical devices - Disposable	Dressing devices	Tape, medical, roll (Sizes*)	X	X	X
	Medical devices - Disposable	Dressing devices	Umbilical clamp, sterile,single use		X	X
	Medical devices - Disposable	Dressing devices	Umbilical tape, 3mmx50m, roll, non-sterile		X	X
X	Medical devices - Disposable	Injection devices	Cannulas, Intra Venous (IV) short, sterile, single use (Sizes G*)		X	X
	Medical devices - Disposable	Injection devices	Catheter, Intra Venous (IV) umbilical vein, sterile, single use			X
	Medical devices - Disposable	Injection devices	Infusion giving set, burette 100-150ml, sterile, single use		X	X
	Medical devices - Disposable	Injection devices	Infusion giving set, sterile, single use		X	X
X	Medical devices - Disposable	Injection devices	Needles, luer, sterile, single use (Sizes G*)	X	X	X
X	Medical devices - Disposable	Injection devices	Needles, scalp vein, sterile, single use (Sizes G*)		X	X
X	Medical devices - Disposable	Injection devices	Needles, spinal, sterile, single use (Sizes*)			X
	Medical devices - Disposable	Injection devices	Safety box, for used syringes/needles	X	X	X
	Medical devices - Disposable	Injection devices	Stopcock, 3-way, sterile, single use		X	X
X	Medical devices - Disposable	Injection devices	Syringes, auto-disable (AD), (Capacities ml*)	X	X	X
	Medical devices - Disposable	Injection devices	Syringe for insulin, sterile, single use		X	X
	Medical devices - Disposable	Injection devices	Syringe for tuberculin, sterile, single use			X
X	Medical devices - Disposable	Injection devices	Syringes, luer, sterile, single use (Capacities ml*)	X	X	X
X	Medical devices - Disposable	Injection devices	Syringes, reuse prevention (RUP), (Capacities ml*)	X	X	X
X	Medical devices - Disposable	Tube/catheter/drain	Airway, Guedel, translucent (Sizes*)			X
	Medical devices - Disposable	Tube/catheter/drain	Bag, urine, collecting, 2000ml		X	X
	Medical devices - Disposable	Tube/catheter/drain	Catheter, balloon tamponade, post partum hemorrhage			X
X	Medical devices - Disposable	Tube/catheter/drain	Catheter, Foley, sterile, single use (Sizes CH*)		X	X
X	Medical devices - Disposable	Tube/catheter/drain	Catheter, urethral, sterile, single use (Sizes CH*)		X	X
	Medical devices - Disposable	Tube/catheter/drain	Collector, urine, adhesive, 10-100ml			X
X	Medical devices - Disposable	Tube/catheter/drain	Prongs, nasal, oxygen, non sterile, single use (Sizes *)		X	X
	Medical devices - Disposable	Tube/catheter/drain	Syringe, feeding, catheter tip, 50ml, sterile, single use			X
	Medical devices - Disposable	Tube/catheter/drain	Syringe, feeding, luer tip, 50ml, sterile, single use			X
X	Medical devices - Disposable	Tube/catheter/drain	Tube, endotracheal, without cuff, sterile, single use (Sizes ID*)			X
X	Medical devices - Disposable	Tube/catheter/drain	Tube, endotracheal, with cuff, sterile, single use (Sizes ID*)			X
X	Medical devices - Disposable	Tube/catheter/drain	Tube, feeding/aspirating, L120cm,catheter tip, sterile, single use (Sizes CH*)			X

Grouping	General type	Specific area / type	Name of devices	Health post	Health center	District hospital
X	Medical devices - Disposable	Tube/catheter/drain	Tube, feeding, L40cm, luer tip, sterile, single use (Sizes CH*)			X
X	Medical devices - Disposable	Tube/catheter/drain	Tube, suction, L50cm, catheter tip, sterile, single use (Sizes CH*)			X
X	Medical devices - Disposable	Gloves	Gloves, examination, latex, non-sterile, single use (Sizes*)	X	X	X
X	Medical devices - Disposable	Gloves	Gloves, gynaecological, sterile, single use, pair (Sizes*)		X	X
X	Medical devices - Disposable	Gloves	Gloves, surgical, sterile, single use, pair (Sizes*)		X	X
X	Medical devices - Disposable	Surgical sutures	Suture, synthetic, absorbable (Sizes USP/DEC*) with needle (Shapes* and sizes*), sterile, single use		X	X
X	Medical devices - Disposable	Surgical sutures	Suture, synthetic, non-absorbable (Sizes USP/DEC*) with needle (Shapes* and sizes*), sterile, single use		X	X
	Medical devices - Equipment	Miscellaneous equipment	Apnoea monitor			X
	Medical devices - Equipment	Miscellaneous equipment	Auditory, function screening devices, newborn			X
	Medical devices - Equipment	Miscellaneous equipment	Bilirubinometer			X
	Medical devices - Equipment	Miscellaneous equipment	Breast biopsy system			X
	Medical devices - Equipment	Miscellaneous equipment	Breastpump, manual, with accessories		X	X
	Medical devices - Equipment	Miscellaneous equipment	Cardiotocograph (CTG), with accessories		X	X
	Medical devices - Equipment	Miscellaneous equipment	Colposcope with biopsy set			X
	Medical devices - Equipment	Miscellaneous equipment	Cryosurgical unit with tank and accesories			X
	Medical devices - Equipment	Miscellaneous equipment	Doppler, foetal heart rate (FHR) detector, with accessories		X	X
	Medical devices - Equipment	Miscellaneous equipment	Magnifying lens for Visual Inspection with Acetic Acid		X	X
	Medical devices - Equipment	Miscellaneous equipment	Mammograph with printer and accesories			X
	Medical devices - Equipment	Miscellaneous equipment	Non-Pneumatic Anti-Shock Garment (NASG)		X	X
	Medical devices - Equipment	Miscellaneous equipment	Phototherapy light, mobile, with accessories			X
X	Medical devices - Equipment Grouping	Medical Equipment Group	Commodities for medical examination & diagnosis (see table 12)	X	X	X
X	Medical devices - Equipment Grouping	Medical Equipment Group	Commodities for triage and basic emergency care and referral (see table 13)	X	X	X
X	Medical devices - Equipment Grouping	Medical Equipment Group	Commodities for labour, delivery & recovery (see table 14)		X	X
X	Medical devices - Equipment Grouping	Medical Equipment Group	Commodities for surgery & anesthesia (see table 15)		X	X
X	Medical devices - Equipment Grouping	Medical Equipment Group	Commodities for inpatient mother and newborn		X	X
X	Medical devices - Equipment Grouping	Medical Equipment Group	Commodities for inpatient child		X	X
X	Medical devices - Equipment Grouping	Medical Equipment Group	Commodities for intensive care of mother			X
X	Medical devices - Equipment Grouping	Medical Equipment Group	Commodities for intensive care of child			X
X	Medical devices - Equipment Grouping	Medical Equipment Group	Commodities for intensive care of newborn			X
	Counselling material	Counselling material	Counselling material	X	X	X

3.2 Groups of medical devices

The majority of medical devices, including equipment and surgical instruments sets, are required for multiple interventions across the continuum of care. To simplify the main matrix, many of these devices were grouped together. Many consumable devices are available in various sizes, and these were also grouped together.

It is important to apply judgement and knowledge of the local context to interpret the groupings, particularly when used in supply planning, as each facility and system is different.

3.2.1 Grouping of common medical equipment by clinical area in health care facility

The equipment commodities were grouped according to the clinical area of a health care facility in which they would most commonly be found, such as an examination room or intensive care unit (Table 12-18). These medical device equipment groupings were then allocated to interventions across the continuum.

The groupings also correspond, to a certain extent, to the types of intervention performed in particular clinical areas. For example, basic medical examinations typically happen in an examination area or room, while ventilation typically occurs within an intensive care setting.

Table 12. Medical equipment for medical examination and diagnosis

General type	Specific area / type	Name of devices for medical examination and diagnosis	Health post	Health center	District hospital
Medical devices - Equipment	Medical furniture	Bedscreen, hospital, on castors	X	X	X
		Cabinet, instruments, double door		X	X
		Cabinet, medicine, double door	X	X	X
		Footstool, two steps	X	X	X
		Stand, infusion, double hook, on castors		X	X
		Stool, adjustable, on castors		X	X
		Stretcher, foldable	X	X	X
		Stretcher, patient, with side rails		X	X
		Table, examination	X	X	X
		Table, gynaecology, delivery, with accessories		X	X
		Table, instruments, Mayo type, stainless steel, on castors		X	X
		Trolley, dressing, stainless steel, 2 trays	X	X	X
		Trolley, soiled linen	X	X	X
	Medical utensils	Basin, kidney, polypropylene	X	X	X
		Basin, kidney, stainless steel	X	X	X
		Bedpan, polypropylene		X	X
		Bowl, polypropylene	X	X	X
		Brush, hand, scrubbing, plastic	X	X	X
		Jar, forceps, polypropylene	X	X	X
		Jar, thermometer, polypropylene	X	X	X
		Receptacle, waste, stainless steel, pedal action	X	X	X
		Tray, dressing, stainless steel ,approx. 300x200x30mm	X	X	X
Medical devices - Renewable	Clothing medical and accessories	Cap, surgical, non-woven		X	X
		Coat, medical, woven, white - # sizes	X	X	X
		Drape, surgical woven - # sizes	X	X	X
		Drawsheet, plastic, approx. 90x180cm	X	X	X
		Gown, patient, woven		X	X

Table 12. Medical equipment for medical examination and diagnosis

General type	Specific area / type	Name of devices for medical examination and diagnosis	Health post	Health center	District hospital
Medical devices - Equipment	Anthropometric equipment	Measuring board, portable infant/child length/height	X	X	X
		Mid Upper Arm Circumference (MUAC) measuring tape, infant/ newborn		X	X
		Scale, electronic, mother/child, 150kgx100g	X	X	X
		Scale, electronic, infant,10kgx5g			X
		Scale, beamtype, infant,16kgx10g	X	X	X
		Scale,beamtype, adult, 6-180kg x100g	X	X	X
		Scale, springtype,infant,25kg x 100g with set of weighing trousers	X	X	X
	Hospital equipment	Light, examination, mobile, with accessories	X	X	X
	Medical diagnostic equipment	Electrocardiogram (ECG) recorder, portable, with accessories			X
		Ophtalmoscope, set	X	X	X
		Otoscope, set	X	X	X
		Scanner, ultrasound, mobile, with accessories		X	X
		Sphygmomanometer, adult, aneroid	X	X	X
		Sphygmomanometer, child, aneroid		X	X
		Stethoscope, adult, binaural	X	X	X
		Stethoscope, foetal, monaural		X	X
		Stethoscope, pediatric, binaural		X	X
		Thermometer, clinical, digital 32-43 °C	X	X	X
		Timer, respiration, for Acute Respiratory Infection (ARI)	X	X	X
		Tourniquet, rubber, approx. 50cm		X	X
		Tongue depressor,wooden,single use	X	X	X
		X-ray system, fixed, with accessories and infrastructure			X
		X-ray system, mobile, with accessories			X
		X-ray, viewer (negatoscope), 1 to 3 bodies		X	X
	Resuscitation/ Anaesthesia equipment	Pulse oximeter, portable, with accessories		X	X
		Pulse oximeter, spotcheck, with accessories		X	X
Medical devices - Surgical instruments	Surgical instrument	Forceps, dressing, Cheron, 250mm	X	X	X
		Speculum, vaginal, Graves, 75x20mm		X	X
		Speculum, vaginal, Graves, 95x35mm		X	X
		Speculum, vaginal, Graves, 115x35mm		X	X
	Surgical instruments set	Surgical instruments, dressing set (see table 41)	X	X	X

Table 13. Medical equipment for referral

General type	Specific area / type	Name of devices for triage and basic emergency care	Health post	Health center	District hospital
Medical devices - Equipment	Medical furniture	Exam and diagnosis elements of Table 12	X	X	X
		Bedscreen, hospital, on castors	X	X	X
		Bucket, kick, stainless steel, on castors		X	X
		Cabinet, instruments, double door		X	X
		Cabinet, medicine, double door	X	X	X
		Footstool, two steps	X	X	X
		Stand, infusion, double hook, on castors		X	X
		Stool, adjustable, on castors		X	X
		Stretcher, foldable	X	X	X
		Stretcher, patient, with side rails		X	X
		Table, examination	X	X	X
		Table, instruments, Mayo type, stainless steel, on castors		X	X
		Table, instruments, stainless steel, on castors		X	X
		Trolley, dressing, stainless steel, 2 trays	X	X	X
		Trolley, emergency, with drawers		X	X
		Trolley, soiled linen	X	X	X
		Wheel chair, adult		X	X
		Wheel chair, child		X	X
	Medical utensils	Basin, kidney, polypropylene	X	X	X
		Basin, kidney, stainless steel	X	X	X
		Bedpan, polypropylene		X	X
		Bowl, polypropylene	X	X	X
		Bowl, round, stainless steel, approx. 4L		X	X
		Bowl, stainless steel, approx. 180ml		X	X
		Bowl, stainless steel, approx. 600ml		X	X
		Brush, hand, scrubbing, plastic	X	X	X
		Jar, forceps, polypropylene	X	X	X
		Jar, thermometer, polypropylene	X	X	X
		Receptacle, waste, stainless steel, pedal action	X	X	X
		Tray, dressing, stainless steel ,approx. 300x200x30mm	X	X	X
Medical devices - Renewable	Clothing medical and accessories	Apron, protection, plastic		X	X
		Cap, surgical, non-woven		X	X
		Clogs, plastic - # sizes		X	X
		Coat, medical, woven, white - # sizes	X	X	X
		Drape, surgical woven - # sizes	X	X	X
		Drawsheet, plastic, approx. 90x180cm	X	X	X
		Glasses, safety, regular size		X	X
		Gown, patient, woven		X	X
		Gown, surgical, woven - # sizes		X	X
		Mask, surgical, non-woven,		X	X
		Trousers, surgical, woven - # sizes		X	X
		Tunic, surgical, woven - # sizes		X	X

Table 13. Medical equipment for referral

General type	Specific area / type	Name of devices for triage and basic emergency care	Health post	Health center	District hospital
Medical devices - Equipment	Anthropometric equipment	Measuring board, portable infant/child length/height	X	X	X
		Scale, electronic, mother/child, 150kgx100g	X	X	X
		Scale, electronic, infant,10kgx5g			X
		Scale, beamtype, infant,16kgx10g	X	X	X
		Scale,beamtype, adult, 6-180kg x100g	X	X	X
		Scale, springtype,infant,25kg x 100g with set of weighing trousers	X	X	X
	Hospital equipment	Light, examination, mobile, with accessories	X	X	X
		Pump, suction, electrical, 1 bottle, with accessories		X	X
		Pump, suction, electrical, 2 bottles, with accessories		X	X
	Medical diagnostic equipment	Electrocardiogram (ECG) recorder, portable, with accessories			X
		Ophtalmoscope, set	X	X	X
		Otoscope, set	X	X	X
		Sphygmomanometer, adult, aneroid	X	X	X
		Sphygmomanometer, child, aneroid		X	X
		Stethoscope, adult, binaural	X	X	X
		Stethoscope, foetal, monaural		X	X
		Stethoscope, pediatric, binaural		X	X
		Thermometer, clinical, digital 32-43 °C	X	X	X
		Timer, respiration, for Acute Respiratory Infection (ARI)	X	X	X
		Tourniquet, rubber, approx. 50cm		X	X
		Tongue depressor,wooden,single use	X	X	X
		X-ray system, fixed, with accessories and infrastructure			X
		X-ray system, mobile, with accessories			X
		X-ray, viewer (negatoscope), 1 to 3 bodies			X
	Resuscitation/ Anaesthesia equipment	Continuous Positive Airway Pressure (CPAP) system, with accessories			X
		Defibrillator, basic, with accessories		X	X
		Forceps, Magill, adult			X
		Forceps, Magill, child			X
		Incubator, newborn, transport, with accessories			X
		Infusion pump, with accessories			X
		Laryngoscope, adult/child, set			X
		Laryngoscope, newborn, set			X
		Monitor, patient, portable, with accessories			X
		Nebulizer, with accessories		X	X
		Oxygen concentrator, with accessories		X	X
		Pulse oximeter, portable, with accessories		X	X
		Pulse oximeter, spotcheck, with accessories		X	X
		Pump, suction, foot-operated		X	X
		Pump, suction, newborn resuscitation			X
		Resuscitator, hand-operated, adult, set		X	X
		Resuscitator, hand-operated, child, set		X	X
		Resuscitator, hand-operated, newborn, set		X	X
		Suction, bulb		X	X

Table 13. Medical equipment for referral

General type	Specific area / type	Name of devices for triage and basic emergency care	Health post	Health center	District hospital
		Syringe pump, with accessories			X
		Table, resuscitation, newborn, with accessories			X
		Ventilator medical, adult, with accessories			X
		Ventilator medical, adult, transport, with accessories			X
		Ventilator medical, child/newborn, with Continuous Positive Airway Pressure (CPAP) and accessories			X
		Ventilator medical, child/newborn, transport, with accessories			X
		Warmer, heating pad, newborn, with accessories		X	X
		Warmer, sleeping bag, newborn, with accessories		X	X
		Warmer, radiant heater, freestanding, with accessories			X
Medical devices - Surgical instruments	Surgical instrument	Forceps, dressing, Cheron, 250mm	X	X	X
		Scalpel blade, no.22, sterile, single use (for Scalpel Handle n0.4)		X	X
		Scalpel blade, no.10, sterile, single use (for Scalpel Handle n0.3)		X	X
		Speculum, vaginal, Graves, 75x20mm		X	X
		Speculum, vaginal, Graves, 95x35mm		X	X
		Speculum, vaginal, Graves, 115x35mm		X	X
	Surgical instruments set	Surgical instruments, dressing set (see table 41)	X	X	X
		Surgical instruments, suture set (see table 41)		X	X

Table 14. Medical equipment for labour, delivery and recovery

General type	Specific area / type	Name of devices for labour, delivery and recovery	Health post	Health center	District hospital
Medical devices - Equipment	Medical furniture	Bed, labour/delivery, with mattress & accessories		X	X
		Bucket, kick, stainless steel, on castors		X	X
		Cabinet, instruments, double door		X	X
		Cabinet, medicine, double door		X	X
		Footstool, two steps		X	X
		Stand, infusion, double hook, on castors		X	X
		Stand, single bowl, on castors		X	X
		Stool, adjustable, on castors		X	X
		Stretcher, patient, with side rails		X	X
		Table, baby dressing		X	X
		Table, gynaecology, delivery, with accessories		X	X
		Table, instruments, Mayo type, stainless steel, on castors		X	X
		Trolley, dressing, stainless steel, 2 trays		X	X
		Trolley, emergency, with drawers		X	X
		Trolley, soiled linen		X	X
	Medical utensils	Basin, kidney, polypropylene		X	X
		Basin, kidney, stainless steel		X	X
		Bedpan, polypropylene		X	X
		Bowl, polypropylene		X	X
		Bowl, round, stainless steel, approx. 4L		X	X
		Bowl, stainless steel, approx. 180ml		X	X
		Bowl, stainless steel, approx. 600ml		X	X
		Brush, hand, scrubbing, plastic		X	X
		Jar, forceps, polypropylene		X	X
		Jar, thermometer, polypropylene		X	X
		Receptacle, waste, stainless steel, pedal action		X	X
		Tray, dressing, stainless steel ,approx. 300x200x30mm		X	X
Medical devices - Renewable	Clothing medical and accessories	Apron, protection, plastic		X	X
		Cap, surgical, non-woven		X	X
		Clogs, plastic - # sizes		X	X
		Drape, surgical woven - # sizes		X	X
		Drawsheet, plastic, approx. 90x180cm		X	X
		Glasses, safety, regular size		X	X
		Gown, patient, woven		X	X
		Gown, surgical, woven - # sizes		X	X
		Mask, surgical, non-woven,		X	X
		Trousers, surgical, woven - # sizes		X	X
		Tunic, surgical, woven - # sizes		X	X
Medical devices - Equipment	Anthropometric equipment	Scale, electronic, infant,10kgx5g			X
		Scale, beamtype, infant,16kgx10g		X	X
	Hospital equipment	Light, examination, mobile, with accessories		X	X
		Pump, suction, electrical, 1 bottle, with accessories		X	X
		Vacuum extractor, Bird, manual, complete set		X	X

Table 14. Medical equipment for labour, delivery and recovery

General type	Specific area / type	Name of devices for labour, delivery and recovery	Health post	Health center	District hospital
	Medical diagnostic equipment	Partograph		X	X
		Scanner, ultrasound, mobile, with accessories		X	X
		Sphygmomanometer, adult, aneroid		X	X
		Stethoscope, adult, binaural		X	X
		Stethoscope, foetal, monaural		X	X
		Thermometer, clinical, digital 32-43 °C		X	X
		Tourniquet, rubber, approx. 50cm		X	X
	Resuscitation/ Anaesthesia equipment	Oxygen concentrator, with accessories		X	X
		Pulse oximeter, portable, with accessories		X	X
		Pulse oximeter, spotcheck, with accessories		X	X
		Pump, suction, foot-operated		X	X
		Pump, suction, newborn resuscitation			X
		Resuscitator, hand-operated, adult, set	X	X	X
		Resuscitator, hand-operated, newborn, set		X	X
		Suction, bulb		X	X
		Table, resuscitation, newborn, with accessories			X
Medical devices - Surgical instruments	Surgical instrument	Forceps, dressing, Cheron, 250mm		X	X
		Scalpel blade, no.22, sterile, single use (for Scalpel Handle n0.4)		X	X
		Speculum, vaginal, Graves, 75x20mm		X	X
		Speculum, vaginal, Graves, 95x35mm		X	X
		Speculum, vaginal, Graves, 115x35mm		X	X
	Surgical instruments set	Surgical instruments, delivery set		X	X
		Surgical instruments, dressing set		X	X
		Surgical instruments, suture set		X	X

Table 15. Medical equipment for surgery and anaesthesia

General type	Specific area / type	Name of devices for surgery and anaesthesia	Health post	Health center	District hospital
Medical devices - Equipment	Medical furniture	Bucket, kick, stainless steel, on castors		X	X
		Cabinet, instruments, double door		X	X
		Cabinet, medicine, double door		X	X
		Footstool, two steps		X	X
		Stand, infusion, double hook, on castors		X	X
		Stand, single bowl, on castors		X	X
		Stool, adjustable, on castors		X	X
		Stretcher, patient, with side rails		X	X
		Table, baby dressing		X	X
		Table, instruments, Mayo type, stainless steel, on castors		X	X
		Table, instruments, stainless steel, on castors		X	X
		Trolley, dressing, stainless steel, 2 trays		X	X
		Trolley, emergency, with drawers		X	X
		Trolley, soiled linen		X	X
	Medical utensils	Basin, kidney, polypropylene		X	X
		Basin, kidney, stainless steel		X	X
		Bedpan, polypropylene		X	X
		Bowl, polypropylene		X	X
		Bowl, round, stainless steel, approx. 4L		X	X
		Bowl, stainless steel, approx. 180ml		X	X
		Bowl, stainless steel, approx. 600ml		X	X
		Brush, hand, scrubbing, plastic		X	X
		Jar, forceps, polypropylene		X	X
		Jar, thermometer, polypropylene		X	X
		Receptacle, waste, stainless steel, pedal action		X	X
		Tray, dressing, stainless steel ,approx. 300x200x30mm		X	X
Medical devices - Renewable	Clothing medical and accessories	Apron, protection, plastic		X	X
		Cap, surgical, non-woven		X	X
		Clogs, plastic - # sizes		X	X
		Drape, surgical woven - # sizes		X	X
		Drawsheet, plastic, approx. 90x180cm		X	X
		Glasses, safety, regular size		X	X
		Gown, patient, woven		X	X
		Gown, surgical, woven - # sizes		X	X
		Mask, surgical, non-woven,		X	X
		Trousers, surgical, woven - # sizes		X	X
		Tunic, surgical, woven - # sizes		X	X
Medical devices - Equipment	Hospital equipment	Electrosurgical unit, with accessories			X
		Table, operating theater, with accessories			X
		Light, operating theatre, ceiling, with accessories			X
		Light, operating theatre, mobile, with accessories			X
		Electrical vacuum aspiration (EVA), complete set			X
		Manual vacuum aspiration (MVA), complete set			X
		Pump, suction, electrical, 1 bottle, with accessories			X
		Pump, suction, electrical, 2 bottles, with accessories			X

Table 15. Medical equipment for surgery and anaesthesia

General type	Specific area / type	Name of devices for surgery and anaesthesia	Health post	Health center	District hospital
	Medical diagnostic equipment	Sphygmomanometer, adult, aneroid		X	X
		Stethoscope, adult, binaural		X	X
		Tourniquet, rubber, approx. 50cm		X	X
		X-ray system, mobile, with accessories		X	X
		X-ray, viewer (negatoscope), 1 to 3 bodies			X
	Resuscitation/ Anaesthesia equipment	Anaesthesia system, basic, free-standing, with accessories			X
		Anaesthesia unit, with ventilator and accessories			X
		Defibrillator, basic, with accessories			X
		Forceps, Magill, adult			X
		Laryngoscope, adult/child, set			X
		Monitor, patient, portable, with accessories			X
		Oxygen concentrator, with accessories		X	X
		Pulse oximeter, portable, with accessories		X	X
		Pulse oximeter, spotcheck, with accessories		X	X
		Pump, suction, foot-operated			X
		Pump, suction, newborn resuscitation			X
		Resuscitator, hand-operated, adult, set			X
		Resuscitator, hand-operated, newborn, set			X
		Suction, bulb			X
		Table, resuscitation, newborn, with accessories			X
Medical devices - Surgical instruments	Surgical instrument	Forceps, dressing, Cheron, 250mm			X
		Scalpel blade, no.22, sterile, single use (for Scalpel Handle n0.4)			X
		Speculum, vaginal, Graves, 75x20mm			X
		Speculum, vaginal, Graves, 95x35mm			X
		Speculum, vaginal, Graves, 115x35mm			X
	Surgical instruments set (see table 41)	Surgical instruments, basic surgery set			X
		Surgical instruments, delivery set			X
		Surgical instruments, dilatation/evacuation (D&E) set			X
		Surgical instruments, dressing set		X	X
		Surgical instruments, early infant male circumcision, set			X
		Surgical instruments, embryotomy set			X
		Surgical instruments, examination/suturing, vaginal/cervical, set			X
		Surgical instruments, intra uterin device (IUD) insertion/removal, set		X	X
		Surgical instruments, laparotomy (Gyn/Obs) set			X
		Surgical instruments, suture set		X	X
		Surgical instruments, vacuum aspiration set			X
		Surgical instruments, vasectomy set		X	X
		Surgical instruments, vasectomy non-scalpel set		X	X

Table 16. Medical equipment for inpatient care - mother and newborn

General type	Specific area / type	Name of devices for inpatient mother and newborn	Health center	District hospital
Medical devices - Equipment	Medical furniture	Bed, hospital, standard,adult,with mattress	X	X
		Bedscreen, hospital, on castors	X	X
		Cabinet, bedside, standard	X	X
		Cabinet, medicine, double door	X	X
		Cot, baby, hospital, with bassinet, on castors	X	X
		Stand, infusion, double hook, on castors	X	X
		Stretcher, patient, with side rails	X	X
		Table, baby dressing	X	X
		Table, instruments, Mayo type, stainless steel, on castors	X	X
		Trolley, dressing, stainless steel, 2 trays	X	X
		Trolley, soiled linen	X	X
		Wheel chair, adult	X	X
	Medical utensils	Basin, kidney, polypropylene	X	X
		Basin, kidney, stainless steel	X	X
		Bedpan, polypropylene	X	X
		Bowl, polypropylene	X	X
		Brush, hand, scrubbing, plastic	X	X
		Jar, forceps, polypropylene	X	X
		Jar, thermometer, polypropylene	X	X
		Receptacle, waste, stainless steel, pedal action	X	X
		Tray, dressing, stainless steel ,approx. 300x200x30mm	X	X
Medical devices - Renewable	Clothing medical and accessories	Coat, medical, woven, white - # sizes	X	X
		Drape, surgical woven - # sizes	X	X
		Drawsheet, plastic, approx. 90x180cm	X	X
		Gown, patient, woven	X	X
Medical devices - Equipment	Anthropometric equipment	Scale, electronic, mother/child, 150kgx100g	X	X
		Scale, electronic, infant, 10kgx5g		X
		Scale, beamtype, infant, 16kgx10g	X	X
	Hospital equipment	Light, examination, mobile, with accessories	X	X
	Medical diagnostic equipment	Sphygmomanometer, adult, aneroid	X	X
		Stethoscope, adult, binaural	X	X
		Thermometer, clinical, digital 32-43 °C	X	X
		Timer, respiration, for Acute Respiratory Infection (ARI)	X	X
		Tourniquet, rubber, approx. 50cm	X	X
		Tongue depressor, wooden, single use	X	X
		X-ray system, mobile, with accessories		X
		X-ray, viewer (negatoscope), 1 to 3 bodies		X
	Resuscitation/ Anaesthesia equipment	Infusion pump, with accessories		X
		Nebulizer, with accessories	X	X
		Oxygen concentrator, flowsplitter for newborn/child		X
		Oxygen concentrator, with accessories	X	X
		Pulse oximeter, portable, with accessories	X	X
		Pulse oximeter, spotcheck, with accessories	X	X
		Syringe pump, with accessories		X
		Warmer, heating pad, newborn, with accessories	X	X
		Warmer, sleeping bag, newborn, with accessories	X	X
		Warmer, radiant heater, freestanding, with accessories		X
Medical devices - Surgical instruments	Surgical instrument	Forceps, dressing, Cheron, 250mm	X	X
	Surgical instruments set	Surgical instruments, dressing set	X	X

Table 17. Medical equipment for inpatient care – child

General type	Specific area / type	Name of devices for inpatient child	Health center	District hospital
Medical devices - Equipment	Medical furniture	Bed, hospital, standard, child, with mattress	X	X
		Bedscreen, hospital, on castors	X	X
		Cabinet, bedside, standard	X	X
		Cabinet, medicine, double door	X	X
		Stand, infusion, double hook, on castors	X	X
		Stretcher, patient, with side rails	X	X
		Table, baby dressing	X	X
		Trolley, dressing, stainless steel, 2 trays	X	X
		Trolley, soiled linen	X	X
		Wheel chair, adult	X	X
		Wheel chair, child	X	X
	Medical utensils	Basin, kidney, polypropylene	X	X
		Basin, kidney, stainless steel	X	X
		Bedpan, polypropylene	X	X
		Bowl, polypropylene	X	X
		Brush, hand, scrubbing, plastic	X	X
		Jar, forceps, polypropylene	X	X
		Jar, thermometer, polypropylene	X	X
		Receptacle, waste, stainless steel, pedal action	X	X
		Tray, dressing, stainless steel ,approx. 300x200x30mm	X	X
Medical devices - Renewable	Clothing medical and accessories	Coat, medical, woven, white - # sizes	X	X
		Drape, surgical woven - # sizes	X	X
		Drawsheet, plastic, approx. 90x180cm	X	X
Medical devices - Equipment	Anthropometric equipment	Scale, electronic, mother/child, 150kgx100g	X	X
		Scale, electronic, infant, 10kgx5g		X
		Scale, beamtype, infant, 16kgx10g	X	X
		Scale, springtype, infant, 25kg x 100g with set of weighing trousers	X	X
	Hospital equipment	Light, examination, mobile, with accessories	X	X
	Medical diagnostic equipment	Sphygmomanometer, child, aneroid	X	X
		Stethoscope, pediatric, binaural	X	X
		Thermometer, clinical, digital 32-43 °C	X	X
		Timer, respiration, for Acute Respiratory Infection (ARI)	X	X
		Tourniquet, rubber, approx. 50cm	X	X
		Tongue depressor,wooden,single use	X	X
		X-ray system, mobile, with accessories		X
		X-ray, viewer (negatoscope), 1 to 3 bodies		X
	Resuscitation/ Anaesthesia equipment	Infusion pump, with accessories		X
		Nebulizer, with accessories	X	X
		Oxygen concentrator, flowsplitter for newborn/child		X
		Oxygen concentrator, with accessories	X	X
		Pulse oximeter, portable, with accessories	X	X
		Pulse oximeter, spotcheck, with accessories	X	X
		Syringe pump, with accessories		X
		Warmer, heating pad, newborn, with accessories	X	X
		Warmer, sleeping bag, newborn, with accessories	X	X
Medical devices - Surgical instruments	Surgical instrument	Forceps, dressing, Cheron, 250mm	X	X
	Surgical instruments set	Surgical instruments, dressing set	X	X

Table 18. Medical equipment for intensive care (in district hospital or higher level)

General type	Specific area / type	Name of devices for intensive care (in district hospital)	Intensive care of:		
			Mother	Newborn	Child
Medical devices - Equipment	Medical furniture	Bed, hospital, Intensive Care Unit (ICU), with mattress	X		
		Bed, hospital, standard, child, with mattress			X
		Bedscreen, hospital, on castors	X		
		Cabinet, bedside, standard	X	X	X
		Cabinet, instruments, double door	X	X	X
		Cabinet, medicine, double door	X	X	X
		Cot, baby, hospital, with bassinet, on castors		X	
		Stand, infusion, double hook, on castors	X	X	X
		Stretcher, patient, with side rails	X	X	X
		Table, baby dressing		X	X
		Table, instruments, Mayo type, stainless steel, on castors	X	X	X
		Trolley, dressing, stainless steel, 2 trays	X	X	X
		Trolley, emergency, with drawers	X	X	X
		Trolley, soiled linen	X	X	X
	Medical utensils	Basin, kidney, polypropylene	X	X	X
		Basin, kidney, stainless steel	X	X	X
		Bedpan, polypropylene	X		
		Bowl, polypropylene	X	X	X
		Bowl, round, stainless steel, approx. 4L	X	X	X
		Bowl, stainless steel, approx. 180ml	X	X	X
		Bowl, stainless steel, approx. 600ml	X	X	X
		Brush, hand, scrubbing, plastic	X	X	X
		Jar, forceps, polypropylene	X	X	X
		Jar, thermometer, polypropylene	X	X	X
		Receptacle, waste, stainless steel, pedal action	X	X	X
		Tray, dressing, stainless steel ,approx. 300x200x30mm	X	X	X
Medical devices - Renewable	Clothing medical and accessories	Cap, surgical, non-woven	X	X	X
		Clogs, plastic - # sizes	X	X	X
		Drape, surgical woven - # sizes	X	X	X
		Drawsheet, plastic, approx. 90x180cm	X	X	X
		Gown, patient, woven	X		X
		Gown, surgical, woven - # sizes	X	X	X
		Mask, surgical, non-woven,	X	X	X
		Trousers, surgical, woven - # sizes	X	X	X
		Tunic, surgical, woven - # sizes	X	X	X
Medical devices - Equipment	Anthropometric equipment	Mid Upper Arm Circumference (MUAC) measuring tape, infant/ newborn		X	X
		Scale, electronic, infant, 10kgx5g		X	X
		Scale, beamtype, infant, 16kgx10g		X	X
		Scale, springtype,infant, 25kg x 100g with set of weighing trousers		X	X
	Hospital equipment	Light, examination, mobile, with accessories	X		
		Pump, suction, electrical, 1 bottle, with accessories	X	X	X

Table 18. Medical equipment for intensive care (in district hospital or higher level)

General type	Specific area / type	Name of devices for intensive care (in district hospital)	Intensive care of:		
			Mother	Newborn	Child
	Medical diagnostic equipment	Electrocardiogram (ECG) recorder, portable, with accessories	X	X	X
		Sphygmomanometer, adult, aneroid	X		
		Sphygmomanometer, child, aneroid			X
		Stethoscope, adult, binaural	X		
		Stethoscope, pediatric, binaural		X	X
		Thermometer, clinical, digital 32-43 °C	X	X	X
		Timer, respiration, for Acute Respiratory Infection (ARI)	X	X	X
		Tourniquet, rubber, approx. 50cm	X	X	X
		Tongue depressor,wooden,single use	X	X	X
		X-ray system, mobile, with accessories	X	X	X
		X-ray, viewer (negatoscope), 1 to 3 bodies	X	X	X
	Resuscitation/ Anaesthesia equipment	Continuous Positive Airway Pressure (CPAP) system, with accessories		X	X
		Defibrillator, basic, with accessories	X		X
		Forceps, Magill, adult	X		
		Forceps, Magill, child			X
		Incubator, newborn, automatic, basic, with accessories		X	
		Infusion pump, with accessories	X	X	X
		Laryngoscope, adult/child, set	X		X
		Laryngoscope, newborn, set		X	
		Monitor, patient, portable, with accessories	X	X	X
		Oxygen concentrator, flowsplitter for newborn/child		X	X
		Oxygen concentrator, with accessories	X	X	X
		Pulse oximeter, portable, with accessories	X	X	X
		Pulse oximeter, spotcheck, with accessories	X	X	X
		Pump, suction, foot-operated	X	X	X
		Pump, suction, newborn resuscitation		X	
		Resuscitator, hand-operated, adult, set	X		
		Resuscitator, hand-operated, child, set			X
		Resuscitator, hand-operated, newborn, set		X	
		Suction, bulb		X	X
		Syringe pump, with accessories	X	X	X
		Ventilator medical, adult, with accessories	X		
		Ventilator medical, child/newborn, with Continuous Positive Airway Pressure (CPAP) and accessories		X	X
		Warmer, heating pad, newborn, with accessories		X	
		Warmer, sleeping bag, newborn, with accessories		X	
		Warmer, radiant heater, freestanding, with accessories		X	
Medical devices - Surgical instruments	Surgical instrument	Forceps, dressing, Cheron, 250mm	X	X	X
	Surgical instruments set	Surgical instruments, dressing set (see table 41)	X	X	X

3.2.2 Grouping of medical device consumables by size and capacity

The majority of medical device consumables are required for multiple interventions across the continuum of care, and in many cases the same product types are required in different sizes and capacities. To simplify the main matrix, one generic item line reflecting one product type is allocated to interventions across the continuum, and product ranges related to each generic item line are listed in the master list (Table 19).

Table 19. Medical device consumables by size and capacity

Colour coding used below

X	Disposable Generic item line (see Table 11 Medical devices for different health-care facilities)
x	Related items covered by the Generic line (note: sizes listed from smaller to bigger)

	General type	Specific area / type	Name of devices	Health post	Health center	District hospital
X	Clinical laboratory devices	Clinical laboratory devices - Disposable	Lancet, blood, safety, sterile (Sizes*)	X	X	X
x	Clinical laboratory devices	Clinical laboratory devices - Disposable	Lancet, safety, 2.0 mm, sterile			
x	Clinical laboratory devices	Clinical laboratory devices - Disposable	Lancet, safety, 2.4 mm, sterile			
X	Clinical laboratory devices	Clinical laboratory devices - Disposable	Needle, vacuum tube, sterile (Size*)			X
x	Clinical laboratory devices	Clinical laboratory devices - Disposable	Needle, vacuum tube, 20 G, sterile			
x	Clinical laboratory devices	Clinical laboratory devices - Disposable	Needle, vacuum tube, 22 G, sterile			
X	Clinical laboratory devices	Clinical laboratory devices - Disposable	Tube, vacuum, Ethylene Diamine Tetra-acetic Acid (EDTA), sterile (Capacity*)			X
x	Clinical laboratory devices	Clinical laboratory devices - Disposable	Tube, vacuum, Ethylene Diamine Tetra-acetic Acid (EDTA), 2 ml, sterile			
x	Clinical laboratory devices	Clinical laboratory devices - Disposable	Tube, vacuum, Ethylene Diamine Tetra-acetic Acid (EDTA), 4 ml, sterile			
X	Clinical laboratory devices	Clinical laboratory devices - Disposable	Tube, vacuum, plain/dry, sterile (Capacity*)			X
x	Clinical laboratory devices	Clinical laboratory devices - Disposable	Tube, vacuum, plain/dry, 4 ml, sterile			
x	Clinical laboratory devices	Clinical laboratory devices - Disposable	Tube, vacuum, plain/dry, 6 ml, sterile			
X	Medical devices - Disposable	Dressing devices	Bracelet, identification (Sizes*)		X	X
x	Medical devices - Disposable	Dressing devices	Bracelet, identification newborn			
x	Medical devices - Disposable	Dressing devices	Bracelet, identification infant			
x	Medical devices - Disposable	Dressing devices	Bracelet, identification adult			
X	Medical devices - Disposable	Dressing devices	Compress, gauze,sterile & non-sterile, single use	X	X	X
x	Medical devices - Disposable	Dressing devices	Compress, gauze, 10x10cm, non-sterile			
x	Medical devices - Disposable	Dressing devices	Compress, gauze, 10x10cm, sterile, single use			
x	Medical devices - Disposable	Dressing devices	Compress, gauze, paraffin, 10 x 10cm, sterile, single use			
X	Medical devices - Disposable	Dressing devices	Tape, medical, roll (Sizes*)	X	X	X
x	Medical devices - Disposable	Dressing devices	Tape, medical, 2.5cmx5m,roll			
x	Medical devices - Disposable	Dressing devices	Tape, medical, 10cmx5m, roll			
X	Medical devices - Disposable	Injection devices	Cannulas, Intra Venous (IV) short, sterile, single use (Sizes G*)		X	X
x	Medical devices - Disposable	Injection devices	Cannula, IV short, 24G, sterile, single use			

Table 19. Medical device consumables by size and capacity

	General type	Specific area / type	Name of devices	Health post	Health center	District hospital
x	Medical devices - Disposable	Injection devices	Cannula, IV short, 22G, sterile, single use			
x	Medical devices - Disposable	Injection devices	Cannula, IV short, 20G, sterile, single use			
x	Medical devices - Disposable	Injection devices	Cannula, IV short, 18G, sterile, single use			
x	Medical devices - Disposable	Injection devices	Cannula, IV short, 16G, sterile, single use			
X	Medical devices - Disposable	Injection devices	Needles, luer, sterile, single use (Sizes G*)	X	X	X
x	Medical devices - Disposable	Injection devices	Needle, luer, 25G(0.5x16mm), sterile, single use			
x	Medical devices - Disposable	Injection devices	Needle, luer, 23G(0.6x25mm), sterile, single use			
x	Medical devices - Disposable	Injection devices	Needle, luer, 21G(0.8x40mm), sterile, single use			
x	Medical devices - Disposable	Injection devices	Needle, luer, 19G(1.1x40mm), sterile, single use			
X	Medical devices - Disposable	Injection devices	Needles, scalp vein, sterile, single use (Sizes G*)		X	X
x	Medical devices - Disposable	Injection devices	Needle, scalp vein, 25G, sterile, single use			
x	Medical devices - Disposable	Injection devices	Needle, scalp vein, 21G, sterile, single use			
X	Medical devices - Disposable	Injection devices	Needles, spinal,sterile, single use (Sizes*)			X
x	Medical devices - Disposable	Injection devices	Needle, spinal, 22G (0.7x40mm),sterile, single use			
x	Medical devices - Disposable	Injection devices	Needle, spinal, 25G(0.5x90mm), sterile, single use			
X	Medical devices - Disposable	Injection devices	Syringes, auto-disable (AD), (Capacities ml*)	X	X	X
x	Medical devices - Disposable	Injection devices	Syringe, auto-disable, 0.05 ml			
x	Medical devices - Disposable	Injection devices	Syringe, auto-disable, 0.5 ml			
X	Medical devices - Disposable	Injection devices	Syringes, luer, sterile, single use (Capacities ml*)	X	X	X
x	Medical devices - Disposable	Injection devices	Syringe, luer, 1ml, sterile, single use			
x	Medical devices - Disposable	Injection devices	Syringe, luer, 2ml, sterile, single use			
x	Medical devices - Disposable	Injection devices	Syringe, luer, 5ml, sterile, single use			
x	Medical devices - Disposable	Injection devices	Syringe, luer, 10ml, sterile, single use			
x	Medical devices - Disposable	Injection devices	Syringe, luer, 20ml, sterile, single use			
X	Medical devices - Disposable	Injection devices	Syringes, reuse prevention (RUP), (Capacities ml*)	X	X	X
x	Medical devices - Disposable	Injection devices	Syringe, reuse prevention(RUP), 1ml			
x	Medical devices - Disposable	Injection devices	Syringe, reuse prevention(RUP), 2ml			
x	Medical devices - Disposable	Injection devices	Syringe, reuse prevention(RUP), 5ml			
x	Medical devices - Disposable	Injection devices	Syringe, reuse prevention(RUP), 10ml			
x	Medical devices - Disposable	Injection devices	Syringe, reuse prevention(RUP), 20ml			
X	Medical devices - Disposable	Tube/catheter/drain	Airway, Guedel, translucent (Sizes*)			X
x	Medical devices - Disposable	Tube/catheter/drain	Airway, Guedel, translucent, size 000			
x	Medical devices - Disposable	Tube/catheter/drain	Airway, Guedel, translucent, size 00			
x	Medical devices - Disposable	Tube/catheter/drain	Airway, Guedel, translucent, size 0			
x	Medical devices - Disposable	Tube/catheter/drain	Airway, Guedel, translucent, size 1			
x	Medical devices - Disposable	Tube/catheter/drain	Airway, Guedel, translucent, size 2			
x	Medical devices - Disposable	Tube/catheter/drain	Airway, Guedel, translucent, size 3			
x	Medical devices - Disposable	Tube/catheter/drain	Airway, Guedel, translucent, size 4			
X	Medical devices - Disposable	Tube/catheter/drain	Catheter, Foley, sterile, single use (Sizes CH*)		X	X
x	Medical devices - Disposable	Tube/catheter/drain	Catheter, Foley, CH08, sterile, single use			

Table 19. Medical device consumables by size and capacity

	General type	Specific area / type	Name of devices	Health post	Health center	District hospital
x	Medical devices - Disposable	Tube/catheter/drain	Catheter, Foley, CH10, sterile, single use			
x	Medical devices - Disposable	Tube/catheter/drain	Catheter, Foley, CH12, sterile, single use			
x	Medical devices - Disposable	Tube/catheter/drain	Catheter, Foley, CH14, sterile, single use			
X	Medical devices - Disposable	Tube/catheter/drain	Catheter, urethral, sterile, single use (Sizes CH*)		X	X
x	Medical devices - Disposable	Tube/catheter/drain	Catheter, urethral, CH12, sterile, single use			
x	Medical devices - Disposable	Tube/catheter/drain	Catheter, urethral, CH14, sterile, single use			
X	Medical devices - Disposable	Tube/catheter/drain	Prongs, nasal, oxygen, non sterile, single use (Sizes *)		X	X
x	Medical devices - Disposable	Tube/catheter/drain	Prongs, nasal, oxygen, neonate, non sterile, single use			
x	Medical devices - Disposable	Tube/catheter/drain	Prongs, nasal, oxygen, infant, non sterile, single use			
x	Medical devices - Disposable	Tube/catheter/drain	Prongs, nasal, oxygen, adult, non sterile, single use			
X	Medical devices - Disposable	Tube/catheter/drain	Tube, endotracheal, without cuff, sterile, single use (Sizes ID*)			X
x	Medical devices - Disposable	Tube/catheter/drain	Tube, endotracheal, 2.5, without cuff, sterile, single use			
x	Medical devices - Disposable	Tube/catheter/drain	Tube, endotracheal, 3, without cuff, sterile, single use			
x	Medical devices - Disposable	Tube/catheter/drain	Tube, endotracheal, 3.5, without cuff, sterile, single use			
x	Medical devices - Disposable	Tube/catheter/drain	Tube, endotracheal, 4, without cuff, sterile, single use			
x	Medical devices - Disposable	Tube/catheter/drain	Tube, endotracheal, 4.5, without cuff, sterile, single use			
x	Medical devices - Disposable	Tube/catheter/drain	Tube, endotracheal, 5, without cuff, sterile, single use			
x	Medical devices - Disposable	Tube/catheter/drain	Tube, endotracheal, 5.5, without cuff, sterile, single use			
X	Medical devices - Disposable	Tube/catheter/drain	Tube, endotracheal, with cuff, sterile, single use (Sizes ID*)			X
x	Medical devices - Disposable	Tube/catheter/drain	Tube, endotracheal, 6.5, with cuff, sterile, single use			
x	Medical devices - Disposable	Tube/catheter/drain	Tube, endotracheal, 7, with cuff, sterile, single use			
x	Medical devices - Disposable	Tube/catheter/drain	Tube, endotracheal, 7.5, with cuff, sterile, single use			
x	Medical devices - Disposable	Tube/catheter/drain	Tube, endotracheal, 8, with cuff, sterile, single use			
X	Medical devices - Disposable	Tube/catheter/drain	Tube, feeding/aspirating, L120cm,catheter tip, sterile, single use (Sizes CH*)			X
x	Medical devices - Disposable	Tube/catheter/drain	Tube, aspirating/feeding, CH06, L120cm, catheter tip, sterile, single use			
x	Medical devices - Disposable	Tube/catheter/drain	Tube, aspirating/feeding, CH08, L120cm, catheter tip, sterile, single use			
x	Medical devices - Disposable	Tube/catheter/drain	Tube, aspirating/feeding, CH10, L120cm, catheter tip, sterile, single use			
x	Medical devices - Disposable	Tube/catheter/drain	Tube, aspirating/feeding, CH12, L120cm, catheter tip, sterile, single use			
x	Medical devices - Disposable	Tube/catheter/drain	Tube, aspirating/feeding, CH16, L120cm, catheter tip, sterile, single use			
X	Medical devices - Disposable	Tube/catheter/drain	Tube, feeding, L40cm, luer tip, sterile, single use (Sizes CH*)			X

Table 19. Medical device consumables by size and capacity

	General type	Specific area / type	Name of devices	Health post	Health center	District hospital
x	Medical devices - Disposable	Tube/catheter/drain	Tube, feeding, CH05, L40cm, luer tip, sterile, single use			
x	Medical devices - Disposable	Tube/catheter/drain	Tube, feeding, CH08, L40cm, luer tip, sterile, single use			
x	Medical devices - Disposable	Tube/catheter/drain	Tube, feeding, CH10, L40cm, luer tip, sterile, single use			
x	Medical devices - Disposable	Tube/catheter/drain	Tube, feeding, CH12, L40cm, luer tip, sterile, single use			
X	Medical devices - Disposable	Tube/catheter/drain	Tube, suction, L50cm, catheter tip, sterile, single use (Sizes CH*)			X
x	Medical devices - Disposable	Tube/catheter/drain	Tube, suction, CH06, L50cm, catheter tip, sterile, single use			
x	Medical devices - Disposable	Tube/catheter/drain	Tube, suction, CH08, L50cm, catheter tip, sterile, single use			
x	Medical devices - Disposable	Tube/catheter/drain	Tube, suction, CH10, L50cm, catheter tip, sterile, single use			
x	Medical devices - Disposable	Tube/catheter/drain	Tube, suction, CH12, L50cm, catheter tip, sterile, single use			
x	Medical devices - Disposable	Tube/catheter/drain	Tube, suction, CH14, L50cm, catheter tip, sterile, single use			
x	Medical devices - Disposable	Tube/catheter/drain	Tube, suction, CH16, L50cm, catheter tip, sterile, single use			
X	Medical devices - Disposable	Gloves	Gloves, examination, latex, non-sterile, single use (Sizes*)	X	X	X
x	Medical devices - Disposable	Gloves	Gloves, examination, latex,small, non-sterile,single use			
x	Medical devices - Disposable	Gloves	Gloves, examination, latex, medium, non-sterile, single use			
x	Medical devices - Disposable	Gloves	Gloves, examination, latex, large, non-sterile, single use			
X	Medical devices - Disposable	Gloves	Gloves, gynaecological, sterile, single use, pair (Sizes*)		X	X
x	Medical devices - Disposable	Gloves	Gloves, gynaecological, small, sterile, single use, pair			
x	Medical devices - Disposable	Gloves	Gloves, gynaecological, medium, sterile, single use, pair			
x	Medical devices - Disposable	Gloves	Gloves, gynaecological, large, sterile, single use, pair			
X	Medical devices - Disposable	Gloves	Gloves, surgical, sterile, single use, pair (Sizes*)		X	X
x	Medical devices - Disposable	Gloves	Gloves, surgical, 6.5, sterile, single use, pair			
x	Medical devices - Disposable	Gloves	Gloves, surgical, 7, sterile, single use, pair			
x	Medical devices - Disposable	Gloves	Gloves, surgical, 7.5, sterile, single use, pair			
x	Medical devices - Disposable	Gloves	Gloves, surgical, 8, sterile, single use, pair			
x	Medical devices - Disposable	Gloves	Gloves, surgical, 8.5, sterile, single use, pair			
X	Medical devices - Disposable	Surgical sutures	Suture, synthetic, absorbable (Sizes USP/DEC*) with needle (Shapes* and sizes*), sterile, single use		X	X
x	Medical devices - Disposable	Surgical sutures	Suture,synthetic,absorbable,DEC2(USP3/0),needle 3/8 18mm,round,ster,s.u.			
x	Medical devices - Disposable	Surgical sutures	Suture,synthetic,absorbable,DEC2(USP3/0),needle 3/8,26mm,triangular, sterile, single use			
x	Medical devices - Disposable	Surgical sutures	Suture,synthetic,absorbable,DEC3(USP2/0),needle 1/2 30mm,round, sterile, single use			

Table 19. Medical device consumables by size and capacity

	General type	Specific area / type	Name of devices	Health post	Health center	District hospital
x	Medical devices - Disposable	Surgical sutures	Suture,synthetic,absorbable,DEC4(USP1), needle 1/2 30mm,round, sterile, single use			
x	Medical devices - Disposable	Surgical sutures	Suture,synthetic,absorbable,DEC4(USP1),needle 3/8 50mm,round, sterile, single use			
X	Medical devices - Disposable	Surgical sutures	Suture, synthetic, non-absorbable (Sizes USP/ DEC*) with needle (Shapes* and sizes*), sterile, single use		X	X
x	Medical devices - Disposable	Surgical sutures	Suture, synthetic, non-absorbable, DEC2(USP3/0), needle, 3/8 18mm, triangular, sterile, single use			
x	Medical devices - Disposable	Surgical sutures	Suture,synthetic,non-absorbable, DEC3(USP2/0), needle, 3/8 30mm, triangular, sterile, single use			
x	Medical devices - Disposable	Surgical sutures	Suture, synthetic,non-absorbable, DEC4(USP1), needle, 1/2 30mm, round, sterile, single use			

3.3 References

1. UNICEF supply catalogue. New York: United Nations Children's Fund; 2014 (https://supply.unicef.org/unicef_b2c/app/displayApp/%28layout=7.0-12_1_66_67_115&carea=%24ROOT%29/.do?rf=y, accessed 22 May 2014).

4. Matrix of medical devices in each stage of continuum of care, in each level of health care facility

4.1 Continuum of care matrix

This section contains 17 different tables (Tables 20–35). For each of the six stages of the continuum of care described in Section 2.1, three levels of health care facility are considered: health posts, health centres and district hospitals. For childbirth, only health centres and district hospitals are considered because delivery in a health post is not recommended.

The title of the table shows the stage and health care facility referenced; for example, "Medical devices for family planning and reproductive health at health post" covers the stage of family planning and reproductive health in a health post. The priority interventions included in Table 3 are listed in the horizontal axis. The vertical axis consists of the medical devices included in Table 11.

To read the tables, locate the "X" below each priority intervention and trace it to the left to find the associated medical device. References to other tables indicate that the intervention is associated with a group of medical devices. The tables can be found in Section 3.2.

Table 20. Medical devices for Family planning and reproductive health at HEALTH POST

General type	Name of devices
Clinical laboratory devices	Lancet, blood, safety, sterile (Sizes*)
	Swab, cotton-tip, tube, sterile
	Rapid Diagnostic Test (RDT), Human Immunodeficiency Virus (HIV), kit
	Rapid Diagnostic Test (RDT), malaria, kit
	Rapid Diagnostic Test (RDT),Treponemal, syphilis, kit
	Test strip, pregnancy
Family planning devices	Female condoms
	Lubricants
	Male condoms
Medical devices - Disposable	Compress, gauze,sterile & non-sterile, single use
	Cotton wool, 500g, roll, non-sterile
	Needles, luer, sterile, single use (Sizes G*)
	Safety box, for used syringes/needles
	Syringes, auto-disable (AD), (Capacities ml*)
	Syringes, luer, sterile, single use (Capacities ml*)
	Syringes, reuse prevention (RUP), (Capacities ml*)
	Gloves, examination, latex, non-sterile, single use (Sizes*)
Medical devices - Equipment Grouping	Commodities for medical examination & diagnosis
Counselling material	Counselling material

First assessment			Provision of contraceptives			Detection and management of Sexually Transmitted Infection (STI) and other infections							Screening and management of cancers of the reproductive system	Management of gender-based violence (gbv)
Basic Medical Examination		Preventive Immunization	Contraceptive method selection			Syphilis	Human Immunodeficiency Virus (HIV)			Malaria			Breast cancer	Post-rape care
a) Check-up vital signs / measuring weight and height / Anthropometry	b) Pelvic examination	a) Vaccine for Hepatitis B	a) Provision of oral contraceptives	a) Provision of barriers methods	a) Provision of emergency contraception	a) Screening / diagnosis of Syphilis by laboratory test	a) Screening of HIV	b) Treatment for HIV (Antiretroviral Therapy (ART))	c) Provide post exposure prophylaxis for HIV discordant couple	a) Prophylactic antimalarial (IPT)	b) Diagnosis of malaria	c) Management of malaria	a) Breast examination	a) Management of post-rape care
						X	X				X			X
						X	X							X
							X							X
											X			
						X								X
	X													
				X										
				X										
				X										
												X		
		X										X		
										X		X		
		X								X		X		
		X												
										X		X		
										X		X		
X		X				X	X			X	X	X		
X	X	X		X	X	X	X	X	X	X	X	X	X	X
			X	X	X				X	X		X		X

Table 21. Medical devices for pregnancy at HEALTH POST

		First assessment		Triage and basic emergency care
		Basic Medical Examination	Preventive Immunization	Acute symptoms of pregnancy
General type	**Name of devices**	a) Check-up vital signs / measuring weight and height / Anthropometry/ Vaginal examination	a) Vaccine for Tetanus	a) Basic emergency care and pre-referral treatment
Clinical laboratory devices	Lancet, blood, safety, sterile (Sizes*)			
	Swab, cotton-tip, tube, sterile			
	Blood glucometer, with accessories			
	Hemoglobinometer, with accessories			
	Haemoglobin colour scale (refill kit)			
	Haemoglobin colour scale (starter kit)			
	Rapid Diagnostic Test (RDT), Human Immunodeficiency Virus (HIV), kit			
	Rapid Diagnostic Test (RDT), malaria, kit			
	Rapid Diagnostic Test (RDT),Treponemal, syphilis, kit			
	Test strip, pregnancy	X		
	Test strip, urinalysis (10 parameter)	X		
Family planning devices	Female condoms			
	Lubricants			
	Male condoms			
Medical devices - Disposable	Compress, gauze,sterile & non-sterile, single use			
	Cotton wool, 500g, roll, non-sterile			
	Needles, luer, sterile, single use (Sizes G*)			
	Safety box, for used syringes/needles		X	
	Syringes, auto-disable (AD), (Capacities ml*)		X	
	Syringes, luer, sterile, single use (Capacities ml*)			
	Syringes, reuse prevention (RUP), (Capacities ml*)			
	Gloves, examination, latex, non-sterile, single use (Sizes*)		X	
Medical devices - Equipment Grouping	Commodities for medical examination & diagnosis	X	X	
	Commodities for triage and basic emergency care			X
Counselling material	Counselling material			

Detection and management of Sexually Transmitted Infection (STI) and other infections							Detection and management of maternal chronic medical conditions			
Syphilis	Human Immunodeficiency Virus (HIV)			Malaria			Iron Deficiency Anaemia			Diabetes
a) Screening / diagnosis of Syphilis by laboratory test	a) Screening of HIV	b) Prevention Mother To Child Transmission (PMTCT)	c) Treatment for HIV (Antiretroviral Therapy (ART))	a) Prophylactic antimalarial (IPT)	b) Diagnosis of malaria	c) Management of malaria	a) Diagnosis of anaemia	b) Iron and folic acid supplementation	c) Anthelminthic (deworm)	a) Glucose testing for detection
X	X				X		X			X
X	X									
										X
							X			
							X			
							X			
	X									
					X					
X										
										X
		X								
		X								
		X								
						X				
						X				
						X				
						X				
						X				
						X				
X	X				X	X				
X	X	X	X	X	X	X	X	X	X	X
		X	X	X		X		X	X	

Table 22. Medical devices for post-natal baby (newborn) at HEALTH POST

		Childbirth: Essential newborn care				
		Routine care				
General type	**Name of devices**	a) Full clinical examination / Check vital signs / measuring weight	b) Thermal Care	c) Breastfeeding support	d) Vitamin K prophylaxis and Immunization	e) Cord care
Clinical laboratory devices	Haemoglobin colour scale (refill kit)					
	Haemoglobin colour scale (starter kit)					
Medical devices - Disposable	Blanket, survival, 220x140cm, non-sterile		X			
	Compress, gauze, sterile & non-sterile, single use					X
	Cotton wool, 500g, roll, non-sterile					
	Tape, medical, roll (Sizes*)					X
	Safety box, for used syringes/needles					
	Syringes, auto-disable (AD), (Capacities ml*)					
	Gloves, examination, latex, non-sterile, single use (Sizes*)	X	X	X		X
Medical devices - Equipment	Breastpump, manual, with accessories					
Medical devices - Equipment Grouping	Commodities for medical examination & diagnosis					
Counselling material	Counselling material		X	X	X	

Further assessment for all young infant			
Clinical visit			
a) Full clinical examination / check vital signs / measuring weight / check haemoglobin	b) Provision of vaccines (Diphtheria Pertussis Tetanus (DPT) + Haemophilus Influenzae type B (HIB), Oral Polio Vaccine (OPV), Hepatitis B)	c) Breastfeeding support and replacement feeding if necessary	d) Monitoring growth and development
X			
X			
	X		
	X		
	X		
X	X		
		X	
X	X	X	X
X	X	X	X

Table 23. Medical devices for infancy and childhood at HEALTH POST

		Essential care for monitoring growth and early childhood development						
		Routine care						
General type	**Name of devices**	a) Full clinical examination / check vital signs / measuring weight	b) Provision of vaccines	c) Growth monitoring	d) Early childhood development monitoring	e) Breastfeeding support and replacement feeding if necessary	f) Vitamin A supplementation	g) Deworming (Mebendazole)
Clinical laboratory devices	Lancet, blood, safety, sterile (Sizes*)							
	Swab, cotton-tip, tube, sterile							
	Haemoglobin colour scale (refill kit)							
	Haemoglobin colour scale (starter kit)							
	Rapid Diagnostic Test (RDT), Human Immunodeficiency Virus (HIV), kit							
Medical devices - Disposable	Compress, gauze, sterile & non-sterile, single use							
	Cotton wool, 500g, roll, non-sterile		X					
	Tape, medical, roll (Sizes*)							
	Needles, luer, sterile, single use (Sizes G*)		X					
	Safety box, for used syringes/needles		X					
	Syringes, auto-disable (AD), (Capacities ml*)		X					
	Syringes, luer, sterile, single use (Capacities ml*)							
	Syringes, reuse prevention (RUP), (Capacities ml*)		X					
	Gloves, examination, latex, non-sterile, single use (Sizes*)	X	X					
Medical devices - Equipment	Breastpump, manual, with accessories					X		
Medical devices - Equipment Grouping	Commodities for medical examination & diagnosis	X	X	X	X	X	X	X
Counselling material	Counselling material	X	X	X		X		

Detection and management of common infections, illness and complications in infancy and childhood													
Severe Acute Malnutrition (SAM)	Pneumonia		Wheeze (Asthma, Bronchiolitis)		Diarrhoea	Human Immunodeficiency Virus (HIV)			Eye infection	Ear infection	Mouth infection	Skin infection	Chicken pox
a) Diagnosis of SAM	a) Differential diagnosis for pneumonia	b) Management of pneumonia and its complications	a) Diagnosis of condition with wheeze	b) Management of condition with wheeze	a) Differential diagnosis and management of diarrhoea and dysentery	a) Diagnosis of HIV	b) Treatment for HIV (Antiretroviral Therapy (ART))	c) Management of other opportunistic infections in HIV	a) Detection and management of eye infection / conjunctivitis	a) Detection and management of ear infection	a) Detection and management of mouth infection / thrush	a) Diagnosis and management of skin infections	a) Detection and management of chicken pox
						X							
						X							
X													
X													
						X							
						X			X	X	X	X	X
		X		X	X	X			X	X	X	X	X
									X	X	X	X	X
		X		X	X								
		X		X	X	X							
		X		X									
		X		X	X								
		X		X	X	X			X	X	X	X	X
X	X	X	X	X	X	X	X						
X					X	X	X	X					

Table 24. Medical devices for family planning and reproductive health at HEALTH CENTRE

		First assessment			Provision of contraceptives						
		Basic Medical Examination		Preventive Immunization	Contraceptive method selection						
General type	**Name of devices**	a) Check-up vital signs / measuring weight and height / Anthropometry	b) Pelvic examination	a) Vaccine for Hepatitis B	a) Provision of oral contraceptives	a) Provision of injectable contraceptives	a) Insertion and removal of Intrauterine device (IUD)s	a) Insertion and removal of contraceptive implants with anaesthesia	a) Provision of barriers methods	a) Provision of emergency contraception	a) Provision of vaginal rings and patches
Clinical laboratory devices	Container, sample, 50 ml										
	Lancet, blood, safety, sterile (Sizes*)										
	Swab, cotton-tip, tube, sterile										
	Cytology stain, kit										
	Rapid Diagnostic Test (RDT), Human Immunodeficiency Virus (HIV), kit										
	Rapid Diagnostic Test (RDT), malaria, kit										
	Rapid Diagnostic Test (RDT), Treponemal, syphilis,										
	Rapid Plasma Reagin (RPR), syphilis, kit										
	Test strip, pregnancy		X								
	Test strip, urinalysis (10 parameter)										
	Test strip, vaginal infection, pH										
Family planning devices	Female condoms								X		
	Intra-Uterine Devices (only prequalified copper IUDs)						X			X	
	Lubricants								X		
	Male condoms								X		
	Sub-dermal implants (included the insertion device)							X			
Medical devices - Disposable	Blanket, survival, 220x140cm, non-sterile										
	Compress, gauze,sterile & non-sterile, single use		X			X	X	X		X	
	Cotton wool, 500g, roll, non-sterile			X		X					
	Tape, medical, roll (Sizes*)										
	Needles, luer, sterile, single use (Sizes G*)					X		X			
	Needles, scalp vein, sterile, single use (Sizes G*)										
	Safety box, for used syringes/needles			X		X		X			
	Syringes, auto-disable (AD), (Capacities ml*)			X							
	Syringes, luer, sterile, single use (Capacities ml*)					X		X			
	Syringes, reuse prevention (RUP), (Capacities ml*)					X		X			
	Gloves, examination, latex, non-sterile, single use (Sizes*)	X	X	X		X	X			X	
	Gloves, gynaecological, sterile, single use, pair (Sizes*)		X				X			X	
	Gloves, surgical, sterile, single use, pair (Sizes*)							X			
	Suture, synthetic, absorbable (Sizes USP/DEC*) with needle (Shapes* and sizes*), sterile, single use							X			
	Suture, synthetic, non-absorbable (Sizes USP/DEC*) with needle (Shapes* and sizes*), sterile, single use							X			
Medical devices - Equipment Grouping	Magnifying lens for Visual Inspection with Acetic Acid										
	Commodities for medical examination & diagnosis	X	X	X		X	X	X	X	X	X
	Commodities for surgery & anaesthesia							X			
Counselling material	Counselling material				X	X	X	X	X	X	X

	Detection and management of Sexually Transmitted Infection (STI) and other infections													Screening and management of cancers of the reproductive system				Management of gender-based violence (GBV)
	Syphilis		Human Immunodeficiency Virus (HIV)			Gonorrhoea		Chlamydia		Malaria			Other infections		Cervix cancer			Breast cancer	Post-rape care
a) Vasectomy with local anaesthesia	a) Screening / diagnosis of Syphilis by laboratory test	b) Treatment for Syphilis	a) Screening of HIV	b) Treatment for HIV (Antiretroviral Therapy (ART))	c) Provide post exposure prophylaxis for HIV discordant couple	a) Screening / diagnosis of Gonorrhoea	b) Treatment for Gonorrhoea	a) Screening / diagnosis of Chlamydia	b) Treatment for Chlamydia	a) Prophylactic antimalarial (IPT)	b) Diagnosis of malaria	c) Management of malaria	a) Diagnosis and treatment for urinary tract infections: bacteriuria, pyelonephritis	a) Diagnosis and treatment for bacterial vaginosis, trichomonas, candidiasis	a) Papanicolaou test	b) Visual Inspection with Acetic Acid (VIA / VIAM)	c) Human Papilloma Virus (HPV) test	a) Breast examination	a) Management of post-rape care
						X		X					X	X					X
	X		X								X								X
	X		X			X		X						X	X	X	X		X
															X				
			X																X
											X								
	X																		X
	X																		X
																			X
						X		X					X	X					X
						X		X						X					X
																			X
																			X
X		X					X		X			X	X	X		X			X
		X					X		X			X	X	X		X			X
																			X
X		X					X		X	X		X	X	X		X			X
X																			
X		X					X		X	X		X	X	X		X			X
X		X					X		X	X		X	X	X		X			X
X		X					X		X	X		X	X	X		X			X
X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X
																			X
X																			
X																			
X																			
																X			
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X					X					X		X							X

Table 25. Medical devices for pregnancy at HEALTH CENTRE

		First assessment		Triage and basic emergency care	Detection and management of Sexually Transmitted Infection (STI) and other infections				
		Basic Medical Examination	Preventive Immunization	Acute symptoms of pregnancy	Syphilis		Human Immunodeficiency Virus (HIV)		
General type	**Name of devices**	a) Check-up vital signs / measuring weight and height / Anthropometry/ Vaginal examination	a) Vaccine for Tetanus	a) Basic emergency care and pre-referral treatment	a) Screening / diagnosis of Syphilis by laboratory test	b) Treatment for Syphilis	a) Screening of HIV	b) Prevention Mother To Child Transmission (PMTCT)	c) Treatment for HIV (Antiretroviral Therapy (ART))
Clinical laboratory devices	Container, sample, 50 ml								
	Lancet, blood, safety, sterile (Sizes*)				X		X		
	Swab, cotton-tip, tube, sterile				X		X		
	Blood glucometer, with accessories			X					
	Hemoglobinometer, with accessories			X					
	Enzyme Immuno Assay (EIA), gonorrhea Ag, kit								
	Haemoglobin colour scale (refill kit)			X					
	Haemoglobin colour scale (starter kit)			X					
	Nucleic Acid Test (NAT), chlamydia, kit								
	Nucleic Acid Test (NAT), gonorrhea, kit								
	Rapid Diagnostic Test (RDT), Human Immunodeficiency Virus (HIV), kit						X		
	Rapid Diagnostic Test (RDT), malaria, kit								
	Rapid Diagnostic Test (RDT),Treponemal, syphilis, kit				X				
	Rapid Plasma Reagin (RPR), syphilis, kit				X				
	Test strip, pregnancy	X							
	Test strip, urinalysis (10 parameter)	X							
Family planning devices	Female condoms							X	
	Lubricants							X	
	Male condoms							X	
Medical devices - Disposable	Bandage, elastic, 7.5cmx5m, roll			X					
	Blanket, survival, 220x140cm, non-sterile			X					
	Compress, gauze, sterile & non-sterile, single use	X	X	X		X			
	Cotton wool, 500g, roll, non-sterile			X		X			
	Tape, medical, roll (Sizes*)			X					
	Cannulas, Intra Venous (IV) short, sterile, single use (Sizes G*)			X					
	Infusion giving set, sterile, single use			X					
	Needles, luer, sterile, single use (Sizes G*)			X		X			
	Safety box, for used syringes/needles		X	X		X			
	Stopcock, 3-way, sterile, single use			X					
	Syringes, auto-disable (AD), (Capacities ml*)		X						

Malaria			Rubella	Tuberculosis	Other infections		Detection and management of maternal chronic medical conditions									Management of prelabour rupture of the membranes (PRM)		
							Iron Deficiency Anaemia			Hypertension and pre-eclampsia					Diabetes		Assessment of PRM		Preterm
a) Prophylactic antimalarial (IPT)	b) Diagnosis of malaria	c) Management of malaria	a) Diagnosis and treatment for rubella	a) Diagnosis and treatment for tuberculosis	a) Diagnosis and treatment for urinary tract infections: bacteriuria, pyelonephritis	a) Diagnosis and treatment of other STI/Reproductive Tract Infections (RTI): Candida vaginitis, gonorrhoea, chlamydia, bacterial vaginosis and trichomoniasis	a) Diagnosis of anaemia	b) Iron and folic acid supplementation	c) Anthelminthic (deworm)	a) Diagnosis of Pre-eclampsia-Eclampsia	b) Supplement calcium	c) Low-dose aspirin	d) Antihypertensive drugs	e) Magnesium sulfate	a) Glucose testing for detection	b) Treatment for insulin-dependent diabetic mother	a) Diagnosis and laboratory test	b) Fetal monitoring	a) Provision antibiotics if indicated
					X	X													
	X						X								X	X			
						X													
															X	X			
							X												
						X													
							X												
							X												
						X													
						X													
	X																		
			X		X					X					X				
		X															X		X
		X															X		X
																	X		X
																	X		X
																	X		X
		X			X					X							X		X
		X			X	X				X						X	X		X
																			X

Table 25 Medical devices for pregnancy at Health centre

		First assessment		Triage and basic emergency care	Detection and management of Sexually Transmitted Infection (STI) and other infections				
		Basic Medical Examination	Preventive Immunization	Acute symptoms of pregnancy	Syphilis		Human Immunodeficiency Virus (HIV)		
General type	**Name of devices**	a) Check-up vital signs / measuring weight and height / Anthropometry/ Vaginal examination	a) Vaccine for Tetanus	a) Basic emergency care and pre-referral treatment	a) Screening / diagnosis of Syphilis by laboratory test	b) Treatment for Syphilis	a) Screening of HIV	b) Prevention Mother To Child Transmission (PMTCT)	c) Treatment for HIV (Antiretroviral Therapy (ART))
	Syringe for insulin, sterile, single use								
	Syringes, luer, sterile, single use (Capacities ml*)			X		X			
	Syringes, reuse prevention (RUP), (Capacities ml*)			X		X			
	Bag, urine, collecting, 2000ml			X					
	Catheter, Foley, sterile, single use (Sizes CH*)			X					
	Prongs, nasal, oxygen, non sterile, single use (Sizes*)			X					
	Tube, suction, L50cm, catheter tip, sterile, single use (Sizes CH*)								
	Gloves, examination, latex, non-sterile, single use (Sizes*)	X	X	X	X	X	X		
	Gloves, gynaecological, sterile, single use, pair (Sizes*)	X		X					
	Gloves, surgical, sterile, single use, pair (Sizes*)			X					
Medical devices - Equipment	Cardiotocograph (CTG), with accessories								
	Doppler, foetal heart rate (FHR) detector, with accessories			X					
Medical devices - Equipment Grouping	Commodities for medical examination & diagnosis	X	X	X	X	X	X	X	X
	Commodities for triage and basic emergency care			X					
Counselling material	Counselling material							X	X

							Detection and management of maternal chronic medical conditions												**Management of prelabour rupture of the membranes (PRM)**		
Malaria			Rubella	Tuberculosis	Other infections		Iron Deficiency Anaemia			Hypertension and pre-eclampsia					Diabetes		Assessment of PRM		Preterm			
a) Prophylactic antimalarial (IPT)	b) Diagnosis of malaria	c) Management of malaria	a) Diagnosis and treatment for rubella	a) Diagnosis and treatment for tuberculosis	a) Diagnosis and treatment for urinary tract infections: bacteriuria, pyelonephritis	a) Diagnosis and treatment of other STI/Reproductive Tract Infections (RTI): Candida vaginitis, gonorrhoea, chlamydia, bacterial vaginosis and trichomoniasis	a) Diagnosis of anaemia	b) Iron and folic acid supplementation	c) Anthelminthic (deworm)	a) Diagnosis of Pre-eclampsia-Eclampsia	b) Supplement calcium	c) Low-dose aspirin	d) Antihypertensive drugs	e) Magnesium sulfate	a) Glucose testing for detection	b) Treatment for insulin-dependent diabetic mother	a) Diagnosis and laboratory test	b) Fetal monitoring	a) Provision antibiotics if indicated			
																X							
		X			X	X				X							X		X				
		X			X	X				X							X		X				
										X													
										X													
	X	X			X	X				X						X	X		X				
																			X				
																			X				
X	X	X	X	X	X	X	X	X	X	X	X				X	X	X	X	X				
										X													
X		X	X	X	X	X		X	X		X	X	X	X									

Table 26. Medical devices for childbirth at HEALTH CENTRE

		First assessment	Triage and basic emergency care
		Basic Medical Examination	Active labor with or without complications
General type	**Name of devices**	a) Check-up vital signs / Vaginal examination	a) Basic emergency care and pre-referral treatment
Clinical laboratory devices	Container, sample, 50 ml		
	Lancet, blood, safety, sterile (Sizes*)		
	Swab, cotton-tip, tube, sterile		
	Blood glucometer, with accessories		X
	Hemoglobinometer, with accessories		X
	Rapid Diagnostic Test (RDT), Human Immunodeficiency Virus (HIV), kit		
	Test strip, pregnancy	X	
	Test strip, urinalysis (10 parameter)	X	
Medical devices - Disposable	Bandage, elastic, 7.5cmx5m, roll		X
	Blanket, survival, 220x140cm, non-sterile		X
	Bracelet, identification (Sizes*)	X	
	Compress, gauze,sterile & non-sterile, single use	X	X
	Cotton wool, 500g, roll, non-sterile		X
	Tape, medical, roll (Sizes*)		X
	Umbilical clamp, sterile, single use		
	Umbilical tape, 3mmx50m, roll, non-sterile		
	Cannulas, Intra Venous (IV) short, sterile, single use (Sizes G*)		X
	Infusion giving set, burette 100-150ml, sterile, single use		X
	Infusion giving set, sterile, single use		X
	Needles, luer, sterile, single use (Sizes G*)		X
	Safety box, for used syringes/needles		X
	Stopcock, 3-way, sterile, single use		X
	Syringes, luer, sterile, single use (Capacities ml*)		X
	Syringes, reuse prevention (RUP), (Capacities ml*)		X
	Bag, urine, collecting, 2000ml		X
	Catheter, Foley, sterile, single use (Sizes CH*)		X
	Catheter, urethral, sterile, single use (Sizes CH*)		X
	Prongs, nasal, oxygen, non sterile, single use (Sizes*)		X
	Tube, suction, L50cm, catheter tip, sterile, single use (Sizes CH*)		X
	Gloves, examination, latex, non-sterile, single use (Sizes*)	X	X
	Gloves, gynaecological, sterile, single use, pair (Sizes*)	X	X
	Gloves, surgical, sterile, single use, pair (Sizes*)		X
Medical devices - Equipment	Cardiotocograph (CTG), with accessories		
	Doppler, foetal heart rate (FHR) detector, with accessories		X
	Non-Pneumatic Anti-Shock Garment (NASG)		X
Medical devices - Equipment Grouping	Commodities for medical examination & diagnosis	X	X
	Commodities for triage and basic emergency care (see table 12)		X
	Commodities for labour, delivery & recovery (see table 13)		
Counselling material	Counselling material (see table 14)		

Mother care				Management of complications of labour and delivery				
Child-birth				Assessment for complications		Postpartum haemorrhage (PPH)	Human Immunodeficiency Virus (HIV) positive women	
a) Monitoring progress of labour	b) Active management of the third stage of labour (AMTSL): Prophylactic use of uterotonics	c) Spontaneous delivery	d) Assisted delivery (vacuum extraction) if needed	a) Diagnosis of complications	b) Fetal monitoring	a) Use of uterotonics of choice for the treatment of PPH	a) Screening of HIV	b) Prevention Mother To Child Transmission (PMTCT)
				X				
							X	
							X	
							X	
X								
	X	X	X	X		X		
	X		X	X		X		
	X		X	X		X		
		X	X					
		X	X					
	X		X	X		X		
	X		X	X		X		
	X			X		X		
	X		X	X		X		
	X			X		X		
	X			X		X		
	X			X		X		
						X		
						X		
		X	X					
		X	X					
		X	X					
	X	X	X	X		X	X	
	X	X	X	X				
		X	X			X		
					X			
					X			
				X	X	X	X	X
				X				
X	X	X	X	X	X	X	X	X
								X

Table 27. Medical devices for post-natal mother at HEALTH CENTRE

		First assessment			Triage and basic emergency care
		Basic Medical Examination		Support for breast feeding	Acute symptoms post-natal
General type	**Name of devices**	a) Check-up vital signs	b) Screening for cervix and breast cancer	a) Management of mastitis / breast abscess	a) Basic emergency care and pre-referral treatment
Clinical laboratory devices	Container, sample, 50 ml				
	Lancet, blood, safety, sterile (Sizes*)				
	Swab, cotton-tip, tube, sterile		X		
	Hemoglobinometer, with accessories				
	Haemoglobin colour scale (refill kit)				
	Haemoglobin colour scale (starter kit)				
	Rapid Diagnostic Test (RDT), Human Immunodeficiency Virus (HIV), kit				
	Rapid Diagnostic Test (RDT), malaria, kit				
	Test strip, urinalysis (10 parameter)				
	Test strip, vaginal infection, pH				
Medical devices - Disposable	Bandage, elastic, 7.5cmx5m, roll				X
	Blanket, survival, 220x140cm, non-sterile				X
	Compress, gauze, sterile & non-sterile, single use			X	X
	Cotton wool, 500g, roll, non-sterile			X	X
	Tape, medical, roll (Sizes*)			X	X
	Cannulas, Intra Venous (IV) short, sterile, single use (Sizes G*)				X
	Infusion giving set, sterile, single use				X
	Needles, luer, sterile, single use (Sizes G*)			X	X
	Safety box, for used syringes/needles			X	X
	Stopcock, 3-way, sterile, single use				X
	Syringes, luer, sterile, single use (Capacities ml*)			X	X
	Syringes, reuse prevention (RUP), (Capacities ml*)			X	X
	Bag, urine, collecting, 2000ml				X
	Catheter, Foley, sterile, single use (Sizes CH*)				X
	Prongs, nasal, oxygen, non sterile, single use (Sizes*)				X
	Tube, suction, L50cm, catheter tip, sterile, single use (Sizes CH*)				X
	Gloves, examination, latex, non-sterile, single use (Sizes*)		X	X	X
	Gloves, surgical, sterile, single use, pair (Sizes*)				X
Medical devices - Equipment	Breastpump, manual, with accessories			X	
Medical devices - Equipment Grouping (see tables 12, 13 and 16)	Commodities for medical examination & diagnosis	X	X	X	X
	Commodities for triage and basic emergency care				X
	Commodities for inpatient mother and newborn				
Counselling material	Counselling material				

Prevention and management of post partum bleeding				Detection and management of post partum infection			
Anaemia				HIV	Malaria	Other infection	
a) Management of post partum bleeding	b) Diagnosis of anaemia	c) Iron supplementation	d) Anthelminthic (deworm)	a) Diagnosis and treatment for HIV (Antiretroviral Therapy (ART))	a) Diagnosis and management of malaria	a) Diagnosis and management of postpartum endometritis and salpingitis	a) Diagnosis and treatment for urinary tract infections: bacteriuria, pyelonephritis
							X
	X			X	X		
						X	
	X						
	X						
	X						
				X			
					X		
						X	X
						X	X
X					X	X	X
X					X	X	X
X					X	X	X
X							
X							
X							
X							
X							
X							
X							
X				X	X	X	X
X	X	X	X	X	X	X	X
X							
X							
		X	X	X	X	X	X

Table 28. Medical devices for post-natal baby (newborn) at HEALTH CENTRE

		Childbirth: Essential newborn care								
		Immediate care at birth					Emergency support		Routine care	
General type	Name of devices	a) Dry baby thoroughly on mother's chest skin to skin and cover	b) Assess breathing	c) Clamp and cut cord / Check cord vessels / Check for bleeding and signs of cord infection	d) Prevent hypothermia when skin to skin is not possible	e) Support breastfeeding within the first hour	a) Basic neonatal resuscitation	b) Management of brain injury and intracranial haemorrhage (ICH)	a) Full clinical examination / Check vital signs / measuring weight	b) Thermal Care
Clinical laboratory devices	Container, sample, 50 ml									
	Lancet, blood, safety, sterile (Sizes*)									
	Swab, cotton-tip, tube, sterile									
	Hemoglobinometer, with accessories									
	Haemoglobin colour scale (refill kit)									
	Haemoglobin colour scale (starter kit)									
	Rapid Diagnostic Test (RDT), Human Immunodeficiency Virus (HIV), kit									
	Rapid Plasma Reagin (RPR), syphilis, kit									
	Treponema Pallidum Haemagglutination Assay (TPHA), syphilis, kit									
Medical devices - Disposable	Bandage, elastic, 7.5cmx5m, roll									
	Blanket, survival, 220x140cm, non-sterile				X					X
	Bracelet, identification (Sizes*)						X		X	
	Compress, gauze, sterile & non-sterile, single use			X			X			
	Cotton wool, 500g, roll, non-sterile									
	Tape, medical, roll (Sizes*)									
	Umbilical clamp, sterile, single use			X						
	Umbilical tape, 3mmx50m, roll, non-sterile			X						
	Infusion giving set, burette 100-150ml, sterile, single use									
	Needles, luer, sterile, single use (Sizes G*)									
	Needles, scalp vein, sterile, single use (Sizes G*)									
	Safety box, for used syringes/needles									
	Syringes, auto-disable (AD), (Capacities ml*)									
	Syringes, luer, sterile, single use (Capacities ml*)									
	Syringes, reuse prevention (RUP), (Capacities ml*)									
	Prongs, nasal, oxygen, non sterile, single use (Sizes*)									
	Tube, suction, L50cm, catheter tip, sterile, single use (Sizes CH*)									
	Gloves, examination, latex, non-sterile, single use (Sizes*)	X	X	X	X	X	X		X	X
	Gloves, surgical, sterile, single use, pair (Sizes*)			X						
Medical devices - Equipment	Breastpump, manual, with accessories									
Medical devices - Equipment Grouping	Commodities for medical examination & diagnosis (see table 12)	X	X	X	X	X	X		X	X
	Commodities for triage and basic emergency care (see table 13)						X			
	Commodities for labour, delivery & recovery (see table 14)	X	X	X	X	X	X			
	Commodities for inpatient mother and newborn (see table 16)									X
Counselling material	Counselling material	X			X	X				X

					Detection and management of congenital infections				Detection and management of common infections, illness and complications in the neonate and young infant				Further assessment for all young infant			
					Congenital infections				Cord infection	Pneumonia	Diarrhoea	Acute symptoms in the neonate and young infant	Clinical visit			
c) Breastfeeding support	d) Vitamin K prophylaxis and Immunization	e) Cord care	f) Prophylaxis for eye infection	g) Prophylactic antibiotics for neonates at risk of infection	a) Diagnosis of congenital syphilis	b) Prophylactic treatment for congenital syphilis	c) Screening of HIV (Dried Blood Spot (DBS))	d) Prophylactic treatment for HIV (Antiretroviral Therapy (ART))	a) Detection and management of cord infection	a) Diagnosis of pneumonia	a) Detection and management of diarrhoea	a) Detection of emergency signs, emergency care and pre-referral treatment	a) Full clinical examination / check vital signs / measuring weight / check haemoglobin	b) Provision of vaccines (Diphtheria Pertussis Tetanus (DPT) + Haemophilus Influenzae type B (HIB), Oral Polio Vaccine (OPV), Hepatitis B)	c) Breastfeeding support and replacement feeding if necessary	d) Monitoring growth and development
					X											
							X						X			
					X		X									
													X			
													X			
													X			
							X									
					X											
					X											
												X				
												X				
	X	X	X	X	X	X	X		X		X		X			
	X								X				X	X		
		X							X							
									X							
	X			X		X			X		X	X				
									X		X					
	X			X		X			X		X	X	X	X		
	X													X		
	X			X		X			X		X	X				
	X			X		X			X		X	X				
												X				
												X				
X	X	X	X	X	X	X	X	X	X		X	X	X	X		
		X														
															X	
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
											X	X				
X	X	X	X	X	X	X	X	X	X	X	X					
X	X												X	X	X	X

Table 29. Medical devices for infancy and childhood at HEALTH CENTRE

		Essential care for monitoring growth and early childhood development							Detection and management of common infections, illness and complications in infancy and childhood				
		Routine care							Severe Acute Malnutrition (SAM)			Anaemia	
General type	**Name of devices**	a) Full clinical examination / check vital signs / measuring weight	b) Provision of vaccines	c) Growth monitoring	d) Early childhood development monitoring	e) Breastfeeding support and replacement feeding if necessary	f) Vitamin A supplementation	g) Deworming (Mebendazole)	a) Diagnosis of SAM	b) Feeding support	c) Pre-referral treatment for SAM	a) Diagnosis of anaemia	b) Management of anaemia
Clinical laboratory devices	Lancet, blood, safety, sterile (Sizes*)								X			X	X
	Swab, cotton-tip, tube, sterile												
	Blood glucometer, with accessories								X				
	Hemoglobinometer, with accessories								X			X	X
	Haemoglobin colour scale (refill kit)								X			X	
	Haemoglobin colour scale (starter kit)								X			X	
	Rapid Diagnostic Test (RDT), Human Immunodeficiency Virus (HIV), kit												
	Rapid Diagnostic Test (RDT), malaria, kit												
	Test strip, urinalysis (10 parameter)											X	
Medical devices - Disposable	Bandage, elastic, 7.5cmx5m, roll										X		
	Blanket, survival, 220x140cm, non-sterile										X		
	Bracelet, identification (Sizes*)									X	X		X
	Compress, gauze, sterile & non-sterile, single use								X	X	X	X	X
	Cotton wool, 500g, roll, non-sterile		X						X	X	X	X	X
	Tape, medical, roll (Sizes*)									X	X		X
	Cannulas, Intra Venous (IV) short, sterile, single use (Sizes G*)									X	X		X
	Infusion giving set, burette 100-150ml, sterile, single use									X	X		X
	Needles, luer, sterile, single use (Sizes G*)		X							X	X		X
	Needles, scalp vein, sterile, single use (Sizes G*)									X	X		X
	Safety box, for used syringes/needles		X						X	X	X	X	X
	Stopcock, 3-way, sterile, single use										X		
	Syringes, auto-disable (AD), (Capacities ml*)		X										
	Syringes, luer, sterile, single use (Capacities ml*)									X	X		X
	Syringes, reuse prevention (RUP), (Capacities ml*)		X							X	X		X
	Prongs, nasal, oxygen, non sterile, single use (Sizes*)										X		X
	Tube, suction, L50cm, catheter tip, sterile, single use (Sizes CH*)										X		X
	Gloves, examination, latex, non-sterile, single use (Sizes*)	X	X						X	X	X	X	X
	Gloves, surgical, sterile, single use, pair (Sizes*)												
Medical devices - Equipment	Breastpump, manual, with accessories					X				X			
Medical devices - Equipment Grouping	Commodities for medical examination & diagnosis (see table 12)	X	X	X	X	X	X	X	X	X	X	X	X
	Commodities for triage and basic emergency care (see table 13)								X	X	X		
	Commodities for inpatient child (see table 17)									X		X	X
Counselling material	Counselling material	X	X	X		X			X	X			

																					Triage and basic emergency care
Pneumo-nia		Wheeze (Asthma, Bronchi-olitis)		Tubercu-losis		Diar-rhoea	Malaria	Den-gue fever	Mea-sles	Human Immu-nodeficiency Virus (HIV)			Eye infec-tion	Ear infec-tion	Mouth infec-tion	Skin infec-tion	Chick-en pox	Acute symp-toms of sick infant and child	
a) Differential diagnosis for pneumonia	b) Management of pneumonia and its complications	a) Diagnosis of condition with wheeze	b) Management of condition with wheeze	a) Diagnosis of tuberculosis	b) Management of tuberculosis	a) Differential diagnosis and management of diarrhoea and dysentery	a) Diagnosis and management of malaria	a) Diagnosis and management of dengue fever	a) Diagnosis and management of measles	a) Diagnosis of HIV	b) Treatment for HIV (Antiretroviral Therapy (ART))	c) Management of other opportunistic infections in HIV	a) Detection and management of eye infection / conjunctivitis	a) Detection and management of ear infection	a) Detection and management of mouth infection / thrush	a) Diagnosis and management of skin infections	a) Detection and management of chicken pox	a) Detection of emergency signs, emergency care and pre-referral treatment	
							X	X		X									
X		X		X						X									
										X									
							X												
																		X	
																		X	
					X														
	X		X		X	X			X	X		X	X	X	X	X	X	X	
	X		X		X	X			X	X		X	X	X	X	X	X	X	
			X		X	X						X	X	X	X	X	X	X	
	X				X	X						X						X	
	X				X	X						X						X	
	X		X		X	X			X			X	X	X	X	X	X	X	
	X				X	X						X						X	
	X		X		X	X			X	X		X	X	X	X	X	X	X	
	X				X	X												X	
	X		X		X	X			X			X	X	X	X	X	X	X	
	X		X		X	X			X			X	X	X	X	X	X	X	
	X		X		X													X	
	X		X		X													X	
	X		X		X	X			X	X		X	X	X	X	X	X	X	
																		X	
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
	X		X															X	
	X		X				X	X	X			X							
						X	X	X		X	X	X							

Table 30. Medical devices for family planning and reproductive health at DISTRICT HOSPITAL

		First assessment			Provision of contraceptives						
		Basic Medical Examination		Preventive Immunization	Contraceptive method selection						
General type	**Name of devices**	a) Check-up vital signs / measuring weight and height / Anthropometry	b) Pelvic examination	a) Vaccine for Hepatitis B	a) Provision of oral contraceptives	a) Provision of injectable contraceptives	a) Insertion and removal of Intrauterine device (IUD)s	a) Insertion and removal of contraceptive implants with anaesthesia	a) Provision of barriers methods	a) Provision of emergency contraception	a) Provision of vaginal rings and patches	a) Vasectomy with local anaesthesia
Clinical laboratory devices	Container, sample, 50 ml											
	Lancet, blood, safety, sterile (Sizes*)											
	Needle holder, vacuum tubes, sterile											
	Needle, vacuum tube, sterile (Size*)											
	Swab, cotton-tip, tube, sterile											
	Tube, capillary, Ethylene Diamine Tetra-acetic Acid (EDTA)											
	Tube, vacuum, Ethylene Diamine Tetra-acetic Acid (EDTA), sterile (Capacity*)											
	Tube, vacuum, plain/dry, sterile (Capacity*)											
	Cytology stain, kit											
	Enzyme Immuno Assay (EIA), gonorrhea Ag, kit											
	Enzyme Immuno Assay (EIA), Human Immunodeficiency Virus (HIV), kit											
	Nucleic Acid Test (NAT), chlamydia, kit											
	Nucleic Acid Test (NAT), gonorrhea, kit											
	Nucleic Acid Test (NAT), Human Papilloma Virus (HPV), kit											
	Rapid Diagnostic Test (RDT), Human Immunodeficiency Virus (HIV), kit											
	Rapid Diagnostic Test (RDT), malaria, kit											
	Rapid Diagnostic Test (RDT),Treponemal, syphilis, kit											
	Rapid Plasma Reagin (RPR), syphilis, kit											
	Treponema Pallidum Haemagglutination Assay (TPHA), syphilis, kit											
	Test strip, pregnancy		X									
	Test strip, urinalysis (10 parameter)											
	Test strip, vaginal infection, pH											
Family planning devices	Cervical cap								X			
	Diaphragm								X			
	Female condoms								X			
	Intra-Uterine Devices (only prequalified copper IUDs)						X			X		
	Levonorgestrel Intra Uterin Device (IUD)						X					
	Lubricants								X			
	Male condoms								X			
	Sub-dermal implants (included the insertion device)							X				

	Detection and management of Sexually Transmitted Infection (STI) and other infections													Screening and management of cancers of the reproductive system									Management of gender-based violence (GBV)
	Syphilis		Human Immunodeficiency Virus (HIV)			Gonorrhoea		Chlamydia		Malaria			Other infections		Cervix cancer						Breast cancer			Post-rape care
a) Tubal ligation	a) Screening / diagnosis of Syphilis by laboratory test	b) Treatment for Syphilis	a) Screening of HIV	b) Treatment for HIV (Antiretroviral Therapy (ART))	c) Provide post exposure prophylaxis for HIV discordant couple	a) Screening / diagnosis of Gonorrhoea	b) Treatment for Gonorrhoea	a) Screening / diagnosis of Chlamydia	b) Treatment for Chlamydia	a) Prophylactic antimalarial (IPT)	b) Diagnosis of malaria	c) Management of malaria	a) Diagnosis and treatment for urinary tract infections: bacteriuria, pyelonephritis	a) Diagnosis and treatment for bacterial vaginosis, trichomonas, candidiasis	a) Papanicolaou test	b) Visual Inspection with Acetic Acid (VIA / VIAM)	c) Human Papilloma Virus (HPV) test	d) Colposcopy	e) Colposcopy and Biopsy / Pathology lab-test	f) Treatment for precancerous lesion (cryotherapy)	a) Breast examination	b) Diagnostic by image (mammography, ultrasound)	c) Biopsy / Pathology lab-test	a) Management of post-rape care
						X		X					X	X										X
	X		X								X													X
			X																					X
			X																					X
	X		X			X		X						X	X	X	X	X	X	X				X
			X																					X
			X																					X
			X																					X
															X									
						X																		X
			X																					X
								X																X
						X																		X
																	X							
			X																					X
											X													
	X																							X
	X																							X
	X																							X
																								X
						X		X					X	X										X
						X		X						X										X
																								X

Table 30 Medical devices for family planning and reproductive health at DISTRICT HOSPITAL

		First assessment			Provision of contraceptives							
		Basic Medical Examination		Preventive Immunization	Contraceptive method selection							
General type	**Name of devices**	a) Check-up vital signs / measuring weight and height / Anthropometry	b) Pelvic examination	a) Vaccine for Hepatitis B	a) Provision of oral contraceptives	a) Provision of injectable contraceptives	a) Insertion and removal of Intrauterine device (IUD)s	a) Insertion and removal of contraceptive implants with anaesthesia	a) Provision of barriers methods	a) Provision of emergency contraception	a) Provision of vaginal rings and patches	a) Vasectomy with local anaesthesia
Medical devices - Disposable	Blanket, survival, 220x140cm, non-sterile											
	Compress, gauze,sterile & non-sterile, single use		X			X	X	X		X		X
	Cotton wool, 500g, roll, non-sterile			X		X						
	Tape, medical, roll (Sizes*)											
	Cannulas, Intra Venous (IV) short, sterile, single use (Sizes G*)											
	Infusion giving set, sterile, single use											
	Needles, luer, sterile, single use (Sizes G*)					X		X				X
	Needles, scalp vein, sterile, single use (Sizes G*)											X
	Needles, spinal, sterile, single use (Sizes*)											
	Safety box, for used syringes/needles			X		X		X				X
	Syringes, auto-disable (AD), (Capacities ml*)			X								
	Syringes, luer, sterile, single use (Capacities ml*)					X		X				X
	Syringes, reuse prevention (RUP), (Capacities ml*)					X		X				X
	Airway, Guedel, translucent (Sizes*)											
	Catheter, urethral, sterile, single use (Sizes CH*)											
	Prongs, nasal, oxygen, non sterile, single use (Sizes*)											
	Tube, endotracheal, with cuff, sterile, single use (Sizes ID*)											
	Tube, suction, L50cm, catheter tip, sterile, single use (Sizes CH*)											
	Gloves, examination, latex, non-sterile, single use (Sizes*)	X	X	X		X	X			X		X
	Gloves, gynaecological, sterile, single use, pair (Sizes*)		X				X			X		
	Gloves, surgical, sterile, single use, pair (Sizes*)							X				X
	Suture, synthetic, absorbable (Sizes USP/DEC*) with needle (Shapes* and sizes*), sterile, single use							X				X
	Suture, synthetic, non-absorbable (Sizes USP/DEC*) with needle (Shapes* and sizes*), sterile, single use							X				X
Medical devices - Equipment	Breast biopsy system											
	Colposcope with biopsy set											
	Cryosurgical unit with tank and accesories											
	Magnifying lens for Visual Inspection with Acetic Acid											
	Mammograph with printer and accessories											
Medical devices - Equipment Grouping	Commodities for medical examination & diagnosis	X	X	X		X	X	X	X	X	X	X
	Commodities for surgery & anaesthesia							X				X
	Commodities for inpatient mother and newborn											
Counselling material	Counselling material				X	X	X	X	X	X	X	X

	Detection and management of Sexually Transmitted Infection (STI) and other infections														Screening and management of cancers of the reproductive system									Management of gender-based violence (GBV)
	Syphilis		Human Immunodeficiency Virus (HIV)			Gonorrhoea		Chlamydia		Malaria			Other infections		Cervix cancer						Breast cancer			Post-rape care
a) Tubal ligation	a) Screening / diagnosis of Syphilis by laboratory test	b) Treatment for Syphilis	a) Screening of HIV	b) Treatment for HIV (Antiretroviral Therapy (ART))	c) Provide post exposure prophylaxis for HIV discordant couple	a) Screening / diagnosis of Gonorrhoea	b) Treatment for Gonorrhoea	a) Screening / diagnosis of Chlamydia	b) Treatment for Chlamydia	a) Prophylactic antimalarial (IPT)	b) Diagnosis of malaria	c) Management of malaria	a) Diagnosis and treatment for urinary tract infections: bacteriuria, pyelonephritis	a) Diagnosis and treatment for bacterial vaginosis, trichomonas, candidiasis	a) Papanicolaou test	b) Visual Inspection with Acetic Acid (VIA / VIAM)	c) Human Papilloma Virus (HPV) test	d) Colposcopy	e) Colposcopy and Biopsy / Pathology lab-test	f) Treatment for precancerous lesion (cryotherapy)	a) Breast examination	b) Diagnostic by image (mammography, ultrasound)	c) Biopsy / Pathology lab-test	a) Management of post-rape care
																								X
X		X					X		X			X	X	X		X		X	X	X			X	X
		X					X		X			X	X	X		X								X
X												X	X	X										X
X												X	X	X										
X												X	X	X										
X		X					X		X	X		X	X	X		X							X	X
X																								
X		X					X		X	X		X	X	X		X							X	X
X		X					X		X	X		X	X	X		X							X	X
X		X					X		X	X		X	X	X		X							X	X
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X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X
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																		X	X	X				X
																				X				
																X						X	X	
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X																							X	
X												X	X	X										
X					X					X		X												X	

Table 31. Medical devices for pregnancy at DISTRICT HOSPITAL

		First assessment		Triage and basic emergency care	Detection and management of Sexually Transmitted Infection (STI) and other infections									
		Basic Medical Examination	Preventive Immunization	Acute symptoms of pregnancy	Syphilis		Human Immunodeficiency Virus (HIV)			Malaria			Rubella	Tuberculosis
General type	Name of devices	a) Check-up vital signs / measuring weight and height / Anthropometry/ Vaginal examination	a) Vaccine for Tetanus	a) Basic emergency care and pre-referral treatment	a) Screening / diagnosis of Syphilis by laboratory test	b) Treatment for Syphilis	a) Screening of HIV	b) Prevention Mother To Child Transmission (PMTCT)	c) Treatment for HIV (Antiretroviral Therapy (ART))	a) Prophylactic antimalarial (IPT)	b) Diagnosis of malaria	c) Management of malaria	a) Diagnosis and treatment for rubella	a) Diagnosis and treatment for tuberculosis
Blood Bank devices	Anti-A blood group reagent, monoclonal													
	Anti-B blood group reagent, monoclonal													
	Anti-D blood group reagent (Saline/monoclonal)													
	Blood administration set, sterile													
	Glass slides, 25x75mm													
	Markers, fine point, permanent black, for glassware													
	Pasteur pipettes with integral bulb, disposable, plastic non-sterile, 3 ml													
	Wooden or plastic applicator sticks													
Clinical laboratory devices	Container, sample, 50 ml													
	Lancet, blood, safety, sterile (Sizes*)				X		X				X			
	Needle holder, vacuum tubes, sterile						X							
	Needle, vacuum tube, sterile (Size*)						X							
	Swab, cotton-tip, tube, sterile				X		X							
	Tube, capillary, Ethylene Diamine Tetra-acetic Acid (EDTA)						X							
	Tube, vacuum, Ethylene Diamine Tetra-acetic Acid (EDTA), sterile (Capacity*)						X							
	Tube, vacuum, plain/dry, sterile (Capacity*)						X							
	Blood glucometer, with accessories			X										
	Hemoglobinometer, with accessories			X										
	Enzyme Immuno Assay (EIA), gonorrhea Ag, kit													
	Enzyme Immuno Assay (EIA), Human Immunodeficiency Virus (HIV), kit						X							
	Enzyme Immuno Assay (EIA), Rubella, kit												X	
	Nucleic Acid Test (NAT), chlamydia, kit													
	Nucleic Acid Test (NAT), gonorrhea, kit													
	Rapid Diagnostic Test (RDT), Human Immunodeficiency Virus (HIV), kit						X							
	Rapid Diagnostic Test (RDT), malaria, kit										X			
	Rapid Diagnostic Test (RDT),Treponemal, syphilis, kit				X									
	Rapid Plasma Reagin (RPR), syphilis, kit				X									
	Treponema Pallidum Haemagglutination Assay (TPHA), syphilis, kit				X									
	Test strip, pregnancy	X												
	Test strip, urinalysis (10 parameter)	X											X	
	Test strip, vaginal infection, pH													

		Detection and management of maternal chronic medical conditions													Management of prelabour rupture of the membranes (PRM)								Management of malpresentation at term			Management of female genital mutilation		Management of ectopic pregnancy				Management of miscarriage and abortion							
Other infections		Iron Deficiency Anaemia				Hypertension and pre-eclampsia							Diabetes		Assessment of PRM		Preterm				Term		Malpresentation at term			Female genital mutilation		Ectopic pregnancy				Miscarriage and abortion		Miscarriage			Safe abortion when indicated and legally permitted		
a) Diagnosis and treatment for urinary tract infections: bacteriuria, pyelonephritis	a) Diagnosis and treatment of other STI/ Reproductive Tract Infections (RTI): Candida vaginitis, gonorrhoea, chlamydia, bacterial vaginosis and trichomoniasis	a) Diagnosis of anaemia	b) Iron and folic acid supplementation	c) Anthelminthic (deworm)	d) Management of severe anaemia (considering blood transfusion)	a) Diagnosis of Pre-eclampsia-Eclampsia	b) Supplement calcium	c) Low-dose aspirin	d) Antihypertensive drugs	e) Magnesium sulfate	f) Fetal monitoring	g) Induction of labour	a) Glucose testing for detection	b) Treatment for insulin-dependent diabetic mother	a) Diagnosis and laboratory test	b) Fetal monitoring	a) Provision antibiotics if indicated	b) Provision of tocolytics to prolong pregnancy if indicated	c) Provision of corticosteroids for prevention of neonatal respiratory distress syndrome	d) Provision of magnesium sulfate for neuroprotection of the newborn	a) Provision antibiotics if indicated	b) Induction of labour	a) Diagnosis of breech at term	b) External Cephalic Version	c) Monitoring progress of labour	a) Perineal incision with local anaesthesia	b) Identify the need of caesarean section	a) Pregnancy test	b) Ultrasound scan	c) Laparotomy	d) Blood transfusion	a) Pregnancy test	b) Ultrasound scan	a) Treatment of infections	b) Management of bleeding (considering Vacuum Aspiration and blood transfusion)	c) Management of major injuries (considering laparotomy)	a) Medical uterine evacuation for the first trimester	b) Vacuum Aspiration for the first trimester	c) Medical uterine evacuation beyond the first trimester
					X																										X				X				
					X																										X				X				
					X																										X				X				
					X																										X				X				
					X																										X				X				
					X																										X				X				
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X																																							

Table 31. Medical devices for pregnancy at DISTRICT HOSPITAL

		First assessment		Triage and basic emergency care	Detection and management of Sexually Transmitted Infection (STI) and other infections								
		Basic Medical Examination	Preventive Immunization	Acute symptoms of pregnancy	Syphilis		Human Immunodeficiency Virus (HIV)			Malaria			Rubella	Tuberculosis
General type	**Name of devices**	a) Check-up vital signs / measuring weight and height / Anthropometry/ Vaginal examination	a) Vaccine for Tetanus	a) Basic emergency care and pre-referral treatment	a) Screening / diagnosis of Syphilis by laboratory test	b) Treatment for Syphilis	a) Screening of HIV	b) Prevention Mother To Child Transmission (PMTCT)	c) Treatment for HIV (Antiretroviral Therapy (ART))	a) Prophylactic antimalarial (IPT)	b) Diagnosis of malaria	c) Management of malaria	a) Diagnosis and treatment for rubella	a) Diagnosis and treatment for tuberculosis
Family planning devices	Female condoms							X						
	Lubricants							X						
	Male condoms							X						
Medical devices - Disposable	Bandage, elastic, 7.5cmx5m, roll			X										
	Blanket, survival, 220x140cm, non-sterile			X										
	Bracelet, identification (Sizes*)													
	Compress, gauze,sterile & non-sterile, single use	X	X	X		X						X	X	X
	Cotton wool, 500g, roll, non-sterile			X		X						X	X	X
	Tape, medical, roll (Sizes*)			X								X		X
	Cannulas, Intra Venous (IV) short, sterile, single use (Sizes G*)			X								X		X
	Infusion giving set, burette 100-150ml, sterile, single use			X										
	Infusion giving set, sterile, single use			X								X		X
	Needles, luer, sterile, single use (Sizes G*)			X		X						X	X	X
	Needles, spinal, sterile, single use (Sizes*)													
	Safety box, for used syringes/needles		X	X		X						X	X	X
	Stopcock, 3-way, sterile, single use			X										
	Syringes, auto-disable (AD), (Capacities ml*)		X											
	Syringe for insulin, sterile, single use													
	Syringe for tuberculin, sterile, single use													X
	Syringes, luer, sterile, single use (Capacities ml*)			X		X						X	X	X
	Syringes, reuse prevention (RUP), (Capacities ml*)			X		X						X		
	Airway, Guedel, translucent (Sizes*)			X										
	Bag, urine, collecting, 2000ml			X										
	Catheter, Foley, sterile, single use (Sizes CH*)			X										

Detection and management of maternal chronic medical conditions														Management of prelabour rupture of the membranes (PRM)								Management of malpresentation at term			Management of female genital mutilation		Management of ectopic pregnancy				Management of miscarriage and abortion								
Other infections		Iron Deficiency Anaemia				Hypertension and pre-eclampsia							Diabetes		Assessment of PRM		Preterm				Term		Malpresentation at term			Female genital mutilation		Ectopic pregnancy				Miscarriage and abortion		Miscarriage			Safe abortion when indicated and legally permitted		
a) Diagnosis and treatment for urinary tract infections: bacteriuria, pyelonephritis	a) Diagnosis and treatment of other STI/ Reproductive Tract Infections (RTI): Candida vaginitis, gonorrhoea, chlamydia, bacterial vaginosis and trichomoniasis	a) Diagnosis of anaemia	b) Iron and folic acid supplementation	c) Anthelminthic (deworm)	d) Management of severe anaemia (considering blood transfusion)	a) Diagnosis of Pre-eclampsia-Eclampsia	b) Supplement calcium	c) Low-dose aspirin	d) Antihypertensive drugs	e) Magnesium sulfate	f) Fetal monitoring	g) Induction of labour	a) Glucose testing for detection	b) Treatment for insulin-dependent diabetic mother	a) Diagnosis and laboratory test	b) Fetal monitoring	a) Provision antibiotics if indicated	b) Provision of tocolytics to prolong pregnancy if indicated	c) Provision of corticosteroids for prevention of neonatal respiratory distress syndrome	d) Provision of magnesium sulfate for neuroprotection of the newborn	a) Provision antibiotics if indicated	b) Induction of labour	a) Diagnosis of breech at term	b) External Cephalic Version	c) Monitoring progress of labour	a) Perineal incision with local anaesthesia	b) Identify the need of caesarean section	a) Pregnancy test	b) Ultrasound scan	c) Laparotomy	d) Blood transfusion	a) Pregnancy test	b) Ultrasound scan	a) Treatment of infections	b) Management of bleeding (considering Vacuum Aspiration and blood transfusion)	c) Management of major injuries (considering laparotomy)	a) Medical uterine evacuation for the first trimester	b) Vacuum Aspiration for the first trimester	c) Medical uterine evacuation beyond the first trimester
																						X	X	X	X	X												
X	X				X	X			X	X		X		X	X		X	X	X	X	X	X	X	X	X	X			X	X	X		X	X	X		X	X
X	X				X	X			X	X		X		X	X		X	X	X	X	X	X	X	X	X	X				X	X		X	X	X		X	X
X	X				X	X			X	X		X		X	X		X	X	X	X	X	X	X	X	X	X				X	X		X	X	X		X	X
X	X				X	X			X	X		X		X	X		X	X	X	X	X	X	X	X	X	X				X	X		X	X	X		X	X
X	X				X	X			X	X		X		X	X		X	X	X	X	X	X	X	X	X	X				X			X	X	X			
X	X				X	X			X	X		X			X		X	X	X	X	X	X	X			X	X				X			X	X	X			
																											X												
X	X				X	X			X	X		X		X	X		X	X	X	X	X	X	X	X	X	X				X	X		X	X	X		X	X
					X	X			X	X		X			X		X	X	X	X	X	X	X			X	X				X			X	X	X			
														X																										
X	X				X	X			X	X		X			X		X	X	X	X	X	X	X			X	X				X			X	X	X			
X	X				X	X			X	X		X			X		X	X	X	X	X	X	X			X	X				X			X	X	X			
																											X												
						X																															X	X	
						X																															X	X	

Table 31. Medical devices for pregnancy at DISTRICT HOSPITAL

		First assessment		Triage and basic emergency care	Detection and management of Sexually Transmitted Infection (STI) and other infections										
		Basic Medical Examination	Preventive Immunization	Acute symptoms of pregnancy	Syphilis		Human Immunodeficiency Virus (HIV)			Malaria			Rubella	Tuberculosis
General type	**Name of devices**	a) Check-up vital signs / measuring weight and height / Anthropometry/ Vaginal examination	a) Vaccine for Tetanus	a) Basic emergency care and pre-referral treatment	a) Screening / diagnosis of Syphilis by laboratory test	b) Treatment for Syphilis	a) Screening of HIV	b) Prevention Mother To Child Transmission (PMTCT)	c) Treatment for HIV (Antiretroviral Therapy (ART))	a) Prophylactic antimalarial (IPT)	b) Diagnosis of malaria	c) Management of malaria	a) Diagnosis and treatment for rubella	a) Diagnosis and treatment for tuberculosis
	Catheter, urethral, sterile, single use (Sizes CH*)													
	Prongs, nasal, oxygen, non sterile, single use (Sizes*)			X										
	Tube, endotracheal, with cuff, sterile, single use (Sizes ID*)			X										
	Tube, feeding/aspirating, L120cm,catheter tip, sterile, single use (Sizes CH*)			X										
	Tube, suction, L50cm, catheter tip, sterile, single use (Sizes CH*)			X										
	Gloves, examination, latex, non-sterile, single use (Sizes*)	X	X	X	X	X	X				X	X	X	X
	Gloves, gynaecological, sterile, single use, pair (Sizes*)	X		X										
	Gloves, surgical, sterile, single use, pair (Sizes*)			X										
	Suture, synthetic, absorbable (Sizes USP/DEC*) with needle (Shapes* and sizes*), sterile, single use													
	Suture, synthetic, non-absorbable (Sizes USP/DEC*) with needle (Shapes* and sizes*), sterile, single use													
Medical devices - Equipment	Cardiotocograph (CTG), with accessories													
	Doppler, foetal heart rate (FHR) detector, with accessories			X										
Medical devices - Equipment Grouping	Commodities for medical examination & diagnosis (see table 12)	X	X	X	X	X	X	X	X	X	X	X	X	X
	Commodities for triage and basic emergency care (see table 13)			X										
	Commodities for labour, delivery & recovery (see table 14)													
	Commodities for surgery & anaesthesia (see table 15)													
	Commodities for inpatient mother and newborn (see table 16)											X		X
	Commodities for intensive care of mother (see table 18)													
Counselling material	Counselling material							X	X	X		X	X	X

		Detection and management of maternal chronic medical conditions													Management of prelabour rupture of the membranes (PRM)								Management of malpresentation at term			Management of female genital mutilation		Management of ectopic pregnancy				Management of miscarriage and abortion							
Other infections		Iron Deficiency Anaemia				Hypertension and pre-eclampsia							Diabetes		Assessment of PRM		Preterm				Term		Malpresentation at term			Female genital mutilation		Ectopic pregnancy				Miscarriage and abortion		Miscarriage			Safe abortion when indicated and legally permitted		
a) Diagnosis and treatment for urinary tract infections: bacteriuria, pyelonephritis	a) Diagnosis and treatment of other STI/ Reproductive Tract Infections (RTI): Candida vaginitis, gonorrhoea, chlamydia, bacterial vaginosis and trichomoniasis	a) Diagnosis of anaemia	b) Iron and folic acid supplementation	c) Anthelminthic (deworm)	d) Management of severe anaemia (considering blood transfusion)	a) Diagnosis of Pre-eclampsia-Eclampsia	b) Supplement calcium	c) Low-dose aspirin	d) Antihypertensive drugs	e) Magnesium sulfate	f) Fetal monitoring	g) Induction of labour	a) Glucose testing for detection	b) Treatment for insulin-dependent diabetic mother	a) Diagnosis and laboratory test	b) Fetal monitoring	a) Provision antibiotics if indicated	b) Provision of tocolytics to prolong pregnancy if indicated	c) Provision of corticosteroids for prevention of neonatal respiratory distress syndrome	d) Provision of magnesium sulfate for neuroprotection of the newborn	a) Provision antibiotics if indicated	b) Induction of labour	a) Diagnosis of breech at term	b) External Cephalic Version	c) Monitoring progress of labour	a) Perineal incision with local anaesthesia	b) Identify the need of caesarean section	a) Pregnancy test	b) Ultrasound scan	c) Laparotomy	d) Blood transfusion	a) Pregnancy test	b) Ultrasound scan	a) Treatment of infections	b) Management of bleeding (considering Vacuum Aspiration and blood transfusion)	c) Management of major injuries (considering laparotomy)	a) Medical uterine evacuation for the first trimester	b) Vacuum Aspiration for the first trimester	c) Medical uterine evacuation beyond the first trimester
																																						X	X
					X	X						X										X				X	X								X	X		X	X
																											X			X					X	X		X	X
						X						X										X				X	X			X					X	X		X	X
X	X				X	X			X	X		X		X	X		X	X	X	X	X	X	X	X	X	X	X			X	X		X	X	X	X	X	X	X
																							X	X	X										X			X	X
																										X	X			X					X	X		X	X
																										X	X			X						X			
																										X	X			X						X			
											X					X																							
											X					X																							
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
						X						X																											
											X	X										X	X	X	X	X													
																										X	X			X					X	X		X	X
X	X				X											X	X	X	X	X	X	X																	
						X																																	
X	X		X	X			X	X																															

Table 32. Medical devices for childbirth at DISTRICT HOSPITAL

		First assessment	Triage and basic emergency care	Mother care			
		Basic Medical Examination	Active labor with complica-tions	Childbirth			
General type	**Name of devices**	a) Check-up vital signs / Vaginal examination	a) Basic emergency care and pre-referral treatment	a) Monitoring progress of labour	b) Active management of the third stage of labour (AMTSL): Prophylactic use of uterotonics	c) Spontaneous delivery	d) Assisted delivery (vacuum extraction) if needed
Blood Bank devices	Anti-A blood group reagent, monoclonal						
	Anti-B blood group reagent, monoclonal						
	Anti-D blood group reagent (Saline/monoclonal)						
	Blood administration set, sterile						
	Glass slides, 25x75mm						
	Markers, fine point, permanent black, for glassware						
	Pasteur pipettes with integral bulb, disposable, plastic non-sterile, 3 ml						
	Wooden or plastic applicator sticks						
Clinical laboratory devices	Container, sample, 50 ml						
	Lancet, blood, safety, sterile (Sizes*)						
	Needle holder, vacuum tubes, sterile						
	Needle, vacuum tube, sterile (Size*)						
	Swab, cotton-tip, tube, sterile						
	Tube, capillary, Ethylene Diamine Tetra-acetic Acid (EDTA)						
	Tube, vacuum, Ethylene Diamine Tetra-acetic Acid (EDTA), sterile (Capacity*)						
	Tube, vacuum, plain/dry, sterile (Capacity*)						
	Blood glucometer, with accessories		X				
	Hemoglobinometer, with accessories		X				
	Enzyme Immuno Assay (EIA), Human Immunodeficiency Virus (HIV), kit						
	Rapid Diagnostic Test (RDT), Human Immunodeficiency Virus (HIV), kit						
	Test strip, pregnancy	X					
	Test strip, urinalysis (10 parameter)	X					
Medical devices - Disposable	Bandage, elastic, 7.5cmx5m, roll		X				
	Blanket, survival, 220x140cm, non-sterile		X				
	Bracelet, identification (Sizes*)	X		X			
	Compress, gauze,sterile & non-sterile, single use	X	X		X	X	X
	Cotton wool, 500g, roll, non-sterile		X		X		X
	Tape, medical, roll (Sizes*)		X		X		X
	Umbilical clamp, sterile,single use					X	X
	Umbilical tape, 3mmx50m, roll, non-sterile					X	X
	Cannulas, Intra Venous (IV) short, sterile, single use (Sizes G*)		X		X		X
	Infusion giving set, burette 100-150ml, sterile, single use		X		X		

Management of complications of labour and delivery																
Assessment for complications		Post-partum haemorrhage (PPH)					Caesarean section due maternal/fetal indication			Other surgical procedures depending on the complication					Human Immunodeficiency Virus (HIV) positive women	
a) Diagnosis of complications	b) Fetal monitoring	a) Use of uterotonics of choice for the treatment of PPH	b) Manual removal of placenta (include use of antibiotics and uterotonics)	c) Blood transfusion	d) Use of balloon tamponade	e) Use of artery embolization	f) Hysterectomy	a) Use of prophylactic antibiotic	b) Caesarean section	c) Use of uterotonics	a) Episiotomy	a) Repair of ruptured uterus	a) Correct uterine inversion	a) Laparotomy or other abdominal surgical interventions during childbirth	a) Craniotomy and craniocentesis	a) Screening of HIV	b) Prevention Mother To Child Transmission (PMTCT)
				X													
				X													
				X													
				X													
				X													
				X													
				X													
				X													
X																	
																X	
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																X	
																X	
																X	
																X	
				X													
																X	
																X	
X		X	X	X	X	X	X	X	X	X	X	X	X	X	X		
X		X	X	X	X	X	X	X	X	X	X	X	X	X	X		
X		X	X	X	X	X	X	X	X	X	X	X	X	X	X		
X		X	X	X	X	X	X	X	X	X	X	X	X	X	X		

Table 32. Medical devices for childbirth at DISTRICT HOSPITAL

		First assessment	Triage and basic emergency care	Mother care			
		Basic Medical Examination	Active labor with complica-tions	Childbirth			
General type	**Name of devices**	a) Check-up vital signs / Vaginal examination	a) Basic emergency care and pre-referral treatment	a) Monitoring progress of labour	b) Active management of the third stage of labour (AMTSL): Prophylactic use of uterotonics	c) Spontaneous delivery	d) Assisted delivery (vacuum extraction) if needed
	Infusion giving set, sterile, single use		X		X		X
	Needles, luer, sterile, single use (Sizes G*)		X		X		
	Needles, spinal, sterile, single use (Sizes*)						
	Safety box, for used syringes/needles		X		X		X
	Stopcock, 3-way, sterile, single use		X		X		
	Syringes, luer, sterile, single use (Capacities ml*)		X		X		
	Syringes, reuse prevention (RUP), (Capacities ml*)		X		X		
	Airway, Guedel, translucent (Sizes*)		X				
	Bag, urine, collecting, 2000ml		X				
	Catheter, balloon tamponade, post partum haemorrhage						
	Catheter, Foley, sterile, single use (Sizes CH*)		X				
	Catheter, urethral, sterile, single use (Sizes CH*)		X			X	X
	Prongs, nasal, oxygen, non sterile, single use (Sizes*)		X			X	X
	Syringe, feeding, catheter tip, 50ml, sterile, single use		X				
	Tube, endotracheal, with cuff, sterile, single use (Sizes ID*)		X				
	Tube, feeding/aspirating, L120cm,catheter tip, sterile, single use (Sizes CH*)		X				
	Tube, suction, L50cm, catheter tip, sterile, single use (Sizes CH*)		X			X	X
	Gloves, examination, latex, non-sterile, single use (Sizes*)	X	X		X	X	X
	Gloves, gynaecological, sterile, single use, pair (Sizes*)	X	X		X	X	X
	Gloves, surgical, sterile, single use, pair (Sizes*)		X			X	X
	Suture, synthetic, absorbable (Sizes USP/DEC*) with needle (Shapes* and sizes*), sterile, single use		X				
	Suture, synthetic, non-absorbable (Sizes USP/DEC*) with needle (Shapes* and sizes*), sterile, single use		X				
Medical devices - Equipment	Cardiotocograph (CTG), with accessories						
	Doppler, foetal heart rate (FHR) detector, with accessories		X				
	Non-Pneumatic Anti-Shock Garment (NASG)		X				
Medical devices - Equipment Grouping	Commodities for medical examination & diagnosis (see table 12)	X	X				
	Commodities for triage and basic emergency care (see table 13)		X				
	Commodities for labour, delivery & recovery (see table 14)			X	X	X	X
	Commodities for surgery & anaesthesia (see table 15)						
Counselling material	Counselling material						

Management of complications of labour and delivery																
Assessment for complications		Post-partum haemorrhage (PPH)						Caesarean section due maternal/fetal indication			Other surgical procedures depending on the complication					Human Immunodeficiency Virus (HIV) positive women	
a) Diagnosis of complications	b) Fetal monitoring	a) Use of uterotonics of choice for the treatment of PPH	b) Manual removal of placenta (include use of antibiotics and uterotonics)	c) Blood transfusion	d) Use of balloon tamponade	e) Use of artery embolization	f) Hysterectomy	a) Use of prophylactic antibiotic	b) Caesarean section	c) Use of uterotonics	a) Episiotomy	a) Repair of ruptured uterus	a) Correct uterine inversion	a) Laparotomy or other abdominal surgical interventions during childbirth	a) Craniotomy and craniocentesis	a) Screening of HIV	b) Prevention Mother To Child Transmission (PMTCT)
X		X	X	X	X	X	X	X	X	X	X	X	X	X	X		
X		X	X	X	X	X	X	X	X	X	X	X	X	X	X		
					X	X	X		X			X	X	X	X		
X		X	X	X	X	X	X	X	X	X	X	X	X	X	X		
X		X	X	X	X	X	X	X	X	X		X		X	X		
X		X	X		X	X	X	X	X	X	X	X	X	X	X		
X		X	X		X	X	X	X	X	X	X	X	X	X	X		
			X		X	X	X		X			X	X	X	X		
		X	X		X	X	X		X			X		X	X		
					X												
		X	X		X	X	X		X			X		X			
													X		X		
			X		X	X	X		X		X	X	X	X	X		
			X		X	X	X		X			X	X	X	X		
			X		X	X	X		X		X	X	X	X	X		
X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
X			X										X				
		X	X		X	X	X		X		X	X	X	X	X		
							X		X		X	X		X			
							X		X		X	X		X			
	X																
	X																
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X																	
X	X	X	X	X												X	X
					X	X	X	X	X	X	X	X	X	X	X		
																	X

Table 33. Medical devices for post-natal mother at DISTRICT HOSPITAL

		First assessment			Triage and basic emergency care
		Basic Medical Examination		Support for breast feeding	Acute symptoms post-natal
General type	**Name of devices**	a) Check-up vital signs	b) Screening for cervix and breast cancer	a) Management of mastitis / breast abscess	a) Basic emergency care and pre-referral treatment
Blood Bank devices	Anti-A blood group reagent, monoclonal				
	Anti-B blood group reagent, monoclonal				
	Anti-D blood group reagent (Saline/monoclonal)				
	Blood administration set, sterile				
	Glass slides, 25x75mm				
	Markers, fine point, permanent black, for glassware				
	Pasteur pipettes with integral bulb, disposable, plastic non-sterile, 3 ml				
	Wooden or plastic applicator sticks				
Clinical laboratory devices	Container, sample, 50 ml		X		
	Lancet, blood, safety, sterile (Sizes*)				
	Needle holder, vacuum tubes, sterile				
	Needle, vacuum tube, sterile (Size*)				
	Swab, cotton-tip, tube, sterile		X		
	Tube, capillary, Ethylene Diamine Tetra-acetic Acid (EDTA)				
	Tube, vacuum, Ethylene Diamine Tetra-acetic Acid (EDTA), sterile (Capacity*)				
	Hemoglobinometer, with accessories				
	Cytology stain, kit		X		
	Enzyme Immuno Assay (EIA), Human Immunodeficiency Virus (HIV), kit				
	Nucleic Acid Test (NAT), Human Papilloma Virus (HPV), kit		X		
	Rapid Diagnostic Test (RDT), Human Immunodeficiency Virus (HIV), kit				
	Rapid Diagnostic Test (RDT), malaria, kit				
	Test strip, urinalysis (10 parameter)				
	Test strip, vaginal infection, pH				
Medical devices - Disposable	Bandage, elastic, 7.5cmx5m, roll				X
	Blanket, survival, 220x140cm, non-sterile				X
	Compress, gauze,sterile & non-sterile, single use			X	X
	Cotton wool, 500g, roll, non-sterile			X	X
	Tape, medical, roll (Sizes*)			X	X
	Cannulas, Intra Venous (IV) short, sterile, single use (Sizes G*)				X
	Infusion giving set, sterile, single use				X
	Needles, luer, sterile, single use (Sizes G*)			X	X
	Needles, spinal, sterile, single use (Sizes*)				

Prevention and management of post partum bleeding					Detection and management of post partum infection				Postoperative care		
Anaemia					Human Immuno-deficien-cy Virus (HIV)	Malaria	Other infection		Assessment of postop-erative care		Surgical procedure
a) Management of post partum bleeding	b) Diagnosis of anaemia	c) Iron supplementation	d) Anthelminthic (deworm)	e) Management of severe anaemia (considering blood transfusion)	a) Diagnosis and treatment for HIV (Antiretroviral Therapy (ART))	a) Diagnosis and management of malaria	a) Diagnosis and management of postpartum endometritis and salpingitis	a) Diagnosis and treatment for urinary tract infections: bacteriuria, pyelonephritis	a) Postcaesarean care	b) Diagnosis of pelvic abscess, peritonitis or other postoperative complication	c) Surgical management of pelvic abscess, peritonitis or other postoperative complication with laparotomy
				X							
				X							
				X							
				X							
				X							
				X							
				X							
								X			X
	X			X	X	X					
					X						
					X						
					X		X				
					X						
					X						
	X			X							
							X				
					X						
					X						
						X					
							X	X			
							X	X			
X				X		X	X	X	X	X	X
X				X		X	X	X	X	X	X
X				X		X	X	X	X	X	X
X				X		X	X	X	X	X	X
X				X		X	X	X	X	X	X
X						X	X	X	X	X	X
											X

Table 33. Medical devices for post-natal mother at DISTRICT HOSPITAL

		First assessment			Triage and basic emergency care
		Basic Medical Examination		Support for breast feeding	Acute symptoms post-natal
General type	**Name of devices**	a) Check-up vital signs	b) Screening for cervix and breast cancer	a) Management of mastitis / breast abscess	a) Basic emergency care and pre-referral treatment
	Safety box, for used syringes/needles			X	X
	Stopcock, 3-way, sterile, single use				X
	Syringes, luer, sterile, single use (Capacities ml*)			X	X
	Syringes, reuse prevention (RUP), (Capacities ml*)			X	X
	Airway, Guedel, translucent (Sizes*)				X
	Bag, urine, collecting, 2000ml				X
	Catheter, Foley, sterile, single use (Sizes CH*)				X
	Prongs, nasal, oxygen, non sterile, single use (Sizes*)				X
	Tube, endotracheal, with cuff, sterile, single use (Sizes ID*)				X
	Tube, feeding/aspirating, L120cm,catheter tip, sterile, single use (Sizes CH*)				
	Tube, suction, L50cm, catheter tip, sterile, single use (Sizes CH*)				X
	Gloves, examination, latex, non-sterile, single use (Sizes*)		X	X	X
	Gloves, surgical, sterile, single use, pair (Sizes*)				X
	Suture, synthetic, absorbable (Sizes USP/DEC*) with needle (Shapes* and sizes*), sterile, single use				X
	Suture, synthetic, non-absorbable (Sizes USP/DEC*) with needle (Shapes* and sizes*), sterile, single use				X
Medical devices - Equipment	Breastpump, manual, with accessories			X	
	Colposcope with biopsy set		X		
Medical devices - Equipment Grouping	Commodities for medical examination & diagnosis (see table 12)	X	X	X	X
	Commodities for triage and basic emergency care (see table 13)				X
	Commodities for labour, delivery & recovery (see table 14)				
	Commodities for surgery & anaesthesia (see table 15)				
	Commodities for inpatient mother and newborn (see table 16)	X		X	
Counselling material	Counselling material				

Prevention and management of post partum bleeding					Detection and management of post partum infection				Postoperative care		
Anaemia					Human Immuno-deficien-cy Virus (HIV)	Malaria	Other infection		Assessment of postop-erative care		Surgical procedure
a) Management of post partum bleeding	b) Diagnosis of anaemia	c) Iron supplementation	d) Anthelminthic (deworm)	e) Management of severe anaemia (considering blood transfusion)	a) Diagnosis and treatment for HIV (Antiretroviral Therapy (ART))	a) Diagnosis and management of malaria	a) Diagnosis and management of postpartum endometritis and salpingitis	a) Diagnosis and treatment for urinary tract infections: bacteriuria, pyelonephritis	a) Postcaesarean care	b) Diagnosis of pelvic abscess, peritonitis or other postoperative complication	c) Surgical management of pelvic abscess, peritonitis or other postoperative complication with laparotomy
X				X		X	X	X	X	X	X
X						X	X	X	X	X	X
X						X	X	X	X	X	X
X						X	X	X	X	X	X
											X
											X
											X
				X							X
											X
											X
											X
X				X	X	X	X	X	X	X	X
									X	X	X
											X
											X
X	X	X	X	X	X	X	X	X	X	X	X
X				X							
				X							
											X
X				X		X	X	X	X	X	
		X	X		X	X	X	X			

Table 34. Medical devices for post-natal baby (newborn) at DISTRICT HOSPITAL

		Childbirth: Essential newborn care														Detection and management of congenital infections			
		Immediate care at birth					Emergency support		Routine care							Congenital infections			
General type	Name of devices	a) Dry baby thoroughly on mother's chest skin to skin and cover	b) Assess breathing	c) Clamp and cut cord / Check cord vessels / Check for bleeding and signs of cord infection	d) Prevent hypothermia when skin to skin is not possible	e) Support breastfeeding within the first hour	a) Basic neonatal resuscitation	b) Management of brain injury and intracranial haemorrhage (ICH)	a) Full clinical examination / Check vital signs / measuring weight	b) Thermal Care	c) Breastfeeding support	d) Vitamin K prophylaxis and Immunization	e) Cord care	f) Prophylaxis for eye infection	g) Prophylactic antibiotics for neonates at risk of infection	a) Diagnosis of congenital syphilis	b) Prophylactic treatment for congenital syphilis	c) Screening of HIV (Dried Blood Spot (DBS))	d) Prophylactic treatment for HIV (Antiretroviral Therapy (ART))
Blood Bank devices	Anti-A blood group reagent, monoclonal																		
	Anti-B blood group reagent, monoclonal																		
	Anti-D blood group reagent (Saline/ monoclonal)																		
	Blood administration set, sterile																		
	Glass slides, 25x75mm																		
	Markers, fine point, permanent black, for glassware																		
	Pasteur pipettes with integral bulb, disposable, plastic non-sterile, 3 ml																		
	Wooden or plastic applicator sticks																		
Clinical laboratory devices	Container, sample, 50 ml															X			
	Lancet, blood, safety, sterile (Sizes*)																	X	
	Needle holder, vacuum tubes, sterile															X		X	
	Needle, vacuum tube, sterile (Size*)															X		X	
	Paper, dry blood spot																		
	Swab, cotton-tip, tube, sterile															X		X	
	Tube, blood collection, newborn cord blood, sterile			X															
	Tube, capillary, Ethylene Diamine Tetra-acetic Acid (EDTA)															X		X	
	Tube, capillary, heparin,															X			
	Tube, vacuum, Ethylene Diamine Tetra-acetic Acid (EDTA), sterile (Capacity*)															X		X	
	Tube, vacuum, plain/dry, sterile (Capacity*)															X		X	
	Analyzer, blood gas																		
	Blood glucometer, with accessories																		
	Hemoglobinometer, with accessories																		
	Enzyme Immuno Assay (EIA), Human Immunodeficiency Virus (HIV), kit																	X	
	Haemoglobin colour scale (refill kit)																		
	Haemoglobin colour scale (starter kit)																		
	Rapid Diagnostic Test (RDT), Human Immunodeficiency Virus (HIV), kit																	X	
	Rapid Diagnostic Test (RDT),Treponemal, syphilis, kit															X			
	Rapid Plasma Reagin (RPR), syphilis, kit															X			
	Treponema Pallidum Haemagglutination Assay (TPHA), syphilis, kit															X			
	Test strip, urinalysis (10 parameter)																	X	

Detection and management of common infections, illness and complications in the neonate and young infant											Specific interventions for small, low weight birth and pre-term babies						Supportive care for all sick neonate and sick young infant							Further assessment for all young infant				
Cord infection	Jaundice		Anaemia			Pneumonia		Diarrhoea	Septicaemia and/or meningitis		Apnoea	Respiratory Distress Syndrome (RDS)			Necrotizing enterocolitis		Triage and basic supportive and emergency care							Clinical visit				Optional interventions
a) Detection and management of cord infection	a) Diagnosis of jaundice	b) Management of jaundice	a) Diagnosis of anaemia	b) Management of anaemia	c) Pre-referral treatment for severe anaemia (blood transfusion)	a) Diagnosis of pneumonia	b) Management of pneumonia and its complications	a) Detection and management of diarrhoea	a) Diagnosis of septicaemia and/or meningitis: Blood Culture, Lumbar Puncture, Urine Analysis	b) Management of septicaemia and/or meningitis and its complications	a) Prevention of Apnoea	a) Diagnosis of RDS and provision of prophylaxis surfactant	b) Apply Continuous Positive Airway Pressure (CPAP) with nasal cannula or face mask	c) Ventilatory support and oxygen therapy including mechanical ventilation and CPAP	a) Diagnosis of necrotizing enterocolitis	b) Management of necrotizing enterocolitis	a) Monitor blood glucose and management of hypoglycaemia	b) Monitor nutrition and provision of tube feeding support	c) Provision of intravenous therapy	d) Monitor temperature and management of hypothermia (Kangaroo mother care)	e) Monitor oxygenation and management of hypoxia	a) Detection of emergency signs, emergency care and pre-referral treatment	b) Advanced resuscitation	a) Full clinical examination / check vital signs / measuring weight / check haemoglobin	b) Provision of vaccines (Diphtheria Pertussis Tetanus (DPT) + Haemophilus Influenzae type B (HIB), Oral Polio Vaccine (OPV), Hepatitis B)	c) Breastfeeding support and replacement feeding if necessary	d) Monitoring growth and development	a) Male circumcision
					X																							
					X																							
					X																							
					X																							
					X																							
					X																							
					X																							
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									X							X													
					X		X			X				X			X				X	X							
										X							X					X							
			X	X	X																	X		X				
																								X					
																								X					
	X		X						X																			

Table 34. Medical devices for post-natal baby (newborn) at DISTRICT HOSPITAL

		Childbirth: Essential newborn care														Detection and management of congenital infections			
		Immediate care at birth					Emergency support		Routine care							Congenital infections			
General type	**Name of devices**	a) Dry baby thoroughly on mother's chest skin to skin and cover	b) Assess breathing	c) Clamp and cut cord / Check cord vessels / Check for bleeding and signs of cord infection	d) Prevent hypothermia when skin to skin is not possible	e) Support breastfeeding within the first hour	a) Basic neonatal resuscitation	b) Management of brain injury and intracranial haemorrhage (ICH)	a) Full clinical examination / Check vital signs / measuring weight	b) Thermal Care	c) Breastfeeding support	d) Vitamin K prophylaxis and Immunization	e) Cord care	f) Prophylaxis for eye infection	g) Prophylactic antibiotics for neonates at risk of infection	a) Diagnosis of congenital syphilis	b) Prophylactic treatment for congenital syphilis	c) Screening of HIV (Dried Blood Spot (DBS))	d) Prophylactic treatment for HIV (Antiretroviral Therapy (ART))
Medical devices - Disposable	Bandage, elastic, 7.5cmx5m, roll																		
	Blanket, survival, 220x140cm, non-sterile				X					X									
	Bracelet, identification (Sizes*)						X	X	X										
	Compress, gauze, sterile & non-sterile, single use			X			X	X				X	X	X	X	X	X	X	
	Cotton wool, 500g, roll, non-sterile											X							
	Tape, medical, roll (Sizes*)							X					X						
	Umbilical clamp, sterile, single use			X															
	Umbilical tape, 3mmx50m, roll, non-sterile			X															
	Cannulas, Intra Venous (IV) short, sterile, single use (Sizes G*)							X											
	Catheter, Intra Venous (IV) umbilical vein, sterile, single use							X											
	Infusion giving set, burette 100-150ml, sterile, single use							X											
	Needles, luer, sterile, single use (Sizes G*)											X			X		X		
	Needles, scalp vein, sterile, single use (Sizes G*)							X											
	Needles, spinal, sterile, single use (Sizes*)																		
	Safety box, for used syringes/needles							X				X			X		X		
	Stopcock, 3-way, sterile, single use																		
	Syringes, auto-disable (AD), (Capacities ml*)											X							
	Syringes, luer, sterile, single use (Capacities ml*)											X			X		X		
	Syringes, reuse prevention (RUP), (Capacities ml*)											X			X		X		
	Airway, Guedel, translucent (Sizes*)							X											
	Collector, urine, adhesive, 10-100ml							X											
	Prongs, nasal, oxygen, non sterile, single use (Sizes*)							X											
	Syringe, feeding, catheter tip, 50ml, sterile, single use							X											
	Syringe, feeding, luer tip, 50ml, sterile, single use							X											
	Tube, endotracheal, without cuff, sterile, single use (Sizes ID*)							X											
	Tube, feeding/aspirating, L120cm,catheter tip, sterile, single use (Sizes CH*)																		
	Tube, feeding, L40cm, luer tip, sterile, single use (Sizes CH*)							X											
	Tube, suction, L50cm, catheter tip, sterile, single use (Sizes CH*)							X											
	Gloves, examination, latex, non-sterile, single use (Sizes*)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Detection and management of common infections, illness and complications in the neonate and young infant											Specific interventions for small, low weight birth and pre-term babies					Supportive care for all sick neonate and sick young infant							Further assessment for all young infant				
Cord infection	Jaundice		Anaemia			Pneumonia		Diarrhoea	Septicaemia and/or meningitis		Apnoea	Respiratory Distress Syndrome (RDS)			Necrotizing enterocolitis		Triage and basic supportive and emergency care							Clinical visit				Optional interventions
a) Detection and management of cord infection	a) Diagnosis of jaundice	b) Management of jaundice	a) Diagnosis of anaemia	b) Management of anaemia	c) Pre-referral treatment for severe anaemia (blood transfusion)	a) Diagnosis of pneumonia	b) Management of pneumonia and its complications	a) Detection and management of diarrhoea	a) Diagnosis of septicaemia and/or meningitis: Blood Culture, Lumbar Puncture, Urine Analysis	b) Management of septicaemia and/or meningitis and its complications	a) Prevention of Apnoea	a) Diagnosis of RDS and provision of prophylaxis surfactant	b) Apply Continuous Positive Airway Pressure (CPAP) with nasal cannula or face mask	c) Ventilatory support and oxygen therapy including mechanical ventilation and CPAP	a) Diagnosis of necrotizing enterocolitis	b) Management of necrotizing enterocolitis	a) Monitor blood glucose and management of hypoglycaemia	b) Monitor nutrition and provision of tube feeding support	c) Provision of intravenous therapy	d) Monitor temperature and management of hypothermia (Kangaroo mother care)	e) Monitor oxygenation and management of hypoxia	a) Detection of emergency signs, emergency care and pre-referral treatment	b) Advanced resuscitation	a) Full clinical examination / check vital signs / measuring weight / check haemoglobin	b) Provision of vaccines (Diphtheria Pertussis Tetanus (DPT) + Haemophilus Influenzae type B (HIB), Oral Polio Vaccine (OPV), Hepatitis B)	c) Breastfeeding support and replacement feeding if necessary	d) Monitoring growth and development	a) Male circumcision
																						X						
																						X						
X		X		X	X		X	X		X	X		X	X		X	X	X	X	X	X	X	X					X
X	X	X	X	X	X		X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X					X
X		X		X	X		X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X				X
X		X		X	X		X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X					X
X		X		X	X		X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X					X
									X	X		X	X	X	X	X	X	X	X	X	X	X	X	X					X
X		X		X	X		X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X					X
X		X		X			X	X	X	X		X				X	X	X	X			X	X	X					X
X		X		X			X	X	X	X		X	X	X	X	X	X	X	X			X	X	X					X
									X																				
X	X	X	X	X	X		X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X				X
							X			X		X				X	X		X			X	X						
																										X			
X		X		X			X	X	X	X		X				X	X		X			X	X						X
X		X		X			X	X	X	X		X				X			X			X	X						X
										X				X		X						X	X						
					X		X			X				X		X			X			X	X						
		X		X	X		X	X	X	X			X	X	X	X					X	X	X							X
					X		X			X				X		X	X	X	X		X	X	X						
					X		X			X				X		X	X	X	X		X	X	X						
										X				X		X					X	X	X						
					X		X			X				X		X	X	X	X		X	X	X						
					X		X			X				X		X	X	X	X		X	X	X						
					X		X	X	X	X			X	X	X	X	X	X	X		X	X	X						X
X		X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				X

Table 34. Medical devices for post-natal baby (newborn) at DISTRICT HOSPITAL

		Childbirth: Essential newborn care														Detection and management of congenital infections			
		Immediate care at birth					Emergency support		Routine care							Congenital infections			
General type	**Name of devices**	a) Dry baby thoroughly on mother's chest skin to skin and cover	b) Assess breathing	c) Clamp and cut cord / Check cord vessels / Check for bleeding and signs of cord infection	d) Prevent hypothermia when skin to skin is not possible	e) Support breastfeeding within the first hour	a) Basic neonatal resuscitation	b) Management of brain injury and intracranial haemorrhage (ICH)	a) Full clinical examination / Check vital signs / measuring weight	b) Thermal Care	c) Breastfeeding support	d) Vitamin K prophylaxis and Immunization	e) Cord care	f) Prophylaxis for eye infection	g) Prophylactic antibiotics for neonates at risk of infection	a) Diagnosis of congenital syphilis	b) Prophylactic treatment for congenital syphilis	c) Screening of HIV (Dried Blood Spot (DBS))	d) Prophylactic treatment for HIV (Antiretroviral Therapy (ART))
	Gloves, surgical, sterile, single use, pair (Sizes*)			X									X						
	Suture, synthetic, absorbable (Sizes USP/DEC*) with needle (Shapes* and sizes*), sterile, single use																		
	Suture, synthetic, non-absorbable (Sizes USP/DEC*) with needle (Shapes* and sizes*), sterile, single use																		
Medical devices - Equipment	Apnoea monitor																		
	Auditory, function screening devices, newborn								X										
	Bilirubinometer																		
	Breastpump, manual, with accessories																		
	Phototherapy light, mobile, with accessories																		
Medical devices - Equipment Grouping	Commodities for medical examination & diagnosis (see table 12)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Commodities for triage and basic emergency care (see table 13)						X	X											
	Commodities for labour, delivery & recovery (see table 14)	X	X	X	X	X	X												
	Commodities for surgery & anaesthesia (see table 15)																		
	Commodities for inpatient mother and newborn (see table 16)									X	X	X	X	X	X	X	X	X	X
	Commodities for intensive care of newborn (see table 17)							X											
Counselling material	Counselling material	X			X	X				X	X	X							

Detection and management of common infections, illness and complications in the neonate and young infant												Specific interventions for small, low weight birth and pre-term babies						Supportive care for all sick neonate and sick young infant							Further assessment for all young infant				
Cord infection	Jaundice		Anaemia			Pneumonia		Diarrhoea	Septicaemia and/or meningitis		Apnoea	Respiratory Distress Syndrome (RDS)			Necrotizing enterocolitis		Triage and basic supportive and emergency care							Clinical visit				Optional interventions
a) Detection and management of cord infection	a) Diagnosis of jaundice	b) Management of jaundice	a) Diagnosis of anaemia	b) Management of anaemia	c) Pre-referral treatment for severe anaemia (blood transfusion)	a) Diagnosis of pneumonia	b) Management of pneumonia and its complications	a) Detection and management of diarrhoea	a) Diagnosis of septicaemia and/or meningitis: Blood Culture, Lumbar Puncture, Urine Analysis	b) Management of septicaemia and/or meningitis and its complications	a) Prevention of Apnoea	a) Diagnosis of RDS and provision of prophylaxis surfactant	b) Apply Continuous Positive Airway Pressure (CPAP) with nasal cannula or face mask	c) Ventilatory support and oxygen therapy including mechanical ventilation and CPAP	a) Diagnosis of necrotizing enterocolitis	b) Management of necrotizing enterocolitis	a) Monitor blood glucose and management of hypoglycaemia	b) Monitor nutrition and provision of tube feeding support	c) Provision of intravenous therapy	d) Monitor temperature and management of hypothermia (Kangaroo mother care)	e) Monitor oxygenation and management of hypoxia	a) Detection of emergency signs, emergency care and pre-referral treatment	b) Advanced resuscitation	a) Full clinical examination / check vital signs / measuring weight / check haemoglobin	b) Provision of vaccines (Diphtheria Pertussis Tetanus (DPT) + Haemophilus Influenzae type B (HIB), Oral Polio Vaccine (OPV), Hepatitis B)	c) Breastfeeding support and replacement feeding if necessary	d) Monitoring growth and development	a) Male circumcision
									X													X						X
																						X						X
																						X						
											X	X																	
	X																											
																										X		
		X																										
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
							X	X	X	X												X	X					
																												X
X	X	X	X	X	X	X		X			X																	X
		X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X					
																				X				X	X	X	X	

Table 35. Medical devices for infancy and childhood at DISTRICT HOSPITAL

		Essential care for monitoring growth and early childhood development							Detection and management of common infections, illness and complications in infancy and childhood									
		Routine care							Severe Acute Malnutrition (SAM)			Anaemia			Pneu-monia		Wheeze (Asthma, Bronchi-olitis)	
General type	Name of devices	a) Full clinical examination / check vital signs / measuring weight	b) Provision of vaccines	c) Growth monitoring	d) Early childhood development monitoring	e) Breastfeeding support and replacement feeding if necessary	f) Vitamin A supplementation	g) Deworming (Mebendazole)	a) Diagnosis of SAM	b) Feeding support	c) Pre-referral treatment for SAM	a) Diagnosis of anaemia	b) Management of anaemia	c) Pre-referral treatment for severe anaemia (Blood transfusion)	a) Differential diagnosis for pneumonia	b) Management of pneumonia and its complications	a) Diagnosis of condition with wheeze	b) Management of condition with wheeze
Blood Bank devices	Anti-A blood group reagent, monoclonal													X				
	Anti-B blood group reagent, monoclonal													X				
	Anti-D blood group reagent (Saline/ monoclonal)													X				
	Blood administration set, sterile													X				
	Glass slides, 25x75mm													X				
	Markers, fine point, permanent black, for glassware													X				
	Pasteur pipettes with integral bulb, disposable, plastic non-sterile, 3 ml													X				
	Wooden or plastic applicator sticks													X				
Clinical laboratory devices	Container, sample, 50 ml																	
	Lancet, blood, safety, sterile (Sizes*)								X			X	X					
	Needle holder, vacuum tubes, sterile																	
	Needle, vacuum tube, sterile (Size*)																	
	Paper, dry blood spot																	
	Swab, cotton-tip, tube, sterile														X		X	
	Tube, capillary, Ethylene Diamine Tetra-acetic Acid (EDTA)																	
	Tube, capillary, heparin,																	
	Tube, vacuum, Ethylene Diamine Tetra-acetic Acid (EDTA), sterile (Capacity*)																	
	Tube, vacuum, plain/dry, sterile (Capacity*)																	
	Analyzer, blood gas													X		X		
	Blood glucometer, with accessories								X									
	Hemoglobinometer, with accessories								X			X	X	X				
	Enzyme Immuno Assay (EIA), Human Immunodeficiency Virus (HIV), kit																	
	Rapid Diagnostic Test (RDT), Human Immunodeficiency Virus (HIV), kit																	
	Rapid Diagnostic Test (RDT), malaria, kit																	
	Test strip, urinalysis (10 parameter)											X						
Medical devices - Disposable	Bandage, elastic, 7.5cmx5m, roll										X			X				
	Blanket, survival, 220x140cm, non-sterile										X			X				
	Bracelet, identification (Sizes*)										X		X	X		X		
	Compress, gauze, sterile & non-sterile, single use								X	X	X	X	X	X		X		X
	Cotton wool, 500g, roll, non-sterile		X						X	X	X	X	X	X		X		X
	Tape, medical, roll (Sizes*)									X	X		X	X		X		X
	Cannulas, Intra Venous (IV) short, sterile, single use (Sizes G*)									X	X		X	X		X		
	Catheter, Intra Venous (IV) umbilical vein, sterile, single use																	

																	Triage, supportive and basic emergency care								Further assessment for all infant and child
Tuberculosis		Diarrhoea	Septicaemia and/or meningitis		Malaria	Dengue fever	Measles	Human Immunodeficiency Virus (HIV)			Eye infection	Ear infection	Mouth infection	Skin infection	Chicken pox		Acute symptoms of sick infant and young child						Acute symptoms		Optional interventions
a) Diagnosis of tuberculosis	b) Management of tuberculosis	a) Differential diagnosis and management of diarrhoea and dysentery	a) Diagnosis of septicaemia and/or meningitis : Blood Culture, Lumbar Puncture, Urine Analysis	b) Management of septicaemia and/or meningitis and its complications	a) Diagnosis and management of malaria	a) Diagnosis and management of dengue fever	a) Diagnosis and management of measles	a) Diagnosis of HIV	b) Treatment for HIV (Antiretroviral Therapy (ART))	c) Management of other opportunistic infections in HIV	a) Detection and management of eye infection / conjunctivitis	a) Detection and management of ear infection	a) Detection and management of mouth infection / thrush	a) Diagnosis and management of skin infections	a) Detection and management of chicken pox		a) Management of hypoglycaemia	b) Tube feeding support	c) Intravenous therapy	d) Management of hypothermia	e) Management of hypoxia	f) Pain control	a) Detection of emergency signs, emergency care and pre-referral treatment	b) Advanced resuscitation	a) Male circumcision
			X																						
			X		X	X		X									X								
			X					X																	
			X					X																	
			X																						
X			X					X																	
			X					X																	
			X																						
			X					X																	
								X																	
				X													X				X		X		
				X													X						X		
								X																	
								X																	
					X																				
								X																	
																							X		
																				X			X		
	X	X		X	X												X	X	X	X	X	X	X	X	X
	X	X	X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X	X	X	X
	X	X	X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X	X	X	X
	X	X	X	X	X	X				X	X	X	X	X	X		X	X	X	X	X	X	X	X	X
	X	X	X	X	X	X				X							X	X	X	X	X	X	X	X	X
																									X

Table 35. Medical devices for infancy and childhood at DISTRICT HOSPITAL

		Essential care for monitoring growth and early childhood development							Detection and management of common infections, illness and complications in infancy and childhood									
		Routine care							Severe Acute Malnutrition (SAM)		Anaemia				Pneu-monia		Wheeze (Asthma, Bronchi-olitis)	
General type	**Name of devices**	a) Full clinical examination / check vital signs / measuring weight	b) Provision of vaccines	c) Growth monitoring	d) Early childhood development monitoring	e) Breastfeeding support and replacement feeding if necessary	f) Vitamin A supplementation	g) Deworming (Mebendazole)	a) Diagnosis of SAM	b) Feeding support	c) Pre-referral treatment for SAM	a) Diagnosis of anaemia	b) Management of anaemia	c) Pre-referral treatment for severe anaemia (Blood transfusion)	a) Differential diagnosis for pneumonia	b) Management of pneumonia and its complications	a) Diagnosis of condition with wheeze	b) Management of condition with wheeze
	Infusion giving set, burette 100-150ml, sterile, single use									X	X		X	X		X		
	Needles, luer, sterile, single use (Sizes G*)		X							X	X		X	X		X		X
	Needles, scalp vein, sterile, single use (Sizes G*)									X	X		X	X		X		
	Needles, spinal, sterile, single use (Sizes*)																	
	Safety box, for used syringes/needles		X						X	X	X	X	X	X		X		X
	Stopcock, 3-way, sterile, single use										X			X		X		
	Syringes, auto-disable (AD), (Capacities ml*)		X															
	Syringe for tuberculin, sterile, single use																	
	Syringes, luer, sterile, single use (Capacities ml*)									X	X		X	X		X		X
	Syringes, reuse prevention (RUP), (Capacities ml*)		X							X	X		X	X		X		X
	Airway, Guedel, translucent (Sizes*)										X					X		
	Collector, urine, adhesive, 10-100ml										X			X				
	Prongs, nasal, oxygen, non sterile, single use (Sizes*)										X		X	X		X		X
	Syringe, feeding, catheter tip, 50ml, sterile, single use										X			X				
	Syringe, feeding, luer tip, 50ml, sterile, single use										X			X				
	Tube, endotracheal, without cuff, sterile, single use (Sizes ID*)										X					X		
	Tube, feeding/aspirating, L120cm,catheter tip, sterile, single use (Sizes CH*)										X			X				
	Tube, feeding, L40cm, luer tip, sterile, single use (Sizes CH*)										X			X				
	Tube, suction, L50cm, catheter tip, sterile, single use (Sizes CH*)										X		X	X		X		X
	Gloves, examination, latex, non-sterile, single use (Sizes*)	X	X						X	X	X	X	X	X		X		X
	Gloves, surgical, sterile, single use, pair (Sizes*)																	
	Suture, synthetic, absorbable (Sizes USP/DEC*) with needle (Shapes* and sizes*), sterile, single use																	
	Suture, synthetic, non-absorbable (Sizes USP/DEC*) with needle (Shapes* and sizes*), sterile, single use																	
Medical devices - Equipment	Auditory, function screening devices, newborn	X			X													
	Breastpump, manual, with accessories					X				X								
Medical devices - Equipment Grouping	Commodities for medical examination & diagnosis (see table 12)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Commodities for triage and basic emergency care (see table 13)								X	X	X			X		X		X
	Commodities for surgery & anaesthesia (see table 14)																	
	Commodities for inpatient child (see table 17)									X		X	X			X		X
	Commodities for intensive care of child (see table 18)									X	X			X		X		X
Counselling material	Counselling material	X	X	X		X			X	X								

																	Triage, supportive and basic emergency care								Further assessment for all infant and child
Tuberculosis		Diarrhoea	Septicaemia and/or meningitis		Malaria	Dengue fever	Measles	Human Immunodeficiency Virus (HIV)			Eye infection	Ear infection	Mouth infection	Skin infection	Chicken pox	Acute symptoms of sick infant and young child						Acute symptoms		Optional interventions
a) Diagnosis of tuberculosis	b) Management of tuberculosis	a) Differential diagnosis and management of diarrhoea and dysentery	a) Diagnosis of septicaemia and/or meningitis : Blood Culture, Lumbar Puncture, Urine Analysis	b) Management of septicaemia and/or meningitis and its complications	a) Diagnosis and management of malaria	a) Diagnosis and management of dengue fever	a) Diagnosis and management of measles	a) Diagnosis of HIV	b) Treatment for HIV (Antiretroviral Therapy (ART))	c) Management of other opportunistic infections in HIV	a) Detection and management of eye infection / conjunctivitis	a) Detection and management of ear infection	a) Detection and management of mouth infection / thrush	a) Diagnosis and management of skin infections	a) Detection and management of chicken pox	a) Management of hypoglycaemia	b) Tube feeding support	c) Intravenous therapy	d) Management of hypothermia	e) Management of hypoxia	f) Pain control	a) Detection of emergency signs, emergency care and pre-referral treatment	b) Advanced resuscitation	a) Male circumcision
	X	X	X	X	X	X				X						X	X	X	X	X	X	X	X	X
	X	X	X	X	X		X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	X	X	X	X	X	X				X						X	X	X	X	X	X	X	X	X
			X																					
	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	X	X	X	X																		X	X	
	X																							
	X	X	X	X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	X	X	X	X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
				X																X		X	X	
		X	X	X	X	X										X		X		X		X		
	X	X		X	X	X										X			X	X		X	X	X
		X		X												X	X	X		X		X		
		X		X												X	X	X		X		X		
				X																X		X	X	
		X		X												X	X	X		X		X		
		X		X												X						X		
	X	X		X	X	X										X	X	X	X	X		X	X	X
	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
				X																		X		X
																						X		X
																						X		
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
																						X	X	
																								X
	X	X	X		X	X	X			X														X
																X	X	X	X	X	X	X	X	
		X			X	X		X	X	X									X		X			

4.2 Devices and interventions in specialized care

Other optional devices, which are considered to be useful in specialized hospitals and optional surgery procedures are not covered by the main matrix. The use of such devices and procedures in low-resource settings should be assessed according to the principle of health technology assessment in future work. In specialized hospitals, it would be better to consider the use of procedures and devices such as a laparoscopy system and proctoscope and anoscope system.

The current document does not include guidance on quantification for the medical devices, sets and kits covered in the list. This will depend on many different factors within a health-care facility, and quantification activities should be led locally. The quantity of medical devices needed per intervention will be based on assessments at the national level and will systematically take the following factors into consideration:

- health system – policies and protocols;
- health facility – capacity, activities and organization;
- existing replenishment/inventory system for medical devices – renewable/consumable and equipment.

Table 36. Medical devices for specialized care

Name	Link	Description
Laparoscope system	http://www.who.int/surgery/publications/scdh_manual/en/	An assembly of sterile laparoscopes and their accessories used for the visual examination and treatment of the abdominal/retroperitoneal cavity and its organs (laparoscopy). The insertion is typically through an incision(s) made in the abdominal wall (routinely just below the umbilicus or in the near vicinity). This system is mostly used for gynaecological procedures involving the evaluation/treatment of abdominal or pelvic pain, ectopic pregnancy, ovarian cysts, appendicitis, or for female sterilization.
Mammography unit	http://www.who.int/medical_devices/innovation/mammography.pdf	A complete mammographic radiographic system includes an x-ray generator, an x-ray tube and gantry, and a recording medium. The x-ray generator modifies incoming voltage to provide the x-ray tube with the power necessary to produce an x-ray beam. They also include a "paddle" for compression and placement of the breasts during imaging.
Radiographic, Fluoroscopic system	http://www.who.int/medical_devices/innovation/radiographic_fluorescence.pdf	This technology is effective in arthrography, bronchography, gastrointestinal and biliary tree studies, hysterosalpingography, intravenous and retrograde pyelography, myelography, and sialography. Other applications include locating ingested foreign materials; localizing lesions for needle aspiration or biopsy; highlighting congenital anatomic abnormalities; diagnosing congestive heart failure; and evaluating chest pain.
Radiotherapy Systems	http://www.who.int/medical_devices/innovation/radiotherapy_system.pdf http://www.who.int/medical_devices/innovation/radiotherapy_planning.pdf	Linear accelerators (linacs) and cobalt radiotherapy units are used in external-beam radiation therapy to treat cancer. Cobalt units and low-energy linacs are used primarily to treat bone cancer and tumors of the head, neck, and breast.
Scanning System, Computed Tomography	http://www.who.int/medical_devices/innovation/scanning_CT.pdf	Devices that consist of an x-ray subsystem, a gantry, a patient table, and a controlling computer. These scanners are used for a wide variety of diagnostic procedures, including spine and head injuries, lesions, and abdominal and pelvic malignancies; to examine the cerebral ventricles, the chest wall, and the large blood vessels; and to assess musculoskeletal degeneration.
Scanning System, Magnetic Resonance Imaging	http://www.who.int/medical_devices/innovation/scanning_MRI_full_body.pdf	An MRI unit consists of a magnet, shimming magnets, an RF transmitter/receiver system with an antenna coil, a gradient system, a patient table, a computer, display monitors, and an operator console. It is primarily used to identify diseases of the central nervous system, brain, and spine and to detect musculoskeletal disorders. It is also used to view cartilage, tendons, and ligaments. MRI can be used to help diagnose infectious diseases; to detect metastatic liver disease; to display heart-wall structure; to stage prostate, bladder, and uterine cancer; to evaluate kidney transplant viability; and to study marrow diseases.

4.3 Innovative health technologies

Since 2011 the Essential Health Technologies Department and later the Essential Medicines and Health Products department of WHO has published three editions of the Compendium of innovative health technologies for low-resource settings to distribute information about alternative, new or adapted technologies designed to fill existing gaps in the availability of health products to vulnerable populations, especially with regard to innovative medical devices for newborn and children's health, such as bedside newborn phototherapy, compact portable ultrasound, fetal heart rate monitoring, infant warming, and oxygen concentrator-driven bubble continuous positive airway pressure.

The choice of technology depends on the capabilities of the medical unit and the intention of use. For example, to maintain the proper temperature in a baby, a traditional incubator can be used if there is a source of electricity; if not, the Compendium describes an innovative infant warmer that does not require a constant supply of electricity.

Table 37. Innovative health technologies for reproductive, maternal, newborn and child health

Name	Link	Description
Bedside newborn phototherapy	http://www.who.int/medical_devices/innovation/compendium_med_dev2013_1.pdf?ua=1	Bedside Newborn Phototherapy is a device designed to treat jaundice in the mother's room in rural clinics. The double-sided, high-power LED lighting cures the most severe cases of jaundice and dramatically reduces treatment time.
Birthing simulator for training	http://www.who.int/medical_devices/innovation/compendium_other2012_2.pdf?ua=1	The birthing simulator enables the instructor to create very compelling simulations of normal to more complex birthing scenarios, and is particularly suitable for training control of post-partum haemorrhage.
Compact portable ultrasound	http://www.who.int/medical_devices/innovation/compendium_med_dev2013_2.pdf?ua=1	This device provides a non-invasive look inside the body for immediate visual validation of what a clinician can feel or hear. The device is small and lightweight, which makes it easy to carry and its battery capacity provides over one hour of scanning on a single charge, giving it enough power for a full day's worth of patient exams.
Fetal heart rate monitor	http://www.who.int/medical_devices/innovation/compendium_med_dev2011_1.pdf?ua=1	Using advanced Doppler ultrasound technology, the monitor detects and measures the fetal heart rate. This vital indicator of fetal stress allows rural healthcare workers to make life-saving decisions during childbirth. Destined for use in low resource settings, its design focuses on simplicity of use, durability and electrical power independence.
Infant radiant warmer	http://www.who.int/medical_devices/innovation/compendium_med_dev2013_6.pdf?ua=1	The device consists of a biocompatible bed on which to place the infant, and an overhead heater that delivers radiant heat. A skin temperature probe monitors infant temperature. Heat output can be controlled manually or through baby mode (feedback mode) for thermoregulation. Visual and audio alarms are present for safety. An APGAR timer helps to efficiently take APGAR scores post-delivery.
Infant warmer (neonatal sleeping bag warmer)	http://www.who.int/medical_devices/innovation/compendium_med_dev2013_7.pdf?ua=1	The infant warmer works without a constant supply of electricity. It has no moving parts, and is safe and easy to use. It consists of three parts - a sleeping bag to place the baby, a pouch of phase change material and an electric heater. The pouch is heated for 30 mins in the heater (second version uses boiling water instead of electricity to heat) and then placed in the sleeping bag. It maintains the WHO recommended temperature of 37 deg C for 4-6 hours, after which it can be reheated.
LED phototherapy for neonatal jaundice	http://www.who.int/medical_devices/innovation/compendium_med_dev2013_9.pdf?ua=1	The device emits light through an array of high-powered light emitting diodes (LEDs). These LEDs have been specifically selected to emit a narrow wavelength of blue light (dominant wavelength 458nm) that maximises the rate of bilirubin breakdown. The arrangement of the LEDs along with the optics have been designed to provide uniformity of light on the patient, while minimizing unwanted spill and glare outside the treatment surface.

Table 37. Innovative health technologies for reproductive, maternal, newborn and child health

Name	Link	Description
Newborn simulator for resuscitation training	http://www.who.int/medical_devices/innovation/compendium_other2011_1.pdf?ua=1	The proposed solution is a highly realistic and affordable newborn simulator. The baby's status can be simulated as desired to facilitate role playing in relevant scenarios covering basic newborn care as well as standard resuscitation measures. The simulator is available with therapeutic tools.
Non-invasive hypothermia indicator for newborns	http://www.who.int/medical_devices/innovation/compendium_med_dev2012_11.pdf?ua=1	The hypothermia indicator is a 12mm diameter disc with a black 'face' with two small white "dots" on one side, the other side has a self-adhesive facility. This device comes in a strip of 5 units. Liquid crystal technology provides function for it to perform reliably and accurately within an operating tolerance of +/- 0.5 degree Celsius.
Non-pneumatic anti-chock garment	http://www.who.int/medical_devices/innovation/compendium_med_dev2011_5.pdf?ua=1	For women suffering from uncontrollable PPH, a method to control the bleeding, reverse the shock, and stabilize the patient for safe transport to a comprehensive obstetric care facility could be lifesaving. One method to manage PPH is the use of a non-pneumatic anti-shock garment (NASG).
Non-surgical male circumcision device	http://www.who.int/medical_devices/innovation/compendium_med_dev2012_13.pdf?ua=1	The device consists of an Inner Ring, Elastic Ring and Applicator. The device applies controlled radial elastic pressure to compress the foreskin and cut off circulation. The distal foreskin becomes necrotic and is removed after 5-7 days. The procedure takes less than 5 minutes, is bloodless, requires no injected anaesthesia, no sutures, no sterile settings.
Oxygen concentrator-driven bubble CPAP	http://www.who.int/medical_devices/innovation/compendium_med_dev2013_14.pdf?ua=1	This device generates and delivers a safe, easily controllable mixture of humidified oxygen and air for CPAP treatment. It is driven by an oxygen concentrator that generates oxygen from atmospheric air, eliminating the need for expensive cylinders of compressed gases. The device delivers flows of up to 8L/min of both oxygen and air. Pressure in the system is controlled by a bubble bottle that depends on the depth of tubing under water, and is set by a simple dial on the bottle.
Oxytocin in prefilled auto-disable injection system	http://www.who.int/medical_devices/innovation/compendium_med_dev2011_6.pdf?ua=1	A compact, prefilled, auto-disable injection system is used to deliver Oxytocin. A time-temperature indicator on each package indicates heat exposure. Oxytocin in this device can enable minimally trained health workers to provide the PPH prevention dose.
Phototherapy for neonatal jaundice treatment	http://www.who.int/medical_devices/innovation/compendium_med_dev2011_8.pdf?ua=1	Phototherapy is an efficient mean to treat Hyperbilirubinemia. By emitting blue light over the patient's skin, it converts toxic bilirubin molecules in the blood into less toxic isomeric forms, by photo-oxidation and photoisomerization. The device uses high power LEDs for treatment and negligible emission of UV / IR radiation.
Reusable neonatal suction device	http://www.who.int/medical_devices/innovation/compendium_med_dev2011_13.pdf?ua=1	The proposed solution is a bulb suction device that is particularly suitable for use in developing countries. It is easy to use and reusable when disinfected in accordance with instructions, over the product's lifespan.
Transcutaneous bilirubin measurement system for infants	http://www.who.int/medical_devices/innovation/compendium_med_dev2011_16.pdf?ua=1	The device provides a numerical measurement of predicted bilirubin count in mg/dL or Qmol/L within a clinically beneficial range that has been correlated with total serum bilirubin concentration measured by High Pressure Liquid Chromatography (HPLC).

Table 37. Innovative health technologies for reproductive, maternal, newborn and child health

Name	Link	Description
Umbilical artery doppler analyser	http://www.who.int/medical_devices/innovation/compendium_med_dev2013_16.pdf?ua=1	The technology measures blood flow in the umbilical artery of the fetus at greater than 24 weeks gestation. From such a measurement, decisions can be made about the ability for the placenta to provide sufficient nutrients and oxygen in order to sustain adequate fetal development. The ultrasonic Doppler probe connects to the USB port of a standard Pentium PC or laptop on which proprietary software is installed. The product consists of a graphic user interface, operational software and the physical mechanical parts of the probe (hosing, acoustic nose, etc.).
Ventilator using continuous positive airway pressure	http://www.who.int/medical_devices/innovation/compendium_med_dev2011_17.pdf?ua=1	CPAP assists infants with respiratory distress in maintaining continuous positive airway pressure while breathing on their own. This solution is customized for the use in hospitals with basic infrastructure and limited resources.

Source: WHO Compendium of innovative health technologies for low-resource settings 2011 - 2013

http://www.who.int/medical_devices/innovation/compendium/en/index3.html

4.4 References

1. Health technology assessment of medical devices. Geneva: World Health Organization; 2011 (http://www.who.int/medical_devices/assessment/en, accessed 22 May 2014).
2. Compendium of innovative health technologies for low-resource settings. Geneva: World Health Organization; 2014 (http://www.who.int/medical_devices/innovation/compendium/en/index3.html, accessed 22 May 2014).

5.1 Laboratory supply

To implement the various priority interventions described in this document, laboratory studies may be required. A nonexclusive list of recommended laboratory supplies for health posts, health centres and district hospitals is given in Table 38.

Table 38. Laboratory supplies by health care facilities

Classification	Name of medical device	Potential Use at			
		Health post	Health Center	District Hospital	Regional/ Provincial Hospital
CD4 enumeration technologies (instruments)	PoC CD4 instrument, portable, with accessories	X	X		
	Dedicated flow cytometer, with accessories			X	X
	Classical flow cytometry, with accessories				X
Chemicals and analytical testing	Acetic acid, 36 %, bottle			X	X
	Acetone, bottle			X	X
	Aglutination latex test for meningitis			X	X
	Bromine solution			X	X
	Buffer, tablets, PH 7.2, box			X	X
	Diethyl ether, bottle			X	X
	Drug susceptibility testing			X	X
	Ethanol, denaturised, 70 %, bottle	X	X	X	X
	Ethanol, denaturised, 95 %, bottle			X	X
	Formaldehyde, 10%, 10ml, ampoule			X	X
	Gentian violet, solution, bottle			X	X
	Glycerol, bottle			X	X
	Hydrochloric acid, 40 %, bottle			X	X
	Indian ink, black, bottle			X	X
	KI starch solution			X	X
	Lugol iodine, bottle			X	X
	Methanol, bottle			X	X
	Methylene blue, bottle			X	X
	Nitric acid			X	X
	Oil, immersion, bottle			X	X
	Oxidase test			X	X
	Petroleum gel, paraffin, bottle			X	X
	Plates, culture, agar - chocolate			X	X
	Plates, culture, agar- blood			X	X
	Potassium iodide			X	X
	Silica gel (desiccant for DBS), pouch	X	X	X	X
	Sodium bicarbonate			X	X
	Sodium chloride, powder, bottle			X	X
	Sodium hypochlorite, tablets			X	X
	Sodium persulfate			X	X
	Stain, Field A, solution			X	X
	Stain, Field B, solution			X	X
	Stain, Giemsa, solution			X	X
	Stain, Gram, set			X	X
	Stain, May-Grunwald Giemsa, set			X	X
	Stain, Ziehl–Neelsen, solution, bottle			X	X
	Sugar fermentation tests			X	X

Classification	Name of medical device	Potential Use at			
		Health post	Health Center	District Hospital	Regional/ Provincial Hospital
	Sulphuric acid, 95 %			X	X
	Test, Nickerson or saboraud medium, kit			X	X
	Test, potassium hydroxide KOH, preparation			X	X
	Trichloroacetic acid, crystals, bottle			X	X
	Urine culture agar: 5% sheep BAP and MAC			X	X
	Xylene, bottle			X	X
Clinical chemistry	Test strip, urinalysis (10 parameter)	X	X	X	X
	Blood glucometer, with accessories	X	X	X	X
	Analyser, clinical chemistry (inc. blood gas, electrolytes)			X	X
Blood cold chain	Refrigerator, laboratory, 2 to 8C, 110L/250 L			X	X
	Refrigerator/freezer, laboratory, 2 to 8C/-20C, 180L/40L			X	X
	Freezer, laboratory, -20C/-80C, 140L			X	X
General equipment	Microscope, binocular		X	X	X
	Cabinet for microscope		X	X	X
	Counter, hand tally, mechanical		X	X	
	Counter, cell, manual differential		X	X	
	Counting chamber, Neubauer		X	X	
	Centrifuge, micro - haematocrit			X	X
	Centrifuge, complete with accessories for serology			X	X
	Shaker, orbital			X	X
	Rotator, blood specimen			X	X
	Rotator, agglutination test			X	X
	Vortex, test tube			X	X
	Scale, precision, digital, 500g/0.01g			X	X
	Scale, digital, 1500g/0.1g			X	X
	Pipette, digital, 2-20 ul			X	X
	Pipette, digital, 10-100 ul			X	X
	Pipette, digital, 20-200 ul			X	X
	Pipette, digital, 100-1000 ul			X	X
	Pipette, digital, 8 channel, 5-50 ul			X	X
	Pipette, digital, 8 channel, 20-200 ul			X	X
	Pipette, repeating, 5 volume			X	X
	Pipette, stand, 4 positions			X	X
	Pipette, filler, wheel-run, set/2			X	X
	Pipettes, blood graduated, 0.05 ml			X	X
	Hot plate, with stirrer			X	X
	Incubator, 30 L, up to 80 C			X	X
	Water bath, 7 L			X	X
	Distillation unit, 2 L/h, with tank			X	X
	Sterilizer steam autoclave, 24 L			X	X
	Biosafety cabinet,class II,stand alone			X	X
	Timer, digital	X	X	X	X
	Timer, 60 min, mechanical	X	X	X	X
	Thermometer, glass, min/max -20C/100C	X	X	X	X
	Thermometer, min/max -30C/60C	X	X	X	X
	Magnifying glass	X	X	X	X
	Spatula, stainless steel, # sizes			X	X
	Forceps, dressing,155mm, straight	X	X	X	X
	Marker, diamond		X	X	X
	Punch, Dry Blood Spot (DBS), 3.0mm			X	X
	Brush, bottles and flasks, # sizes			X	X

Classification	Name of medical device	Potential Use at			
		Health post	Health Center	District Hospital	Regional/ Provincial Hospital
	Brush, test tubes, # sizes			X	X
	Clamp, test tubes			X	X
	Rack, test tubes, 24 positions			X	X
	Rack, ESR, 5 positions			X	X
	Rack,tubes, 0.5/2.0/5.0 ml,24 positions			X	X
	Rack, drying glass & plastic ware			X	X
	Rack, drying slides, 12 positions			X	X
	Rack, staining slides, horizontal, 12 positions			X	X
	Box,storage 0.5/2/5 ml tubes,100 positions			X	X
	Box, refill, pipette tips, empty			X	X
	Box, storage, 100 slides			X	X
	Box, specimen transport, 2L/4 L			X	X
	Biosafe, puncture-proof waste disposal box, for used syringes/needles, sharps	X	X	X	X
	Wash bottle, 250 ml			X	X
	Bottle, plastic, 1 L			X	X
	Goggles, protective	X	X	X	X
	Eye wash station		X	X	X
	Tourniquet, with buckle			X	X
	Spectrophotometer, ultraviolet / visible			X	X
	pH meter			X	X
	Cytology stain kit		X	X	X
	Water distilled, bottle			X	X
Glass and plastic ware	Cylinder, measuring, glass, 10 ml /100 ml / 500 ml/ 100 ml			X	X
	Beaker, glass, 100 ml / 250 ml			X	X
	Bottle, amber, dropper, 30 ml			X	X
	Bottle, amber, screw cap, 100 ml / 250 ml / 1000 ml			X	X
	Bottle, culture, blood, aerobic			X	X
	Bottle, culture, blood, anaerobic			X	X
	Jar, Coplain, staining			X	X
	Funnel, glass			X	X
	Funnel, plastic			X	X
	Slide, microscope, frosted		X	X	X
	Slide, microscope		X	X	X
	Cover glass, slides		X	X	X
	Petri dish, glass, with lid			X	X
	Rod, glass			X	X
Haematology	Haemoglobin colour scale (starter kit)	X	X		
	Haemoglobin colour scale (refill kit)	X	X		
	Hemoglobinometer, with accessories	X	X	X	X
	Analyser, haematology, 8 parameter			X	
	Analyser, haematology, 18 parameter				X
Nucleic Acid Testing (NAT) (qualitative and/ or quantitative molecular technologied - instruments)	Nucleic acid testing platform, with accessories, closed system				X
	Nucleic acid testing platform, with accessories, closed system (POC)			X	X

Classification	Name of medical device	Potential Use at			
		Health post	Health Center	District Hospital	Regional/ Provincial Hospital
Reagents	Reagents, HIV-1/2 RDT	X	X	X	
	Reagents, HIV-1/2 (antigen and antibody) EIA			X	X
	Reagents, HIV-1/2 supplemental assay				X
	Reagents, CD4 enumeration (absolute, %) POC	X	X	X	
	Reagents, CD4 enumeration (absolute, %) dedicated cytometer			X	X
	Reagents, CD4 enumeration (absolute, %) classical flow cytomer				X
	Reagents, HIV qualitative NAT				X
	Reagents, HIV quantitative NAT				X
	Reagents, Treponemal (syphilis) RDT	X	X	X	
	Reagents, TPHA			X	X
	Reagents, RPR			X	X
	Reagents, Treponemal (syphilis) EIA			X	X
	Reagents, HCV RDT	X	X	X	
	Reagents, HCV EIA			X	X
	Reagents, HCV quantitative NAT				X
	Reagents, HBsAg RDT	X	X	X	
	Reagents, HBsAg EIA			X	X
	Reagents, HBsAg quantitative NAT				X
	Reagents, malaria RDT, Pf/pan	X	X		
	Reagents, malaria RDT, Pf	X	X		
	Reagents, chlamydia EIA			X	X
	Reagents, chlamydia NAT				X
	Reagents, gonorrhea antigen EIA			X	X
	Reagents, gonorrhea NAT			X	X
	Reagents, tuberculosis NAT (POC)			X	X
	Reagents, HPV NAT				X
	Reagents, HSV II NAT				X
	Reagents, rubella EIA			X	X
Renewable	Paper, lens	X	X	X	X
	Paper, pH indicator 2.0 to 9.0			X	X
	Paper, filter #1			X	X
	Paper, dry blood spot	X	X	X	X
	Rack, drying DBS cards, 10 positions	X	X	X	X
	Paper, weighing			X	X
	Film, sealing, flexible, 10cmx38m, roll			X	X
	Sealant, compound			X	X
	Inoculation loop, plastic, sterile			X	X
	Microplate, ELISA, 96 U-well			X	X
	Tube, capillary, heparin	X	X	X	X
	Tube, capillary, EDTA	X	X	X	X
	Tube, screw cap, 0.2 ml / 0.5 ml / 2.0 ml / 5.0 ml, sterile			X	X
	Tube, screw cap, 0.2 ml / 0.5 ml / 2.0 ml / 5.0 ml, non-sterile			X	X
	Tube, screw cap, conic, 15/50ml,non-sterile			X	X
	Tube, push cap, 0.2 ml, PCR, sterile			X	X
	Tube, push cap, 5.0 ml, non-sterile			X	X
	Tube, vacuum, EDTA, 2 ml / 4 ml / 6 ml, sterile			X	X
	Tube, vacuum, serum, 4 ml / 6 ml, sterile			X	X
	Tube, vacuum, plain/dry, 4 ml / 6 ml,sterile			X	X
	Needle, vacuum tube, 20 G / 22 G, sterile			X	X
	Needle holder, vacuum tubes, sterile			X	X

Classification	Name of medical device	Potential Use at			
		Health post	Health Center	District Hospital	Regional/ Provincial Hospital
	Blood collection tube, neonatal cord blood, sterile			X	X
	Lancet, 2mm, safety, sterile	X	X	X	X
	Bandage, adhesive, 3.0 cm, box/100	X	X	X	X
	Compress, gauze, 10x10cm, non-sterile	X	X	X	X
	Compress, gauze, anti-septic, 6x3cm, sterile	X	X	X	X
	Pipette, transfer, 3 ml, sterile			X	X
	Pipette, transfer, 3 ml, non-sterile			X	X
	Pipette, tip, white, 2-20 ul			X	X
	Pipette, tip, yellow, 10-100 ul / 20-200 ul			X	X
	Pipette, tip, blue, 100-1000 ul			X	X
	Pipette, tip, barrier, 200 ul / 1000 ul,sterile			X	X
	Pipette, repeat, tip 2.5/5.0 ml, 10/25 ml			X	X
	Marker pen, glassware			X	X
	Marker pen, cryoware, color			X	X
	Applicator, wood, non-sterile			X	X
	Swab, cotton-tip, tube, sterile	X	X	X	X
	Reservoir, reagent, 60 ml			X	X
	Container, sample, 50 ml			X	X
	Monitor card,humidity,passive/cumulative			X	X
	Sheet,absorbent,bench,50x40cm	X	X	X	X
	Coat, lab work, medium size	X	X	X	X
	Gloves, nitrile, powder-free, non-sterile,single use	X	X	X	X
	Bag, re-sealeable, plastic	X	X	X	X
	Bag, biohazard, 20 L			X	X
	Label, self-adhesive, 5x10 cm	X			
	Label, self-adhesive, freezer				
	Label, biohazard, adhesive, 3x4cm				
	Envelope, packing, 27x36 cm	X			
	Cotton wool, 500g, roll, non-sterile			X	X
	Dressing strip, adhesive, diam 3.0 cm, sterile			X	X
	Kato-Katz, kit, stool sample preparation			X	X
Serology	EIA, reader, 8 channel			X	X
	EIA, washer, 8 channel			X	X
	EIA, incubator, 4 plate			X	X
Test strip	Test strip, pregnancy	X	X	X	X
	Test strip, vaginal infection, pH	X	X	X	X

5.2 Diagnostic tests and Laboratory

Uninterrupted provision of testing services requires a continuous supply of diagnostics/reagents and the required consumables—for example, specimen transfer devices, lancets, alcohol swabs, and blood collection equipment. This requires accurate forecasting of testing needs, efficient planning and distribution of test kits and consumables, and continuous post-market surveillance to report any quality problems. Certain types of diagnostics will require laboratory equipment/analyzers that must be correctly installed, then maintained and used properly to prevent breakdown. Testing facilities should be clean with adequate room and storage, and due care should be given to temperature and humidity as these factors may affect the reliable functioning of certain test kits, and equipment/analyzers.

Any country considering the selection and use of diagnostics and laboratory technologies should have:

- A national laboratory policy and national laboratory strategic plan *(1, 2);*
- A national quality assurance programme including quality control, external quality assessment, equipment maintenance, documentation/recordkeeping, etc. *(3,4,5);*
- A national list of testing services to be provided for each level of the health system (by analyte, and by test format), including use of nationally validated testing algorithms with back-up options, as appropriate *(6, 7);*
- Accurate forecasting to avoid stock-outs of test kits and related consumables.

WHO recommends standardized testing strategies[1] to maximize the accuracy of test results while minimizing cost. Validated testing algorithms should ideally use the assay with highest sensitivity first, then assays with highest specificity used second and/or third, depending on the required predictive values (99% is desirable). When two or more assays are used, it is essential to use assays with different antigen preparations (components) to minimize the potential for shared false non-reactivity or false reactivity. The following considerations should be taken into account when validating a set of potential testing algorithms, see Table 39.

Table 39. Specific considerations for selection of diagnostics

Parameter	Considerations
Performance characteristics	
Clinical sensitivity	Set a minimum acceptable criteria
Clinical specificity	Set a minimum acceptable criteria
Seroconversion sensitivity	Important for blood screening
Limit of detection/ dynamic range	Set a minimum acceptable criteria that relates to a clinically relevant level.
Misclassification rate	Important for monitoring of disease and/or treatment
Inter-reader variability, if subjectively read format	Set a minimum acceptable criteria
Invalid rate, devices/test results, test runs	Set a minimum acceptable criteria
Operational characteristics	
Test format	RDTs (immunochromatographic, immunofiltration) Simple (comb formats, agglutination assays) EIAs (manual plate-based EIAs, immunoanalysers) Supplemental assays (Western blot, line immunoassays) Nucleic Acid Testing (qualitative, quantitative)
Specimen type	Serum/plasma, venous or capillary whole blood, dried blood spot, oral fluid
Detection type	If HIV; discriminatory detection of HIV-1 and HIV-2 antibodies or combined detection of HIV-1/2 antibodies. If HIV; simultaneous or combined detection of HIV-1 antigen and HIV-1/2 antibodies
Subtype detection	If HIV; M, N, O subtypes
Time to result	If RDT; immunochromatographic (less than 30 minutes with fewer steps) or immunofiltration (less than 5 minutes with more steps). If EIA; random access analyser or not?
Endpoint stability	How long is the result stable? Is longer reading time or shorter reading time desirable? (depends on service delivery model)
Ease of use	If RDT; depends on a combination of: • nature of specimen collection (fingerstick whole blood by lancet or venous whole blood by venipuncture); • number of steps in the test procedure; • ease of reading the test band, line, spot; • ease of interpretation of testing results; • addition of procedural quality control (band appears when human specimen is added versus band appears when running buffer is added).

1 In this context, a testing strategy generically describes a testing approach for a specific need (for example, transfusion and transplantation screening, surveillance, and/or diagnosis of infection) taking into consideration the presumed prevalence in the population being tested. A testing algorithm describes the combination and sequence of specific assays used within a giventesting strategy. It has been shown that combinations of EIAs or combinations of RDTs or mixed combinations of EIAs and RDTs can provide reliable results.

Parameter	Considerations
Degree of laboratory infrastructure required i.e. which level of the health system	Refrigeration for storage of test kits and/or reconstituted reagents. Temperature-controlled work space. Electricity/generator.
Equipment/consumables required but not provided in the test kit	Lancets, alcohol swabs for fingerstick whole blood. Blood collection equipment for venous whole blood. Other general laboratory consumables.
Specimen through-put and individual testing service delivery models	RDTs if ≤40 specimens per day per operator with limited laboratory infrastructure. EIAs if ≥40 specimens per day per operator with laboratory infrastructure.
Technical skill of staff conducting testing	Including both laboratory and phlebotomy skills.
Availability of test kit controls and compatibility with QC materials	Some are available but separate from test kit. See also note above on procedural in-built quality control.
Shelf-life of test kits	Must be negotiated as part of the procurement contract.
Access to referral laboratory	Particularly important when 4th generation assays are used.

WHO Prequalification of Diagnostics programme

Through the WHO Prequalification of Diagnostics programme, WHO conducts independent and impartial assessments of the quality and performance of commercially available diagnostics and laboratory technologies that are best suited to resource-limited settings. Performance and operational characteristics are assessed using panels of biological specimens. In addition, WHO assesses the quality management system under which the product is made through dossier review and site inspection to provide continual assurance of quality. Further information concerning the prequalification of diagnostics is available on the WHO website at http://www.who.int/diagnostics_laboratory.

UN Bulk Procurement Scheme

Diagnostics found to meet minimum standards for WHO prequalification are then eligible for procurement by WHO and United Nations (UN) agencies. Further information concerning the list of products eligible for procurement is available on the WHO website at http://www.who.int/diagnostics_laboratory/procurement/purchase/en/index.html or by contacting WHO at diagnostics@who.int

Further reading

Guidelines for organizing national external quality assessment schemes for HIV serological testing. Geneva: United Nations Programme on HIV/AIDS; 1996 (http://www.who.int/diagnostics_laboratory/quality/en/EQAS96.pdf, accessed 22 May 2014).

Maintenance manual for laboratory equipment, 2nd edition. Spain: World Health Organization; 2008 (http://whqlibdoc.who.int/publications/2008/9789241596350_eng_low.pdf, accessed 22 May 2014).

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Basic Laboratory Procedure in Clinical Bacteriology, 2nd edition. Geneva: World Health Organization; 2003 (http://whqlibdoc.who.int/publications/2003/9241545453.pdf, accessed 22 May 2014).

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5.3 Blood bank commodities

Considering the significant positive impact of increasing the availability of blood transfusions on maternal health outcomes, Table 40 contains a list of essential items for a blood bank.

Table 40. Essential items for blood bank: blood collection, testing and processing, clinical transfusion, blood storage and blood transportation

Blood Collection, Testing and Processing		
a) Collection		
Classification	**Description**	**Indication**
Consumables: non-perishable	Adhesive plasters, 6x2cm	For application after blood donation and patients' sample collection
Consumables: non-perishable	Blood lancets, sterile, disposable	For haemoglobin estimation during donor selection
Consumables: non-perishable	Emergency medicines (Crystalloids, corticosteroid, adrenaline, antihistamine and other essential medicines)	For management of donor reactions
Consumables: non-perishable	Gauze swabs, 8-ply, 10x10cm/Cotton swabs	For applying pressure on the venepuncture site after blood donation, during patients' sample collection
Consumables: non-perishable	Impregnated medicated swabs, chlorhexadine or isopropanol	For donors' arm cleansing before blood donation
Consumables: non-perishable	Rapid test for haemoglobin estimation	Suitable for estimation of donors' haemoglobin during donor selection
Consumables: non-perishable	Single blood collection bags, CPD-A1 (needle must be in-built preventing re-use)	350 ml or 450 ml
Consumables: non-perishable	Surgical plaster roll	
Consumables: non-perishable	Test tubes, round bottom, polystyrene, 10 ml	For collecting blood samples for donation testing and patients' blood samples for blood grouping
Medical Device	Artery forceps (Clamp)	For use during blood donation
Medical Device	Sphygmomanometer	For measuring blood pressure during donor selection
Medical Device	Spring balance, range 250 – 600 gm	For monitoring blood volume during blood donation
Medical Device	Surgical scissors	For use during blood donation and patient sample collection
Medical Device	Test tube racks, 30 holes, plastic/wooden	For holding sample tubes with donors and patients
Medical Device	Tourniquets, arm, adjustable	
Medical Device	Tube stripper	
Medical Device	Weighing scale, range 0 –150 Kg	For checking donors' weight during donor selection
Recommended stationery	Blood donor questionnaires	For use during donor selection
Recommended stationery	Labels for blood bags	To include patient and cross-match information on the blood unit
Recommended stationery	Registers, hard-cover, A4	For donor and patient records
b) Blood group serology testing		
Classification	**Description**	**Indication**
Consumables: non-perishable	Glass slides, 25x75mm	For performing blood grouping on donated blood and patient sample For cross-matching*
Consumables: non-perishable	Markers, fine point, permanent black, for glassware	For labelling on glassware
Consumables: non-perishable	Pasteur pipettes with integral bulb, disposable, plastic non-sterile, 3 ml	For blood grouping and screening of donated blood for TTIs For patients' blood grouping and cross- matching
Consumables: non-perishable	Wooden or plastic applicator sticks	For mixing of reagents and blood samples while blood grouping
Perishable items: must be stored at 2°C to 8°C	Anti-A blood group reagent, monoclonal	Required for ABO blood grouping
Perishable items: must be stored at 2°C to 8°C	Anti-B blood group reagent, monoclonal	Required for ABO blood grouping
Perishable items: must be stored at 2°C to 8°C	Anti-D blood group reagent (Saline/monoclonal)	Required for Rh D blood grouping

Table 40. Essential items for blood bank: blood collection, testing and processing, clinical transfusion, blood storage and blood transportation

c) Screening donated blood for transfusion transmissible infections		
Classification	**Description**	**Indication**
Consumables: non-perishable	Markers, fine point, permanent black, for glassware	For labelling on glassware
Consumables: non-perishable	Pasteur pipettes with integral bulb, disposable, plastic non-sterile, 3ml	For blood grouping and screening of donated blood for TTIs For patients' blood grouping and cross- matching
Perishable items: must be stored at 2°C to 8°C	HBsAg rapid tests	Required for screening of donated blood for HBsAg
Perishable items: must be stored at 2°C to 8°C	HCV rapid tests	Required for screening of donated blood for HCV
Perishable items: must be stored at 2°C to 8°C	HIV 1+2 rapid tests	Required for screening of donated blood for HIV 1+2
Perishable items: must be stored at 2°C to 8°C	RPR rapid test	Required for screening of donated blood for syphilis

NOTE: This list of commodities is recommended only for the Referral level.

Clinical Transfusion		
a) Blood Cross-Matching		
Classification	**Description**	**Indication**
Consumables: non-perishable	Glass slides, 25x75mm	For performing blood grouping on donated blood and patient sample For cross-matching*
Consumables: non-perishable	Markers, fine point, permanent black, for glassware	For labelling on glassware
Consumables: non-perishable	Needle, hypo, disposable, 21G x 1.5", sterile	
Consumables: non-perishable	Needle, hypo, disposable, 23G x 1", sterile	
Consumables: non-perishable	Pasteur pipettes with integral bulb, disposable, plastic non-sterile, 3 ml	For blood grouping and screening of donated blood for TTIs For patients' blood grouping and cross- matching
Consumables: non-perishable	Syringe 5ml, hypo, disposable	For collecting patients' blood samples
Consumables: non-perishable	Test tube racks, 30 holes, plastic/wooden	For holding sample tubes with donors and patients
Consumables: non-perishable	Test tubes, round bottom, polystyrene, 10ml	For collecting blood samples for donation testing and patients' blood samples for blood grouping
Consumables: non-perishable	Wooden or plastic applicator sticks	For mixing of reagents and blood samples while blood grouping
Perishable items: must be stored at 2°C to 8°C	Anti-A blood group reagent, monoclonal	Required for ABO blood grouping
Perishable items: must be stored at 2°C to 8°C	Anti-B blood group reagent, monoclonal	Required for ABO blood grouping
Perishable items: must be stored at 2°C to 8°C	Anti-D blood group reagent (Saline/monoclonal)	Required for Rh D blood grouping
Recommended stationery	Labels for blood bags	To include patient and cross-match information on the blood unit
Recommended stationery	Registers, hard-cover, A4	For donor and patient records
b) Blood Transfusion		
Classification	**Description**	**Indication**
Consumables: non-perishable	Blood administration set with have an integral filter with pore size 170–200 micron	Required for administration of blood to the patients
Consumables: non-perishable	IV catheter, 20 G x 1 1/4", sterile, disposable, with wing	Used for blood administration depending on size of vein and desired rate of transfusion
Consumables: non-perishable	IV catheter, 22G x 1", sterile, disposable, with wing	
Consumables: non-perishable	IV catheter, 23G x 3/4 ", sterile, disposable, with wing	
Medical Device	Surgical scissors	For use during blood donation and patient sample collection
Medical Device	Tourniquets, arm, adjustable	
Recommended stationery	Transfusion request forms	For requesting blood transfusion for a patient

NOTE: This list of commodities is linked with interventions in the main matrix.

Table 40. Essential items for blood bank: blood collection, testing and processing, clinical transfusion, blood storage and blood transportation

Equipment in the Blood Centre		
Classification	**Description**	**Indication**
Medical Device	Autoclaves	
Medical Device	Automated sample processor	
Medical Device	Automatic pipette	
Medical Device	Binocular microscopes	
Medical Device	Blood collection bag weighing balances	
Medical Device	Cell washer centrifuge	
Medical Device	Colorimeters	
Medical Device	Cryoprecipitate bath (40C)	
Medical Device	Donor weighing scale	For weighing blood donors
Medical Device	Double beam balance	For weighing blood packs
Medical Device	Electronic balance	For weighing chemicals
Medical Device	ELISA plate reader	
Medical Device	ELISA plate washers	
Medical Device	Equipment necessary for producing chemically pure and /or pyrogen-free water (e.g. still; deionizer)	
Medical Device	Haematology autoanalyzer with platelet counts	
Medical Device	Haemocue/instrument for Haemoglobin Estimation	
Medical Device	Incubators	For laboratory serology tests
Medical Device	Laboratory bench top centrifuge for separation of samples	
Medical Device	Laboratory thermometers	
Medical Device	Laminar Airflow cabinet	
Medical Device	Micro plate shaker	
Medical Device	Oxygen supply equipment (such as cylinder)	It covers the administration set (mask)
Medical Device	pH Meter	
Medical Device	Plasma extractors	
Medical Device	Plasma freezer –300C	
Medical Device	Plasma thawing bath	
Medical Device	Platelet incubator and shaker	
Medical Device	Serologic rotators	
Medical Device	Spectrophotometers	
Medical Device	Sphygmomanometers	
Medical Device	Tube sealers	
Recommended stationery	Blast freezer	
Recommended stationery	Blood bank refrigerator	
Recommended stationery	Blood transportation box	
Recommended stationery	Container for safe disposal of sharps	
Recommended stationery	Deep freezer -80 C	
Recommended stationery	Donor beds/couches	
Recommended stationery	Hot Air ovens	
Recommended stationery	PC with accessories and software	
Recommended stationery	Refrigerated centrifuges	
Recommended stationery	Stop watches/timers	
Recommended stationery	Vehicles for outdoor blood donation sessions	
Recommended stationery	Voltage stabilizers	
Recommended stationery	Water bath	

Table 40. Essential items for blood bank: blood collection, testing and processing, clinical transfusion, blood storage and blood transportation

Equipment in the Hospital Blood Storage Centre and for Blood Transportation		
Classification	**Description**	**Indication**
Medical Device	Binocular microscopes	For temporary storage and transportation of blood
Medical Device	Incubators for laboratory serology tests	For temporary storage and transportation of blood
Medical Device	Laboratory bench top centrifuge for separation of samples	For temporary storage and transportation of blood
Medical Device	Plasma freezer –300C	For temporary storage and transportation of blood
Medical Device	Platelet incubator and shaker	For temporary storage and transportation of blood
Recommended stationery	Blood bank refrigerator	For storage of blood and reagents
Recommended stationery	Blood transportation box	For temporary storage and transportation of blood
Recommended stationery	Deep freezer -80 C	For temporary storage and transportation of blood
Recommended stationery	Insulated cool box, 10 L (capacity depending on need)	For temporary storage and transportation of blood

NOTE: The list of equipment should be adapted to be used for the blood centres in various levels in the country where assessment is conducted. If national standards for equipment requirements at various level of blood transfusion services are available, this list should be based on these standards.

Standard Precautions		
Classification	**Description**	**Indication**
Consumables: non-perishable	Gloves, latex, disposable for single use (in different sizes)	For standard precautions
Consumables: non-perishable	Sharps containers	For safety disposal of sharps
Consumables: non-perishable	Waste bags, 35 L, black plastic	For disposal of general waste
Consumables: non-perishable	Waste bags, 35 L, yellow	For disposal of contaminated swabs

Blood screening laboratories should have appropriate quality standards, based on national standards, to ensure process control and valid results. Globally recognized international standards could also be adopted by blood transfusion services to ensure a consistent approach to quality throughout their activities and to ensure the overall safety and efficacy of blood and blood products prepared for therapeutic use. The standards should take into account relevant existing legislation and other national requirements.

All donations, blood components, blood samples, test kits and reagents should be stored in suitable equipment in which defined storage temperatures and conditions are strictly maintained, monitored and recorded.

These lists of supplies should be adapted for use at various levels in the country where assessment is conducted, depending on national regulations and infrastructure.

5.4 Safe blood and clinical transfusion

Checklist of Essential Items for Collection, Testing and Transfusion of 50 Units of Whole Blood

Blood transfusion contributes to saving millions of lives every year, improves life expectancy and the quality of life of patients suffering from life-threatening conditions, and supports complex medical and surgical procedures. Every country should put in place policies, systems and structures to ensure the safety, quality, accessibility and timely availability of blood and blood products to meet the needs of all patients who require transfusion.

Provision of safe blood and blood products

Blood transfusion services should comply with national policies and strategies to ensure they implement standards and meet targets for the provision of safe blood and blood products. To perform their functions efficiently, BTS should have:

- Adequate number of qualified, skilled and experienced personnel in human resource management, finance and administration, quality systems, transfusion medicine, blood donor programme and laboratory testing and blood processing
- Suitable infrastructure and facilities in all centres in which blood collection, testing, processing and storage of blood and blood products take place.

Requirements include:

- Effective quality system within which all activities are performed in a quality-focused way and are continuously monitored
- Sustainable donor education, motivation, voluntary none remunerated blood donor recruitment and retention programme
- Safe blood collection process, including donor selection and deferral, donor care, notification, counselling and referral, and confidentiality
- Testing and processing using the most appropriate and effective methodologies and best laboratory practices
- Efficient inventory management system for optimum blood stocks and minimal wastage
- Effective blood cold chain for safe storage and distribution of blood and blood products
- Information management system encompassing all activities from blood donors to distribution of blood and blood products to hospitals, and issue and transfusion of blood and blood products to patients
- Liaison with hospitals in the implementation of transfusion guidelines and staff training
- Participation in national haemovigilance system.

Table 41. Essential Items for Blood Transfusion in Emergency Settings

Item Description	Usual or preferred presentation	Recommended quantity	Remarks
Perishable items: must be stored at 2°C to 8°C			
1. Anti-A blood group reagent, monoclonal	5 ml vial	1 x 5 ml	Required for ABO blood grouping
2. Anti-B blood group reagent, monoclonal	5 ml vial	1 x 5 ml	
3. Anti-D blood group reagent (Saline/ monoclonal)	5 ml vial	1 x 5 ml	Required for Rh D blood grouping
4. HIV 1+2 rapid tests	100 tests	1 x 100	Required for screening of donated blood for transfusion- transmissible infections (TTIs), including HIV 1+2, hepatitis B and C, and syphilis
5. HBsAg rapid tests	100 tests	1 x 100	
6. HCV rapid tests	100 tests	1 x 100	
7. RPR rapid test	100 tests	1 x 100	
Consumables: non-perishable			
8. Single blood collection bags, CPD-A1 (needle must be in-built preventing re-use)	Pack with 6 blood collection bags each	9 packs (50-60 bags)	350 ml or 450 ml
9. Blood administration set with have an integral filter with pore size 170–200 micron	50 sets	1 x 50 sets	Required for administration of blood to the patients
10. IV catheter, 20 G x1¼", sterile, disposable, with wing	50 pieces	1 x 50 pieces	Used for blood administration depending on size of vein and desired rate of transfusion
11. IV catheter, 22 G x1", sterile, disposable, with wing	50 pieces	1 x 50 pieces	
12. IV catheter, 23 G x¾ ", sterile, disposable, with wing	50 pieces	1 x 50 pieces	
13. Pasteur pipettes with integral bulb, disposable, plastic non-sterile, 3 ml	100 pipettes	2 x 100 pipettes	• For blood grouping and screening of donated blood for TTIs • For patients' blood grouping and cross-matching
14. Blood lancets, sterile, disposable	100	1 x 100	For haemoglobin estimation during donor selection
15. Gauze swabs, 8-ply, 10x10cm/Cotton swabs	100 swabs	2 x 100 swabs	• For applying pressure on the venepuncture site after blood donation • During patients' sample collection
16. Adhesive plasters, 6x2cm	100 pieces	1 x 100 pieces	For application after blood donation and patients' sample collection
17. Surgical plaster roll	2 pieces	1 x 2 pieces	
18. Markers, fine point, permanent black, for glassware	10 markers	1 x 10 markers	For labelling on glassware
19. Impregnated medicated swabs, chlorhexadine or isopropanol	100 pieces	2 x 100	For donors' arm cleansing before blood donation
20.Test tubes, round bottom, polystyrene, 10 ml	100 tubes	2 x 100 tubes	For collecting blood samples for donation testing and patients' blood samples for blood grouping
21. Glass slides, 25x75mm	50	4 x 50 slides	• For performing blood grouping on donated blood and patient sample • For cross-matching*
22. Wooden or plastic applicator sticks	200	2 x 200	For mixing of reagents and blood samples while blood grouping

Table 41. Essential Items for Blood Transfusion in Emergency Settings

Item Description	Usual or preferred presentation	Recommended quantity	Remarks
23. Syringe 5ml, hypo, disposable	100 syringes	1 x 100	For collecting patients' blood samples
24. Needle, hypo, disposable, 21G x1.5", sterile	100 needles	1 x 100	
25. Needle, hypo, disposable, 23 G x 1", sterile	100 needles	1 x 100	
26. Rapid test for haemoglobin estimation	Depending on the available products	For up to 100 tests	Suitable for estimation of donors' haemoglobin during donor selection
27. Gloves, latex, disposable for single use (in different sizes)	50 pairs	2 x 50 pairs	For standard precautions
28. Emergency medicines (Crystalloids, corticosteroid, adrenaline, antihistamine and other essential medicines)	Depending on the available products	1	For management of donor reactions
29. Sharps containers	Depending on the available products	2	For disposal of sharps
30. Waste bags, 35 L, black plastic	20 a roll	1 roll	For disposal of general waste
31. Waste bags , 35 L, yellow	20 a roll	1 roll	For disposal of contaminated swabs
Recommended stationery			
32. Blood donor questionnaires		60	For use during donor selection
33. Labels for blood bags		50 of each type	To include patient and cross-match information on the blood unit
34. Registers, hard-cover, A4		5	For donor and patient records
35. Transfusion request forms		50	For requesting blood transfusion for a patient
One-off items – if above are re-ordered, these should not be repeated			
36. Sphygmomanometer		1	For measuring blood pressure during donor selection
37. Surgical scissors		2	For use during blood donation and patient sample collection
38. Tourniquets, arm, adjustable		2	
39. Weighing scale, range 0 –150 Kg		1	For checking donors' weight during donor selection
40. Spring balance, range 250–600 gm		2	For monitoring blood volume during blood donation
41. Artery forceps (Clamp)		2	For use during blood donation
42. Tube stripper		2	
43. Test tube racks, 30 holes, plastic/wooden		5	For holding sample tubes with donors and patients
44. Insulated cool box, 10 L		2	For temporary storage of donated blood
45. Blood bank refrigerator		1	For storage of blood

* In settings where tube method cannot be used.

5.5 References

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6. Surgery and anaesthesia

6.1 Surgery and anaesthesia

As a first estimate, conditions treatable by surgery account for 11% of the global burden of disease (Debas H, Gosselin R, McCord C, et al. 2006). These conditions at the first referral level include the following *(1):*

- Injuries (such as road accidents, violence, falls and burns),[2]
- Pregnancy related complications (such as haemorrhage, obstructed labour, unsafe abortion and ectopic pregnancy),[3]
- Anaesthesia-related complications,
- Infections (such as wound infections, abscesses and bone infections),
- Acute abdominal conditions (such as gastro-intestinal obstruction, perforation and strangulation),
- Congenital anomalies (such as club foot), and
- Other surgical conditions.

Often surgical procedures cannot be performed or referred to higher-level health care facilities due to the lack of or non-functioning of equipment *(2, 3, 4)*. To maximize the effectiveness of regional health care facilities in the management of pregnancy-related complications, injuries, congenital anomalies and infection prevention, the following strategies should be implemented:

1. Recruiting personnel with appropriate education and training in at least one of the following areas *(5)*:
   - Anaesthesia and resuscitation,
   - Obstetrics and gynaecology,
   - General surgery,
   - Traumatology and
   - Orthopaedics.
2. Establishing practical skills training and continuing education programmes in the management of essential anaesthesia and surgical (emergency, obstetrics and trauma) care through:
   - Evaluating training needs,
   - Coordinating plans for education and training,
   - Establishing educational resources and point-of-care best practice protocols, and
   - Monitoring and evaluating the progress and impact of education and training.
3. Establishing appropriate physical facilities for:
   - A casualty area, operating room, labour room, and high-dependency area,
   - Continuous oxygen supply,
   - Blood bank and laboratory,
   - Diagnostic imaging,
   - Sterilization, and
   - Water, electricity, safe waste disposal and communications.
4. Procuring equipment and instruments to meet the needs of minor and major surgical services for:
   - Obstetrics and gynaecology surgery,
   - Abdominal surgery,
   - Orthopaedics surgery,
   - Common paediatric surgery, and
   - Anaesthesia and resuscitation.

2 Which accounts for over 1.3 million deaths annually
3 Which accounts for 280,000 deaths during childbirth annually

5. Building a reliable system for the supply of:
   - Medication,
   - Blood and intravenous fluids,
   - Surgical materials and
   - Other consumables.
6. And establishing a quality assurance system for:
   - Patient safety,
   - Management,
   - Communications,
   - Supervision and
   - Monitoring and evaluation.

The WHO *Integrated Management for Emergency and Essential Surgical* (IMEESC) toolkit was developed to provide guidance on strengthening surgical health care systems. It contains the following (6):

- Policies to ensure quality and safety in the provision of anaesthesia, obstetrics, trauma and surgical care;
- Planning tools to guide the incorporation of district surgical services within a national health plan;
- Guidance on organization and management of health care facilities;
- Education and training tools to enable health care workers to provide effective surgical, obstetrics, trauma and anaesthetic services;
- Essential emergency equipment generic list;
- Guidance to manage infrastructure and supplies at various levels within health care facilities to ensure adequate and reliable inventory of medicines, anaesthesia, surgical materials and other consumables;
- Best practice protocols on anaesthesia, obstetrics, common paediatric surgical conditions, trauma, disaster situations, surgical care, infection prevention and control and referral to higher-level health care facilities;
- Situation analysis to assess services at various levels of care and
- Monitoring and evaluating tools to monitor progress of improvement in surgical care systems.

6.2 Grouping of common surgical instruments by surgical procedure

Surgical instruments are often packed into sets related to the surgical procedures for which they are required. These sets can often be used for multiple procedures. Contents of each surgical instrument set are listed in Table 42.

Table 42. Contents of surgical instrument sets

1. Basic surgery set
The basic surgery set is used for minor surgery and/or exploratory of complex wounds.
Set content:
4 x Clamp, towel, Backhaus, 130mm
2 x Forceps, tissue seizing, Allis, 150mm
6 x Forceps, artery, Halsted-Mosquito, 125mm, curved
1 x Forceps, artery, Kocher, 140mm, straight
1 x Forceps, dressing, standard, 155mm, straight
1 x Forceps, tissue holding, Collin, 160mm
1 x Forceps, tissue, standard, 145mm, straight
1 x Forceps, dressing and polypus, Cheron, 250mm
1 x Needle holder, Mayo-Hegar, 180mm, straight
1 x Probe, double-ended, 145mm
1 x Retractor, Farabeuf, double-ended, 120mm, pair
1 x Scalpel handle, no.4
1 x Scissors, Metzembaum, 140mm, curved, blunt/blunt
1 x Scissors, Mayo, 140mm, curved, blunt/blunt
1 x Bowl, stainless steel, 180ml

Table 42. Contents of surgical instrument sets

2. Delivery set
The delivery set is used for spontanous delivery to clamp/cut the umbilical cord and it is also used in combination with the suture set when episiotomy is necessary.
Set content:
1 x Scissors, Mayo, 140mm, curved, blunt/blunt
1 x Scissors, gynecological, 200mm, curved, blunt/blunt
2 x Forceps, artery, Kocher, 140mm, straight
3. Dilatation/evacuation (D&E) set
The dilatation and evacuation set is used for surgical methods of safe abortion beyond the first trimester. The evacuation requires electric or manual vacuum aspiration equipment with different sizes of plastic cannulae, ranging from 12–16mm in diameter and long forceps.
Set content:
1 x Dilators, uterine, tapered, up to 51mm
1 x Forceps, dressing, ring
1 x Forceps, uterine, ovum, Bierer, large
1 x Forceps, uterine, ovum, Bierer, small
1 x Forceps, uterine, ovum, Sopher, small
1 x Retractor, vaginal, Doyen, 45 x 85mm
1 x Retractor, vaginal, Auvard, 38 x 80mm
1 x Curette, postpartum flexible, large
1 x Forceps, tenaculum, atraumatic
1 x Speculum, vaginal, Graves, wide-mouth
1 x Bowl, stainless steel, 180ml
Footnotes: Recommendation: Vacuum aspiration is the recommended technique of surgical abortion for pregnancies of up to 12 to 14 weeks of gestation. The procedure should not be routinely completed by sharp currettage. Dilation and sharp currettage (D&C), if still practised should be replaced by vacuum aspiration (page 2 in the reference). Dilatation and curettage: Where it is still practised, all possible efforts should be made to replace D&C with vacuum aspiration, to improve the safety and quality of care of women. At sites where vacuum aspiration has yet to be introduced, managers must ensure that proper pain management protocols are followed, and that D&C procedures are performed by well-trained staff under adequate supervision. Reference: Safe abortion second edition, 2012: http://www.who.int/reproductivehealth/publications/unsafe_abortion/9789241548434/en/
4. Dressing set
The dressing set is used for simple wound dressings.
Set content:
1 x Forceps, artery, Kocher, 140mm, straight
1 x Forceps, dressing, standard, 155mm, straight
1 x Scissors, Deaver, 140mm, straight, serrated/blunt
5. Early infant male circumcision set
The early infant male circumcision set is used for male circumcision in early infancy. For full-term babies, this is mostly within the first two months of life. Three different circumcision devices exist. The circumcision device should be selected by the surgeon based on his or her learning technique and experience.
Set content:
1 x 7.5–12.5cm (3–5 inches) flexible probe
2 x Haemostat, mosquito, curved, 80–125mm
1 x Haemostat, mosquito, straight, 80–125mm
1 x Scissors, straight, 115–140mm
1 x Male circumcision device (Mogen, Gomco or Plastibell) and all appropriate parts
Reference; Manual for early infant male circumcision under local anaethesia, 2010: http://www.who.int/hiv/pub/malecircumcision/manual_infant/en/ Specifications and picures of male circumcision devices in Page 42 to 51.
6. Embryotomy set
The set is used for embryotomy (cranioclasy, craniotomy).
Set content:
1 x Cranioclast, Braun, 420mm
1 x Perforator, Smellie, 250mm
1 x Scissors, gynecological, 200mm, curved, blunt/blunt
1 x Hook, decapitation, Braun, 310mm

Table 42. Contents of surgical instrument sets

7. Examination/suturing, vaginal/cervical set
The set is used for checking and repairing cervical tears and deep vaginal tears.
Set content:
1 x Scissors, Mayo, 170mm, curved, blunt/blunt
1 x Needle holder, Mayo-Hegar, 180mm, straight
2 x Retractor, vaginal, Doyen, 45 x 85mm
1 x Speculum, vaginal, Graves, 75 x 20mm
1 x Speculum, vaginal, Graves, 95 x 35mm
1 x Speculum, vaginal, Graves, 115 x 35mm
2 x Forceps, dressing and polypus, Cheron, 250mm
8. intrauterine device (IUD) insertion/removal set
The intrauterine device (IUD) set is used for the insertion and removal of intrauterine devices, a contraceptive method, through the vagina.
Set content:
1 x Speculum, vaginal, Graves, 75 x 20mm
1 x Speculum, vaginal, Graves, 115 x 35mm
1 x Speculum, vaginal, Graves, 115 x 35mm
1 x Forceps, dressing and polypus, Cheron, 250mm
1 x Forceps, artery, Pean/Rochester, 220mm, straight
1 x Forceps, uterine, vulsellum, Duplay, 280mm, curved
1 x Sound, uterine, Martin, 320mm
1 x Scissors, gynaecological, 200mm, curved
1 x Bowl, approximately 180ml
1 x Basin, kidney, approximately 825ml
9. Laparotomy (gynaecology/obstetric) set
The laparotomy set is used for exploratory laparotomy, ceasarean section and related complications (uterine rupture and hysterectomy), salpingectomy, ectopic pregnancy, and other gynaecological operations.
Set content:
4 x Clamp, towel, Backhaus, 130mm
1 x Forceps, artery, Kelly, 140mm, curved
2 x Forceps, artery, Kocher, 140mm, straight
2 x Forceps, artery, Pean/Rochester, 200mm, curved
2 x Forceps, artery, Pean/Rochester, 240mm, curved
6 x Forceps, artery, Halsted-Mosquito, 125mm, curved
1 x Forceps, artery, Mixter, 230mm
1 x Forceps, dressing, standard, 155mm, straight
1 x Forceps, dressing, standard, 250mm, straight
1 x Forceps, dressing and polypus, Cheron, 250mm
2 x Forceps, intestinal, clamp, Doyen, 230mm, curved
2 x Forceps, uterine, haemostatic, Phaneuf, 215mm, curved
1 x Forceps, uterine, vulsellum, Duplay, 280mm, curved
2 x Forceps, tissue seizing, Allis, 150mm
1 x Forceps, tissue and organ holding, Babcock, 200mm
2 x Forceps, tissue holding, Duval, 230mm
1 x Forceps, tissue, standard, 145mm, straight
1 x Forceps, tissue, standard, 250mm, straight
1 x Needle holder, Mayo-Hegar, 180mm, straight
1 x Retractor, abdominal, Collin, 3 blades
1 x Retractor, abdominal, Balfour, 3 blades
1 x Retractor, Farabeuf, double-ended, 180mm, pair

Table 42. Contents of surgical instrument sets

1 x Scalpel handle, no.4
1 x Scissors, Metzembaum/Nelson, 180mm, curved, blunt/blunt
1 x Scissors, Metzembaum/Nelson, 230mm, curved, blunt/blunt
1 x Scissors, Mayo, 170mm, curved, blunt/blunt
1 x Scissors, Mayo, 230mm, curved, blunt/blunt
2 x Spatula, abdominal, malleable, 270mm
1 x Tube suction, Yankauer, 270mm
1 x Bowl, stainless steel, 600ml
10. Suture set
The suture set used with the delivery set for episiotomy, perineum repairs, and/or simple suturing and complex dressings. It can also be used for sub-dermal implant (family planning) removal if needed.
Set content:
1 x Scissors, Deaver, 140mm, curved, sharp/blunt
1 x Needle holder, Mayo-Hegar, 180mm, straight
1 x Forceps, artery, Kocher, 140mm, straight
1 x Scalpel handle, no.4
1 x Forceps, tissue, standard, 145mm, straight
1 x Probe,double-ended, 145mm
11. Vacuum aspiration set
The vacuum aspiration set is used for safe, surgical abortion methods for pregnancies of less than 15 weeks' gestation. Vacuum aspiration requires electric or manual vacuum aspiration equipment with different sizes of plastic cannulae ranging from 4 to 16mm in diameter.
Set content:
1 x Dilators, uterine, Hegar, double-ended, 3–4mm to 17–18mm, stainless steel
1 x Forceps, dressing, ring
1 x Forceps, tenaculum, atraumatic
1 x Speculum, vaginal, Graves, 95 x 35mm
1 x Bowl, stainless steel, 180ml
Footnotes: Recommendation: Vacuum aspiration is the recommended technique of surgical abortion for pregnancies of up to 12 to 14 weeks of gestation. The procedure should not be routinely completed by sharp currettage. Dilation and sharp currettage (D&C), if still practised should be replaced by vacuum aspiration (page 2 in the reference). Dilatation and curettage: Where it is still practised, all possible efforts should be made to replace D&C with vacuum aspiration, to improve the safety and quality of care of women. At sites where vacuum aspiration has yet to be introduced, managers must ensure that proper pain management protocols are followed, and that D&C procedures are performed by well-trained staff under adequate supervision. Reference: Safe abortion second edition, 2012: http://www.who.int/reproductivehealth/publications/unsafe_abortion/9789241548434/en/
12. Vasectomy set
The vasectomy set is used for vasectomies, a contraceptive method. This method also requires scissors for clipping scrotal hair and disposables for local anaesethesia.
Set content:
1 x Bowl, 180ml, stainless steel
4 x Clamp, towel, Jones, 50mm
4 x Forceps, artery, Kelly, 140mm,straight
2 x Forceps, artery, Halsted/Mosquito, 125mm, curved
2 x Forceps,tissue seizing, Allis, 150mm
1 x Scalpel handle, no.3
1 x Scissors, 120mm, curved
13. Vasectomy non-scalpel set
The non-scalpel set is used for vasectomies using non-scalpel technique which requires a ringed clamp such as extracutaneous ringed-forceps for grasping the vas deferens extracutaneously and directly. Dissecting forceps are required for puncturing the scrotal skin and spreading the tissues. This method also requires scissors for clipping scrotal hair and disposables for local anaesthesia.
Set content:
Ringed clamp (diameter of clamp: 3, 3.5, or 4mm)
Dissecting forceps
Straight, scissors
Reference: Non-scalpel vasectomy third edition (http://www.engenderhealth.org/files/pubs/family-planning/no-scalpel.pdf) Page 7 to 9.

6.3 Surgical instrument stainless steel

Surgical stainless steel is a specific type of stainless steel used for medical applications. This type of steel is well-suited for making surgical instruments: it is strong, corrosion-resistant and easy to clean and sterilize. Surgical stainless steel includes elements of chromium, nickel and molybdenum. The chromium gives the metal its scratch and corrosion resistant properties. The nickel provides a smooth and polished finish. The molybdenum gives greater hardness and helps maintain a cutting edge.

Although there are myriad of variations, there are two main categories of stainless steel: martensitic and austenitic (Table 43).

Surgical stainless steels are defined by the standard EN ISO 7153-1: Surgical Instruments - Metallic Materials – Part 1: Stainless Steel.

Table 43. Martensitic and austenitic stainless steel

Martensitic stainless steels	Austenitic stainless steels
These are quenched, magnetic steels. They contain: Carbon ➔ 0.1 to 1% Gives hardness and tensile strength Lowers corrosion resistance Chromium ➔ 12 to 14% Essential alloying element Gives corrosion resistance Molybdenum ➔ 0.2 to 1% Improves the cutting qualities Gives corrosion and impact resistance Cannot be used for pressure force instruments, as it makes them brittle Silicon ➔ 0.5 to 1% Manganese ➔ 0.4 to 2%	These are non-quenched, non-magnetic steels. They contain: Chromium ➔ 16 to 20% Essential alloying element Gives corrosion resistance Molybdenum ➔ 2 to 3% Gives corrosion and impact resistance Nickel ➔ 8 to 12% Silicon ➔ 0.5 to 1% Manganese ➔ 0.4 to 2%

Note: Most surgical instruments are made out of martensitic stainless steel; it is much harder than austenitic stainless steel and easier to keep sharp. Depending on the type of surgical instrument, the stainless steel composition and manufacturing process vary slightly to produce varying degrees of sharpness and strength.

Family of products

1. Pressure force instruments and springs (martensitic steel)

- Haemostatic forceps
- Dissecting forceps
- Gripping forceps
- Surgical towel clamp
- Needle-holding forceps
- Threading forceps
- Clamping forceps

The steel used must be springy and highly impact resistant. Carbon gives them hardness, while chromium gives them corrosion resistance. The proportions must be very exact. Instruments made of this steel have to undergo a complex, rigorous heat treatment which allows this steel to be hardened, otherwise the steel will bend the first time it is used. Instruments made of this steel must be carefully polished. The quality of the polishing determines the corrosion resistance.

2. Instruments that cut by shearing (martensitic steel)

- Scissors
- Curettes
- Raspatories
- Gouge shears
- Cutting forceps

The steel used has a higher percentage of carbon than pressure force instruments in order to increase hardness. The same percentage of chromium is used for corrosion resistance. Molybdenum makes up the balance of the composition and improves the cutting quality.

3. Instruments that cut by percussion (martensitic steel)

- Chisel shears
- Osteotomes
- Gouges

For the cutting part, the heat treatment and polishing are the same as for instruments that cut by shearing. For the non cutting part, the heat treatment and polishing are the same as for pressure force instruments.

4. Static function instruments (martensitic or austenitic steel)

- Autostatic retractors
- Long-handled retractors
- Valves
- Speculums
- Dilators

5. Miscellaneous instruments (austenitic steel)

- Instrument box
- Obstetrical hook
- Manual drill

Table 44. Standard grades of steel for surgical instruments

Families of products	Type of steel	Composition of the steel					
		Carbon	Chromium	Molybdenum	Nickel	Silicon	Manganese
1. Pressure force instruments and springs							
Haemostatic forceps	Martensitic	0.2%	13%			1%	1%
Dissecting forceps	Martensitic	0.2%	13%			1%	1%
Gripping forceps	Martensitic	0.2%	13%			1%	1%
Surgical towel clamps	Martensitic	0.2%	13%			1%	1%
Needle-holding forceps	Martensitic	0.2%	13%			1%	1%
Threading forceps	Martensitic	0.2%	13%			1%	1%
Clamping forceps	Martensitic	0.2%	13%			1%	1%
2. Instruments that cut by shearing							
Scissors	Martensitic	0.4%	14%			0.5%	0.4%
Curettes	Martensitic	0.2%	13%			1%	1%
Raspatories	Martensitic	0.2%	13%			1%	1%
Gouge shears	Martensitic	0.3%	13%			1%	1%
Cutting forceps	Martensitic	0.3%	13%			1%	1%
3. Instruments that cut by percussion							
Chisel shears	Martensitic	0.5–0.7%	13–14%	0.5–0.9%		1%	1%
Osteotomes	Martensitic	0.5–0.7%	13–14%	0.5–0.9%		1%	1%
Gouges	Martensitic	0.3%	13%			1%	1%
4. Static function instruments							
Autostatic retractors	Martensitic	0.3%	13%	2–3%	8–10%	1%	2%
Long-handled retractors	Austenitic		18%		10–12%	1%	2%
Valves	Austenitic		16–18%		10–12%	1%	2%
Speculums	Austenitic		16–18%	2–3%	8–10%	1%	2%
Dilators	Austenitic		18%			1%	2%
5. Miscellaneous instruments							
Instrument box, etc.	Austenitic						

6.4 Surgical sutures

A **surgical suture** is a sterile, single-use medical device used to hold body tissues together post injury or surgery. A **needle-suture combination** (atraumatic suture), a needle with an attached length of thread, is recommended and more commonly used. **Swaged needles** are eyeless needles that are attached to suture threads during manufacturing, allowing a smooth junction between the two units. This design feature is less traumatic for the tissues.

A number of different needle shapes, sizes and thread materials have been developed. Suture threads are made from numerous materials and exist in very specific sizes. Suture material can be classified based on the following characteristics: absorbability, origin of material and thread structure.

The original suture was made from biological materials that were either absorbable from material such as collagen derived from healthy cattle or sheep (catgut), or non-absorbable from material such as organic protein called fibrin (silk). Most modern sutures are made of synthetic polymers such as polyamide, polyolefines and polyesters. This includes non-absorbable and absorbable material derived from polyglycolic acid.

Sutures must be strong enough to hold tissue securely but flexible enough to be knotted. They must be hypoallergenic and resistant to wicking (capillary action) which allows fluids to penetrate the body along the suture tract, and may cause infections.

Type of thread

Absorbable sutures are naturally biodegradable in the body and there are two types:

- Natural (catgut) which are absorbed by enzymatic processes with varying resorption time; and
- Synthetic (polyglycolic acid or polylactic acid) which are absorbed by hydrolysis.

Non-absorbable sutures are also available in two types:

- Natural (silk) and
- Synthetic (nylon and polypropylene).

There are two types of thread structures: monofilament and multifilament.

- **Monfilament** is made of one single filament presenting a unique physical structure. Knot tying is more difficult and it has no capillarity.
- **Multifilament** is made of several braided filaments. It is easier to handle and tie. It is usually coated to reduce capillarity.

Classification of suture thread sizes

The tensile strength and knot-tying properties of a surgical suture material are determined by the starting material, structure and thickness of the thread. Classification of thread size must be precise. Suture thread sizes are defined by two parallel systems: the United States Pharmacopeia and the European Pharmacopoeia.

The United States Pharmacopeia (USP) uses a size scale ranging from 10-0 (10/0) to 5-0 (5.0). The size refers to the diameter of the suture strand and is denoted with zeros. The more zeros characterizing a suture size, the smaller the resulting strand diameter. For example 4-0 is larger than 5-0.

The European Pharmacopoeia (EP) is based on the metric system. The size scale ranges from 0.2 to 7.0. This denotes the diameter of the suture strand as a multiple of 0.1mm. It is expressed as a DEC number (DEC2 = 0.2mm).

Table 45. Size of non-absorbable and absorbable synthetic sutures

USP	EP (metric)	Ø in mm
Non-absorbable and absorbable synthetic materials	Non-absorbable and absorbable synthetic materials	Limit on average diameter minimum - maximum (mm)
10 – 0	0.2	0.020–0.029
9–0	0.3	0.030–0.039
8–0	0.4	0.040–0.049
7–0	0.5	0.050–0.069
6–0	0.7	0.070–0.099
5–0	1	0.100–0.149
4–0	1.5	0.150–0.199
3–0	2	0.200–0.249
2–0	3	0.300–0.349
0	3.5	0.350–0.399
1	4	0.400–0.499
2	5	0.500–0.599
3 and 4	6	0.600–0.699
5	7	0.700–0.799

Non-needled suture (spooled suture)

Threads for non-swaged needles are supplied in spools and must be threaded on surgical needles by the user only at the time of use. Non-needled sutures are more traumatic when passing through tissues and increase the risk of accident (including sharps injuries). Use of these types of sutures should be avoided.

Needle-suture combination (atraumatic suture)

Atraumatic sutures are defined as needle-suture combinations. Swaged needles are eyeless needles attached onto suture threads at the factory, allowing a smooth junction between the needle and thread in order to reduce tissue trauma. Threads of needle-suture combinations have an average length of 75cm. Nowadays, atraumatic sutures are widely used.

There is a wide range of needles made of stainless steel. They are defined by their curvature (longitudinal shape), body point (cross-section) and length.

Box 2. Needle shape

1. Curved needle, 1/2 circle (half or 4/8)

Recommended for deep sutures, stomatology, gynaecology, etc.

2. Curved needle, 3/8 circle

Recommended for general surgery, vascular sutures, etc.

3. Straight needle

To be avoided; the design is prone to accidents and injuries.

Needle body – point

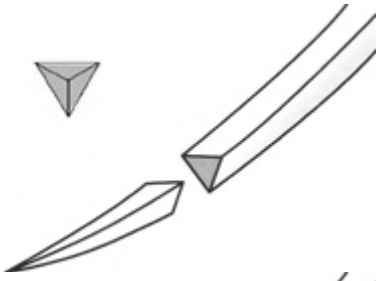
Round-bodied needles taper gradually to a point whereas triangular-bodied needles have cutting edges along three sides.

Examples include: taper-point needles (round needle body and tapers smoothly to a point) and reverse cutting needles (triangular needle body with a third cutting edge located on the outer convex curvature of the needle).

Box 3. Needle body – point

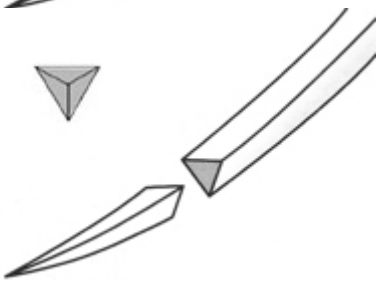
1. Round-bodied – taper-point needle

Recommended for sutures of soft tissues, mucous membranes and vessels.



2. Triangular bodied - reverse cutting needle

Recommended for sutures of muscles and skin.



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7. Infection prevention and control

7.1 Injection safety

With an estimated 25 billion injections administered annually in developing and transitional countries alone, injections are among the most common medical procedure[4]. If delivered unsafely, injections have the potential to contribute to the transmission of bloodborne pathogens with devastating consequences such as disability and death. Unsafe practices and the overuse of injections can cause an estimated 32% of Hepatitis B virus, 40% of Hepatitis C virus and 5% of all new HIV (human immunodeficiency virus) infections every single year *(1)*.

The risk of an unsafe injection is not only associated with the patient but also the health care worker (HCW) administering the injection and the community, following dangerous waste disposal practices. In 1999, the World Health Organization (WHO) launched the Safe Injection Global Network (SIGN), an international alliance to achieve the safe and appropriate use of injections on a global scale. The Injection Safety programme comprises three core technical strategies believed to be necessary to bring about an improvement in injection practice. These include *(2):*

1. Behaviour change among patients and health care workers to decrease injection overuse and achieve injection safety;
2. Availability of necessary, good quality injection devices and supplies; and
3. Management of sharps waste.

Implementation of these strategies will facilitate:

- Improved patient safety by preventing the reuse of injection equipment or reducing unnecessary injections;
- Health care worker safety through needle stick injury prevention, provision of Hepatitis B vaccine or post exposure prophylaxis; and
- Community safety via safe sharps waste management.

Despite the simple strategies to improve injection safety, many countries are still facing unsafe injections issues *(3):*

- Poor practices are being addressed through the introduction of reuse-prevention syringes (RUPs) which prevent the reuse of equipment.
- Injection equipment availability, supply and quality are still key issues that need to be resolved to ensure safer injection practices.
- Patient preference or doctor over-prescription of injectable medications means unnecessary injections are still a major issue. It is estimated that over 70% of injections are unnecessary when oral formulations could be prescribed.
- Bringing about behaviour change is essential to ensure improved injection safety throughout the world. Recent evidence suggests that change is possible. Intervention strategies that target all three core components simultaneously have been shown to have the greatest, positive effect on improved injection safety.

To ensure rational use of injections and to prevent the transmission of blood borne pathogens to patients, health care workers and the community at large, WHO recommends to implement the following key steps *(4, 5, 6, 7, 8)*:

1. Always use a single-use, sterile needle and a single use, sterile syringe per patient and per injection site to reconstitute each unit of injectable medication.
2. Promote oral treatment and limit the number of injections to cases deemed strictly necessary. Use oral rehydration to limit the use of drips.
3. Single-use syringes with a reuse-prevention feature should be considered for therapeutic injections. Auto-disable syringes with attached needles should be considered for immunization activities.
4. Ensure the availability of an adequate supply of good quality, safety injection devices. All injectable medications should be supplied with matching quantities of single-use safety syringes, appropriate diluents and sharps containers.
5. Use single-dose vials rather than multi-dose vials. If multi-dose vials must be used, always pierce the septum with a sterile needle and avoid leaving a needle in the vial stopper.
6. Collect used needles and syringes in a sharps container according to waste segregation policies.

4 http://www.who.int/injection_safety/en/

7.2 Decontamination and sterilization at health care facilities *(9, 10, 11)*

Safe maternal childbirth is a goal that cannot be achieved due to the lack of properly sterilized medical devices in many health delivery areas. This results in the transmission of infectious agents such as Hepatitis B and C, HIV and bacterial pathogens. Antenatal care and management of sexually transmitted diseases are offered in primary health clinics and community units. Maternal obstetric units (MOU) provide facilities for both natural deliveries and assisted childbirth such as Caesarean section.

Medical devices used for examination of women, which come in contact with mucous membranes and maternal birth canals must be either disposable or, if reused, sterilized. Disposable items include personal protective equipment (gloves and plastic aprons), disposable vaginal speculae, needles and syringes, suturing material and laboratory collection tubes.

A separate designated area should be made available to reprocess medical devices. It must have running water, preferably both hot and cold, electricity, good lighting and ventilation. Only trained staff should reprocess and prepare medical devices for safe patient use. Protective equipment such as face shields, masks, impervious aprons, gloves, protective footwear and hair bouffants must be provided during the cleaning and reprocessing of medical devices.

The first and most important step in reprocessing medical devices is thorough cleaning prior to any method of disinfection or sterilization. This can be done either manually in a sink or bowl, via an ultrasonic bath or using an automated washer/disinfector. Manual cleaning will require a pair of gloves, water with detergent at the correct dilution rate and a soft nylon brush to clean the medical device. Brushing should occur under the water level to avoid splashing and aerosols. Automated systems should include a disinfection stage with temperatures of no less than 80°C for 10 minutes or 90°C for one minute. Medical devices reprocessed in a washer/disinfector must emerge dry.

Chemical disinfectants such as sodium hypochlorite must never be used to soak medical devices prior to cleaning. Sodium hypochlorite destroys the integrity of the medical device coating, creates crevices and increases the risk of contamination.

After cleaning, the medical devices are inspected for integrity, functionality and cleanliness – especially around the hinges, lockboxes, serrated edges and teeth. Devices found to be unfit for service are replaced before sterilization. In the absence of heat sterilization a high-level disinfectant (such as hydrogen peroxide, glutaraldehyde, ortho-phthalaldehyde or peracetic acid) can be considered. Follow the instructions for use, as thorough rinsing or a waiting period may be necessary prior to patient use. There is a danger of residue chemicals that may remain on the device and cause injury when exposed to a patient or health care worker. Diligence in following instructions for use is necessary when using chemicals for maternity units and primary health care.

Prior to sterilization, medical devices are packaged in pouches, sterilization wrap, containers or trays to retain their sterility post-sterilization. Whichever sterilization method is used, it is important that the process is verified. Biological and chemical indicators are routinely used to prove the sterilization efficacy. Chemical indicators (class four at minimum) serve as a proxy to ensure the device has been exposed to adequate time, temperature and steam for sterility. A chemical indicator should be placed within every pouch, tray level and container level.

There are three types of heat sterilizers available: steam (autoclave) sterilizers, bench top (table top) sterilizers and dry heat (hot air) sterilizers. With any of the methods, a logbook is kept to track loads, time, temperature, pressure and test results as required in the standard operating procedures. This ensures patient safety and traceability of medical devices.

Steam (autoclave) sterilizers

There are two types of steam sterilizers: pre-vacuum and gravity. Pre-vacuum steam sterilizers are more efficient than gravity sterilizers because they are able to remove air pockets from the chamber to ensure medical devices receive contact with steam. The shorter cycle time increases turnaround time so medical devices are readily available. Both pre-vacuum and gravity require filling with water in a reservoir within the unit to allow the water to boil and generate steam. Some units have temperature and pressure gauges fitted to the unit for verification that temperature and sterilant pressure have been met.

In jurisdictions where a licensed unit cannot be obtained, alternatives such as pressure cookers (similar to a pot sterilizer) are used. The advantage is it is economical and can be used anywhere there is electricity or a source for heating up the water. The disadvantage of this process is water and steam quality can be difficult to control and the devices cannot be dried without contamination if a drying cycle is not built in the unit.

Bench top (table top) sterilizer

A majority of bench top sterilizers use the gravity process and tend to be smaller in size. These are a subcategory of steam sterilizers. There is a wide range of bench top sterilizers ranging from those that require filling a heating element to sophisticated self-steam generating sterilizers.

Figure 3. Bench top front loading sterilizer

Figure 4. Pot sterilizer

Dry heat (hot air) sterilizers

These units consist of a simple chamber incorporating a heating element and a fan. The advantage of this method is that it only requires a source of electricity and it does not need water. The disadvantage is that the process takes much longer than steam to reach sufficient temperature in the chamber. The cycle time can exceed three hours to ensure all items in the chamber have received adequate heat and exposure time. Devices that are metal-dense, complex in design or vulnerable to air pockets (cannulae) are more difficult to sterilize using dry heat. Air pockets may not receive heat exposure and metal-dense devices take longer to heat up. Certain devices may not be able to withstand the long exposure time and high, uneven temperature exposure. Follow the medical device's instructions for use, as dry heat cycles can compromise the device's integrity.

Figure 5. Dry heat sterilizer

Whatever type of sterilizer is used, it is important that the process is validated and that either biological indicators or chemical indicators are routinely used to prove the sterilizing performance.

Documentation requires standard operating procedures (SOP) that everyone carrying out the procedure will follow easily. There must be a register or a logbook kept of medical devices processed and by which method, to ensure patient safety records. Traceability is essential.

Box 4. Model 10 point manual washing procedure

1. Fill the sink or clean receptacle with potable water to a predetermined level at the specified temperature and with the appropriate detergent. Detergents used must be specifically designed to clean surgical instruments. Detergent dilution and water temperature should be in accordance with the manufacturer's instructions and local policy. Consideration should be given to the use of an enzymatic or alkaline detergent to facilitate the cleaning of surgical instruments with channels or complex parts.
2. Dismantle or open the instrument to be cleaned and fully immerse it in the solution to displace trapped air, in the case of hollow instruments, to ensure penetration of channels.
3. Brush, wipe, agitate, irrigate, jet-wash or hand-spray the item to dislodge and remove all visible dirt, taking care to ensure the item remains under the surface of the water at all times to prevent the creation of aerosol (spray). Brushes should be made from nylon bristles and should be cleaned daily if they are not single-use.
4. If high-pressure jet guns are used for cannulated instruments, they should be connected to the cold water supply only. The gun is connected to the instrument and held under water during the irrigation process.
5. Remove the device from the sink or bowl and drain any excess cleaning solution before placing into a second sink or bowl for rinsing.
6. Change the rinse-water after every batch of instruments or when it becomes visibly soiled or cloudy.
7. Rinse the item thoroughly with clean potable water using the water-jet gun when necessary (see point 5).
8. Remove and drain the item. Dry the item using a preferred method -- for example, by using a clean, non-linting cloth or by mechanical drying. An alcohol (70%) wipe may be used to facilitate the drying process.
9. Cleaning materials should be safely disposed of in accordance with local waste policy.
10. Record the device that has been processed including the method and solutions used and details of the staff member who completed the procedure.

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7.3 Sterilization equipment

Processing of reusable medical devices must be done according to the risk classification of infections (critical, semi-critical and non-critical items) and the heat resistance of the materials (thermoresistant or thermosensitive devices). Thermoresistant critical items (such as surgical instruments and surgical drapes) must be sterilized by steam autoclave between each patient and kept sterile until use. Thermosensitive critical items (such as tubes and catheters) are for single use only and must not be resterilized or reused. Thermoresistant semi-critical items must be sterilized by steam autoclave between each patient but do not need to be kept sterile until use. Thermosensitive semi-critical items must be subjected to high-level disinfection between each patient. Non-critical items must be cleaned and disinfected regularly but not necessarily between each patient, unless they have been soiled by blood or other biological fluids or exposed to infections requiring isolation. For more information, please see Section 5 (special note on decontamination and sterilization at health care facilities).

Table 46. Basic sterilization equipment and other relevant equipment *(12)*

Drum	Lint-free cloth
Biological indicator	Logbook
Chemical indicator (time, steam and temperature) tape	Gloves
Masking tape, for sterilization pack	Face shield
Paper sheet, crepe, for sterilization pack	Hair bouffant
Timer, 60 minutes, mechanical	Impervious apron
Detergent	Face mask
Cleaning brushes, nylon	

7.4 Health care waste management

Health care waste is a by-product of health care and includes sharps, non-sharps, blood, body parts, chemicals, pharmaceuticals, medical devices and radioactive materials. In order to avoid air and water pollution and the possible transmission of infections by health care waste, proper health care waste management should be implemented and promoted in all situations. *(13, 14)*

Health care waste management includes the following steps:

1. Segregation of the various categories of waste;
2. Storage and collection;
3. Treatment and disposal; and
4. Establishing a waste zone.

Segregation

The four major categories of health care waste recommended for segregation and separate storage, collection and disposal are (WHO 2005):

- Sharps (needles, scalpels, etc.), which may or may not be infectious;
- Non-sharps infectious waste (anatomical waste, pathological waste, dressings, used syringes and used single-use gloves);
- Non-infectious waste (paper, packaging, etc.); and
- Hazardous waste (expired drugs, mercury-containing thermometers, laboratory reagents, radioactive waste, insecticides etc.).

Storage and collection

Sharps should be placed immediately after use in puncture-resistant, fluid-impermeable sharps containers which are placed at the site of use and regularly collected for disposal.

Non-sharps, infectious waste containers (15-401 capacity, with lids) should be collected, emptied, cleaned, disinfected and replaced after each intervention (e.g. in an operating or maternity unit) or twice daily.

Non-sharps, non-infectious waste containers (20-601 capacity) should be collected, emptied, cleaned and replaced daily. Alternatively, plastic bags may be used inside the containers (MSF 2005).

For the above categories of waste, it is recommended that waste containers be a maximum of 5 metres from the point of waste generation, in two sets for each location, for a minimum of three types of waste. At least one set of waste containers should be provided per 20 beds in a ward (MSF 2005).

Hazardous waste should be collected and stored in appropriately-labelled containers placed in a secure location. Radioactive waste should be stored in containers that prevent dispersion, behind lead shielding. *(14)*

Treatment and disposal

Sharps should be disposed of in a sharps pit (buried drum in small centres or emergency structures, concrete-lined sealed pit in other settings) or be autoclaved followed by shredding, after which they can be buried in a pit or landfill.

Non-sharps, infectious waste should be buried in a pit fitted with a sealed cover and ventilation pipe, or be subjected to high-temperature (850°C) incineration. Special arrangements may be needed for disposing of placentas, according to local custom.

Steam sterilization prior to disposal, if available, is the preferred option for specific infectious waste such as blood samples, plastic syringes and laboratory tests. This avoids environmental pollution from incineration. *(14)* It is important to dedicate one specific autoclave for waste sterilization that is different from the ones used for sterilization of medical devices within the laboratory. See WHO, 2013 and UNEP, 2012 for details of a range of processes for treating infectious wastes.

Non-sharps, non-infectious waste should preferably be recycled or can be buried in a pit or a landfill site. If space is limited, it could be incinerated. If this is not possible, it may be burned in a drum burner. In both cases, ashes and residues should be buried in a pit.

There are several kinds of **hazardous waste** and each requires specific treatment and disposal methods, which may include encapsulation, sterilization, burial, incineration and long-term storage. Some wastes, such as pharmaceutical wastes, cannot be disposed of safely in low-cost settings and should be sent to a large centre for storage and destruction or returned to the supplier. For guidance on treatment and disposal of hazardous wastes, see WHO Safe management of wasted from health care activities, second edition, 2013 *(14)*. In all cases, national legislation should be followed.

Waste zone

Health care waste is segregated at the point of generation according to its four types (sharps; non-sharps, infectious waste; non-sharps, non-infectious waste and hazardous waste) in colour-coded or labelled waste containers that are collected from all health care services and stored safely before treatment and/or disposal by the safest feasible method available. Waste containers should be located a maximum of 5 metres from the point of waste generation. At least one set of waste containers should be provided per 20 beds. The health care facility should have a specific waste-disposal zone that is restricted with a water point with soap and/or disinfectant. The waste-disposal zone should be located at least 30 metres from groundwater sources. Where an incinerator is used, it should be located so as to allow effective operation with minimal local air pollution around the health centre, nearby housing and crops, and it should be large enough to allow for extension if new pits or other facilities have to be built.

Waste water drainage, rainwater and surface run-off from health care settings should be built and managed so as to avoid contamination of the health care setting or the broader environment. Waste water should be removed in standard waste drainage systems to an off-site sewer or on-site disposal systems. All open waste water drains should be covered. Small quantities of infectious liquid may be poured into sinks or toilets. Toxic wastes (such as laboratory waste) should be treated as health care waste and not combined with waste water. Where possible the health care setting should be connected to a properly-built and functioning sewer system and treatment plant. Otherwise an on-site septic tank is necessary with effluent discharged into a soakaway pit or infiltration trench. Grey water may also be disposed of in the septic tank or in soakaway pits or infiltration trenches equipped with grease traps. There should be at least 1.5 metres between the bottom of the infiltration system and the groundwater table (more in coarse sands, gravels and fissured formations), and the system should be at least 30 metres from any groundwater source to avoid contaminating groundwater. Septic tank sludges from health care settings should not be used for agricultural purposes, but should be buried following safe procedures.

Further reading

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8. Technical notes on labels, units, biomaterials, textiles and health technology management

8.1 Labels and instructions for use of medical devices

The primary purpose of labelling is to identify the medical device, the manufacturer and safety and performance-related information. Such information may appear on the device, on the packaging or as instructions for use.

Definitions *(1, 2)*

Labelling: Information supplied by the manufacturer such as the label; instructions for use and any other information related to identification, technical description, intended purpose and proper use of the medical device. It excludes shipping documents.

Label: Written, printed, or graphic information either appearing on the medical device, on the packaging of each unit, or on the packaging of multiple devices.

Instructions for use: Information provided by the manufacturer to inform the device user of the medical device's intended purpose, proper use and any precautions to be taken.

Intended use / purpose: The objective intent of the manufacturer regarding the use of a product, process or service as reflected in the specifications, instructions and information provided by the manufacturer.

User: The person who uses a medical device. The patient may be the user.

Lay person: An individual that does not have formal training in a relevant field or discipline.

ISO & EN standards: symbols used in medical device labels *(3, 4)*

Box 5. Selected ISO 15223 and EN 980 medical device symbols

ISO 15223, Medical Devices - Symbols to be used with medical devices label, labelling and information to be supplied

EN 980, Graphical symbols for use in the labelling of medical devices

The following chart displays the symbols with their definitions (Table 47).

Table 47. Medical devices - symbols with their definitions

Symbol	Used for	Symbol	Used for
	Do not reuse		Use by YYYY-MM-DD or YYYY-MM
	Batch code		Serial number
	Date of manufacture		Sterile
	Sterilized using ethylene oxide		Sterilized using irradiation
	Sterilized using steam or dry heat		Catalog number
	Caution, consult accompanying documents		Sterilized using aseptic processing technique
	Manufacturer		Authorized representative in the European Community
	Contains sufficient for < n > tests		For IVD Performance Evaluation only
	In vitro diagnostic medical device		Upper limit of temperature
	Lower limit of temperature		Temperature limitation
	Consult instructions for use		Biological risks
	Control		Negative control
	Positive control		

8.2 Units and biomaterials used for medical devices

Systems used to specify the outside diameter for medical devices

The Stubs iron wire gauge system (also known as the Birmingham wire gauge) is used to specify thickness or diameter of metal wire, strip, and tube products. The Stubs system was the first wire gauge recognized as a standard in 1884.

In health care, the wire gauge system is used to specify the outside diameter of hypodermic needles, catheters and suture wires. Gauge is abbreviated as G, Ga, Gg or g when expressed in a form of measurement.

The French scale or French gauge system is also used to measure the outside diameter of catheters, tubes and drains. It is abbreviated as FG, Fr or F. It is also abbreviated as CH or Ch, after its inventor – Charrière, in French-speaking countries.

Units

The different units (and abbreviations) used to express outside diameter (O.D.) of medical devices are listed below.

THE STUBS IRON WIRE GAUGE SYSTEM

Gauge (G, Ga, Gg or g)

Gauge is used to indicate the outside diameter of a product in a range from 8G to 30G which corresponds to 4mm to 0.3mm. The higher the gauge, the narrower the diameter. However, the gauge only provides the outside diameter which does not take into account the thickness of the wall. The measurement will not indicate the internal diameter of the device. The unit is commonly used for providing measurements of cannulated devices, short IV catheters, needles, and scalp veins.

25G = 0.514mm or 0.020 inches

21G = 0.819mm or 0.032 inches

19G = 1.067mm or 0.042 inches

Note: The gauge to mm correspondence may vary due to figures being rounded off in conversion from inches to millimetres. Reference was made from a conversion table consisting of fractional and/or decimal inches and metric millimetres.

Inches (In or ”)

Inches may also be used to express the outside diameter of guides for catheters.

1 inch = 25.4mm

1mm = 0.0394 inches

Tables 47 and 48 provide a chart of hypodermic needles and intravascular catheters with colour codes corresponding to gauge and millimetre sizes.

Table 48. Sterile, single-use hypodermic needles: equivalence gauge/mm and colour coding for identification (EN-ISO 6009) *(3, 5, 6)*

Size in gauge	Nominal O.D. in mm	Colour code
29 G	0.3mm	-
27 G	0.4mm	Grey
26 G	0.45mm	Brown
25 G	0.5mm	Orange
23 G	0.6mm	Blue
22 G	0.7mm	Black
21 G	0.8mm	Dark green
20 G	0.9mm	Yellow
19 G	1.0mm	Cream
18 G	1.2mm	Pink
17 G	1.5mm	Red-violet
16 G	1.6mm	White
15 G	1.8mm	Grey-blue
14 G	2.1mm	Light green
13 G	2.4mm	-

Table 49. Sterile, single-use intravascular catheters: equivalence gauge/mm and colour coding for identification (EN ISO 10555) *(3, 4, 5)*

Size in gauge	Nominal O.D. in mm	Colour code
26 G	0.6mm	Violet
24 G	0.7mm	Yellow
22 G	0.8, 0.9mm	Blue
20 G	1.0, 1.1mm	Pink
18 G	1.2, 1.3mm	Green
17 G	1.4, 1.5mm	White
16 G	1.6, 1.7, 1.8mm	Grey
14 G	1.9, 2.0, 2.1, 2.2mm	Orange

THE FRENCH SCALE

French gauge (FG, Fr or F)

The French scale, also known as Charrière (CH), is used to indicate the outside diameter of a product. Each unit corresponds to 1/3mm. A smaller French guage identifies a larger outside diameter. The French scale gives only the outside diameter and much like the Stubbs gauge system, it does not take into account the thickness of the wall. It will not indicate the internal diameter of a device. The unit is commonly used for exploratory catheters, tubes and drains.

1FG = CH01 = 1/3mm

8FG = CH08 = 2.7mm or 0.105 inches

14FG = CH14 = 4.7mm or 0.184 inches

Note: Some manufacturers offer catheter measurements in inches.

Charrière (CH)

Similar to the French scale system, Charrière is used to indicate the outside diameter of a product. Each unit corresponds to 1/3mm. The unit is commonly used for tubes and drains.

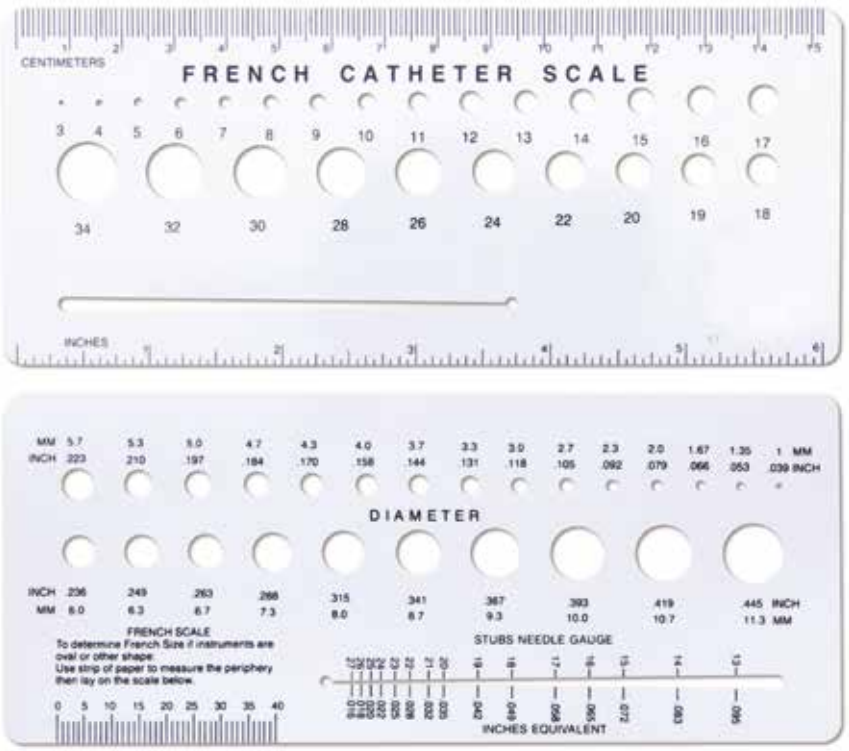
CH01 = 1FG = 1/3mm

CH08 = 8FG = 2.7mm or 0.105 inches

CH14 = 14FG = 4.7mm or 0.184 inches

Figure 6 provides an example of a French to millimetre and inches conversion scale.

Figure 6. French (Charrière) to millimetre conversion



Biomaterials

Biomaterials are materials (synthetic or natural and solid or sometimes liquid) that are used in medical devices or in contact with biological systems.

Polymers

A polymer is a large molecule (macromolecule) composed of repeating structural units. It is the building block of a polymer chain. These sub-units are typically connected by covalentchemical bonds[5]. Although the term "polymer" sometimes refers to plastics, it actually encompasses a large class of compounds comprising both natural and synthetic materials with a wide variety of properties.

Major polymer classifications and categories:

- Thermoplastic
- Thermoset
- Elastomer (or rubber)
- Thermoplastic elastomer (TEP)

There are multiple conventions for naming polymer substances. Many commonly used polymers are referred to by a common or trivial name. The trivial name is assigned based on historical precedent or popular usage rather than a standardized naming convention. Both the American Chemical Society (ACS)*(7)* and the International Union of Pure and Applied Chemistry (IUPAC)*(8)* have proposed standardized naming conventions; the ACS and IUPAC conventions are similar but not identical.

Medical devices polymers

A large range of polymer types are used in the field of medical devices. Most of them are thermoplastic polymers.

Medical devices polymers are subject to strict selection criteria and strong regulations, from the raw material to the finished product, as many are intended for implanting in the human body for an extended period.

Table 50. Glossary of common medical devices polymers

Acronym	Polymer type
ABS	Acrylonitrile butadiene styrene
EVA	Ethylene vinyl acetate
FEP	Fluorinated ethyl polypropylene
PA 6/6 or Nylon 6/6	Polyamide 6/6 or nylon 6/6
PC	Polycarbonate
PES	Polyether sulfone
PE	Polyethylene
HDPE	High density polyethylene
LDPE	Low density polyethylene
PET	Poly(ethylene tetraphthalate)
PGA	Polyglycolide or polyglycolic acid
PLA	Polylactic acid
PMMA	Poly(methyl methacrylate)
POM	Polyoxymethylene, polyacetal
PP	Polypropylene
PSU	Polysulfone
PTFE	Polytetrafluoroethylene
PUR	Cross-linked polyurethane
PVC	Polyvinyl chloride
TPU	Thermoplastic polyurethane
Latex	Natural latex rubber; particularly for non-vulcanized rubber
NR	Natural rubber (elastomer - an elastic polymer)
SI	Silicone elastomer

5 A chemical bond is an attraction between atoms that allows the formation of chemical substances that contain two or more atoms. A covalent bond is a form of chemical bonding that is characterized by the sharing of pairs of electrons between atoms.

8.3 Textiles used for linen and clothing in health care facilities

Protection from infection and the safety of patients and health care workers are major concerns.

Occupational Safety and Health Administration (OSHA)*(10)* is a division of the USA Department of Labor. It was established in 1971 to save lives, prevent injury, and protect workers' health. OSHA recommends that appropriate protective clothing[6] be worn to form an effective barrier[7] when an employee has a potential for exposure on the job (OSHA, 1989). The type of clothing and linen needed depend upon the occupational task and the degree of potential exposure. If the clothing can be potentially soiled from blood or other potentially infectious materials, protective clothing must be worn to prevent the employee's underlying clothing from contamination. Fluid-resistant clothing must be worn when workers risk becoming contaminated through splashing or spraying of blood or other potentially infectious materials. Because the work of the health care workers is associated with exposure to blood and other potentially infectious materials, a specific protective type of barrier clothing is required.

Linen and clothing for medical applications are subject to regulations governed by a number of norms and standards (EN/ISO) (14, 15) according to the level of expected protection. Linen and clothing used in health care facilities include: patient bedsheets, patient gowns, lab coats, surgical suits, surgical gowns, surgical drapes, isolation gowns, coveralls, face masks, shoe covers and boot covers.

These items used for patients and health care workers can be manufactured with fabrics intended for single-use or reuse. The characteristics of single-use or reusable fabrics are dependent on fibre type and expected level of bacteria- and liquid-barrier performance. Reusable fabrics may be used multiple times after laundering and sterilization, whereas single-use fabrics are used only once before being discarded in accordance with the facility's waste management guidelines.

There are several factors to consider in determining the most appropriate textile to use in health care facilities. These factors will vary according to procedure and local priorities and are likely to include:

- The type of procedure and the assessed level of risk involved;
- The priority of various properties desired (for example: wet and dry bacterial barrier properties, fluid resistance, liquid absorption, strength, etc.);
- Disposable or reusable;
- Processing requirements (for example, compatibility with sterilization method and rinse finishes in laundry);
- Cost; and
- Expected life.

Single-use nonwoven textiles

Nonwoven textiles are principally produced in three stages: web formation, bonding and finishing treatment. Nonwoven textile manufacturing starts with the arrangement of fibres in a sheet or web. The fibres can be staple fibres or filaments extruded from molten polymer granules. Basic methods are used to form a web. Nonwovens are usually referred to by one of these methods: drylaid, spunlaid or wetlaid.

Nonwoven textiles can be made of natural materials such as cotton, linen, wood pulp and paper; or man-made materials such as polyester, polypropylene, polyimide, and polytetrafluoroethylene (PTFE).

Spunbond nonwoven fabrics are made from different fibres such as polypropylene (PP), polyethylene (PE), etc.

- This nonwoven textile offers basic protection.
- It is a lightweight, breathable fabric, which consists of continuous filament, with good tensile strength and elongation.
- It is a standard fabric that offers a low-cost option for protecting workers.

6 Personal Protective Equipment: "specialized clothing or equipment worn by an employee for protection against infectious materials" (OSHA)*(11)*

7 Barrier material: a material that minimizes or retards the penetration of microorganisms, particulates and fluids. *(12, 13)*

Melt blown nonwoven fabrics are made of a very high density web of polypropylene fibres.

- This nonwoven textile offers high protection.
- Meltblowns often are used as a high-degree filter media for air, liquid and particles.

Spunbonded melt blown spunbonded (SMS) nonwoven fabrics are made of high-density polypropylene fibres comprised of layers of spunbond polypropylene, melt blown polypropylene and spunbond polypropylene. The spunbond layers feature high tensile strength and elongation. The melt blown layers consist of continuous micro fibre. Different types of SMS nonwoven fabric exist from SMMS to SMMMS according to the expected level of protection required.

- This nonwoven textile offers high protection.
- It provides fluid and particulate barrier properties.
- It is lightweight and resistant to tears and punctures.
- It is strong, durable, breathable, comfortable and soft.

Reusable woven textiles

Woven material is constructed from yarns made of natural or synthetic fibres or filaments that are woven together to form a web in a repetitive interlocking pattern.

Reusable linen and clothing are woven fabrics with a plain weave, often made of cotton, polyester, or cotton and polyester blend.

Cotton

Cotton is a natural staple fibre. The polymer structure of cotton fibre is composed of over 90% cellulose polymers. Cotton is a durable fibre. The problem associated with cotton use for linen and clothing is its ineffectiveness in protecting health care workers against bacterial penetration and transmission. In addition, the hydrophilic nature of cotton allows for seepage and penetration when cotton linen and clothing are splashed with liquids (e.g., blood, body fluids).

Note: Cotton fabrics can be treated with chemicals for an antimicrobial and water-repellent finish.

Polyester

Polyester is a synthetic fibre, which is usually a translucent white or off-white colour. Linen and clothing made of polyester are very durable due to the strength of the fibres. Polyester is a hydrophobic fibre, which means that it is non-polar, and therefore does not attract water. The hydrophobicity of polyester can create a fabric environment that becomes uncomfortable if the wearer perspires. The polyester fibres would not be able to wick the perspiration or moisture away from the body, due to lack of hydrogen bonding in contrast to the structure and wicking properties of cotton. In addition because of the hydrophobic characteristic of polyester, if the garment becomes contaminated, stains will become difficult to remove through laundering.

Polyester and cotton blend

A fabric with a polyester and cotton blend fibre (65%-35%) content is the most common fabric type used for linen and clothing as it combines the comfort of cotton, and durability of polyester. Fabrics containing a polyester and cotton blend are stronger than fabrics made of 100% cotton and are more absorbent than fabrics made only of 100% polyester.

Note: Polyester/cotton fabrics can be treated with chemicals for an antimicrobial and water-repellent finish.

Generally, reusable woven surgical gowns and drapes are made of a cotton/polyester blend or 100% polyester.

New generation of woven fabrics

Microfilament fabrics

The yarn in microfilament fabrics is made of fine, continuous polyester filaments. Conductive carbon fibres are generally also woven into the material to guarantee permanent antistatic qualities. These fabrics are highly resistant to tearing and rubbing and release practically no particles when used. Because of the fluorocarbon component, the materials are fluid-repellent, which means that high-quality materials can be reprocessed up to 80 times.

Laminates

A trilaminate (three-layer construction) is a membrane sandwiched between an upper and lower layer. Selecting suitable surface materials produces liquid-absorbing or repellent effects as desired. The membranes can be designed to prevent bacteria or viruses from penetrating along with liquids. The membrane is not a barrier for water vapour molecules. Human perspiration can therefore escape in the form of moisture vapour, thus maintaining natural thermoregulation.

Furthermore, trilaminates are impervious to liquids even under high pressure and absorb high volumes of fluid on the surface. They are therefore well-suited to use in surgical areas (high performance)*(16)*.

Note: The discussion continues about single-use, disposable materials versus reusable fabrics for linen and clothing in health care facilities. Protection from infection and safety for patients and health care professionals are major concerns. Cost, regulations and the environment are also concerns for health care facility administrators. Multiple factors must be weighed when making a decision to purchase linen and clothing for health care professionals and patients including:

- required level of barrier protection from fluids, particulates and micro-organisms to reduce risk of infections;
- material breathability and garment construction for physical comfort and ability to remain focused during medical/surgical procedures; and
- appropriate and safe disposal and proper waste management to minimize impact on the environment.

Over the last two decades, many studies have been conducted comparing the advantages and disadvantages of woven and non-woven materials used for linen and clothing in health care facilities. The need for improving the level of protection has increased with the rise in infectious diseases. This need is greater in countries where economic factors seriously inhibit good health care and infection control practices.

Further reading

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8.4 Health technology management

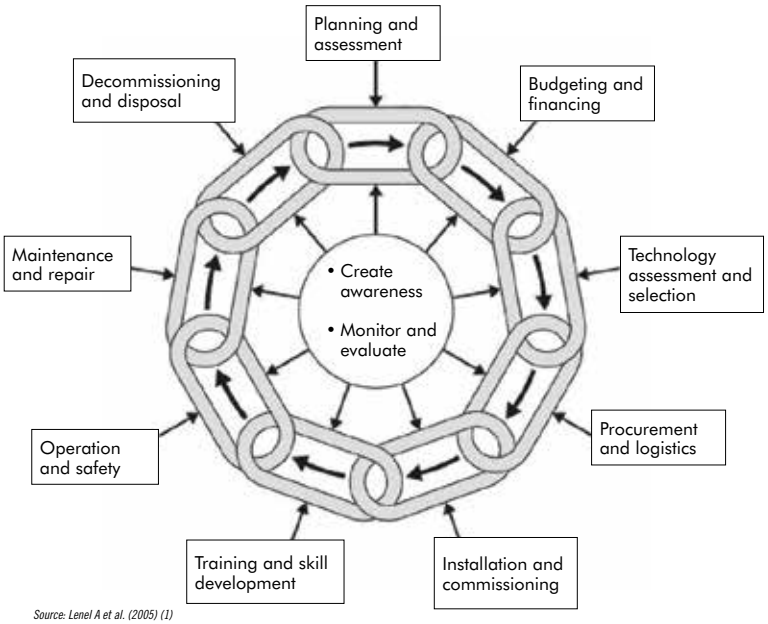
What is medical equipment?

Medical equipment is a subset of medical devices that require calibration, maintenance, repair, user training and decommissioning — activities usually managed by clinical engineers. Medical equipment is used for the specific purposes of diagnosis and treatment of disease or rehabilitation following disease or injury; it can be used either alone or in combination with any accessory, consumable, or other piece of medical equipment. Medical equipment excludes implantable, disposable or single-use medical devices *(17)*.

What is medical equipment management?

Medical equipment management (MEM) encompasses all activities performed across the life cycle of the equipment to ensure it contributes most effectively to patient care.

Figure 7: The medical equipment management life cycle *(18)*



Source: Lenel A et al. (2005) (1)

The life cycle shown in Figure 7 requires both engineering and managerial skills to:

- Assess the equipment needs and plan for them effectively;
- Allocate appropriate funds to them;
- Select appropriate models with the right accessories and consumables;
- Select appropriate maintenance materials such as spare parts;
- Negotiate the terms of the service contract and for training for maintenance staff;
- Procure the equipment and manage delivery logistics;
- Oversee the incoming inspection, installation and commissioning of the equipment;
- Train the equipment users to operate it safely and effectively;
- Train the maintenance team to service it properly;
- Support the safe and effective operation of the equipment;
- Manage the equipment inventory program and information about the equipment;
- Manage the maintenance program, including preventive and corrective maintenance; and
- Decommission the equipment and dispose of it properly.

MEM activities require skills and expertise in medical equipment, financial management, purchasing and supply chain management, workshop management and staff development.

Why is medical equipment management important?

Medical equipment management is essential to prolong the useful lifespan of the equipment and make good use of scarce resources. Without an effective MEM system in place, costly equipment expenditures have a very low return on investment.

The Swiss Centre for International Health found that equipment lost 30% of its value before even being placed in service when it was procured improperly, or was more sophisticated than necessary. Once put into service, improper use and inadequate maintenance (both preventive and corrective) devalued it even further – until it was worth only 10% of the initial financial investment *(19)*.

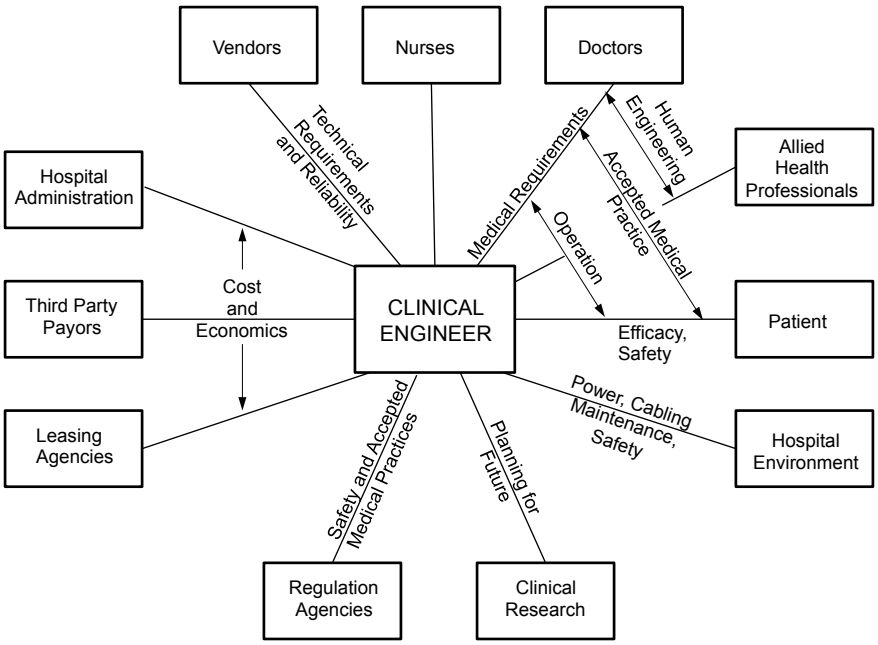
Who is involved in medical equipment management?

MEM activities are typically led by a medical engineer (sometimes called a clinical or biomedical engineer[8]), with support from a team of medical engineering professionals of varying skill levels. These professionals may be craftspeople, technicians or technologists who are responsible for medical equipment maintenance and support the MEM activities.

Depending on the size of the health care facility and the structure of the health care system, this team may work within a larger department such as the facilities, maintenance or hospital engineering department, or they may exist as their own department called medical, clinical or biomedical engineering.

Regardless of the structure, the team will need to interact with a variety of stakeholders, both within their health care facility and externally, to perform the MEM activities.

Figure 9. Clinical engineer interactions with stakeholders for MEM activities *(20)*



Input from the medical engineering team is essential throughout the whole MEM process.

8 Biomedical engineers belong to Unit Group 2149 "Engineering Professionals Not Elsewhere Classified" under the International Standard Classification of Occupations produced by the International Labour Organization. From this classification: "It should be noted that, while they are appropriately classified in this unit group with other engineering professionals, biomedical engineers are considered to be an integral part of the health workforce alongside those occupations classified in Sub-major Group 22: Health Professionals, and others classified in a number of other unit groups in Major Group 2: Professionals." The full classification can be found at http://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_172572.pdf (accessed 17 October 2013)

What resources are available for health care technology management?

The WHO's Medical Device Technical Series provides guidance on MEM activities that can be used to develop and improve MEM systems to ensure the best use is made of medical equipment investment. These include resources for:

- Needs assessment,
- Procurement process resource guide,
- Donation,
- Inventory management,
- Maintenance and
- Computerized maintenance management system.

The 'How to Manage Series for Health care Technology ' provides guidance on setting up and running a health care technology management system (which includes MEM), and describes how to:

- Organize a system of health care technology management,
- Plan and budget for health care technology,
- Procure and commission your health care technology,
- Operate your health care technology effectively and safely,
- Organize the maintenance of your health care technology and
- Manage the finances of your health care technology management team.

Managing medical equipment donations can be particularly challenging for low-resource health care facilities that may rely significantly on them. Further resources that complement the WHO medical device donations guidance and include considerations for solicitation and provision include:

- Resource centre (HUMATEM),
- MAKING IT WORK: a toolkit for medical equipment donations to low-resource settings (THET) and
- Medical surplus recovery – good practice resources (CHAUSA).

For more information on any of these topics, go to www.who.int/medical_devices/en and join the medical devices listserve, send a mail at LISTSERV@listserv.who.int with the word SUBSCRIBE.

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9. Other health products

If possible, health care facilities should be equipped with sterilization and pathology facilities, a pharmacy and nutrition counselling to complement the reproductive, maternal, newborn and child health priority intervention services. Equipment guidelines should be reviewed before implementation of these additional services *(1)*.

9.1 Building services equipment

Optimal implementation of medical devices requires proper planning of the entire medical unit. Adequacy of sources of energy, water and medical gases for the optimal function of medical devices should be evaluated.

Equipment for communication and emergency patient transportation to the referral level should also be considered.

Some of the supplies in previous lists could be part of the immunization supply chain and logistics. The cold chain, however, should be designed around national programmes.

Some general services have different supply specifications according to the level of health care facility. For example, the cleaning area, laundry, clothing, security, waste management, stationary supplies and office furniture should be stocked continually for the proper functioning of the medical area *(1)*.

9.2 Health counselling, education and promotion

Health counselling, education and promotion are very important issues across the continuum of care and there must be a continuous effort to provide them in health care facilities (see Boxes 6–10). WHO has published several guidelines for health counselling to optimize the clinical practice of health workers and the role of a patient's relatives in situations with varying levels of complexity. Health counselling may involve, for example, continuous vocational training for health workers and professional help for the patient's family.

Education on standard precautions such as hand hygiene and the provision of supplies for implementing such programmes must be accomplished in the health care facilities *(2)*. Health products that are not classified as medical devices and not listed in the previous tables may be used in the proper practice of priority interventions. For example, bednets can be used to prevent malaria, thermal care of newborns may require the use of hats, towels and kangaroo care wraps and neonatal resuscitation may require mannequins and other training equipment.

Box 6. Topics for health counselling, education and promotion in family planning and reproductive health

- Information on contraceptive methods
- Sexual and reproductive education: prevention and follow-up of risk factors
- Nutritional management (undernutrition, obesity and micronutrient deficiencies)
- Prevention of sexually transmitted infections
- Management of mental health disorders
- Counselling for breast examination
- Counselling for gender-based violence
- Counselling for infertile couples
- Counselling for post-abortion
- Bereavement assessment

Further reading

Family planning: a global handbook for providers 2011. Geneva: World Health Organization and Johns Hopkins Bloomberg School of Public Health/Center for Communication Programs; 2011 (http://www.who.int/reproductivehealth/publications/family_planning/9780978856304/en/, accessed 22 May 2014).

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Counselling for maternal and newborn health care: a handbook for building skills. Geneva: World Health Organization; 2013 (http://apps.who.int/iris/bitstream/10665/44016/1/9789241547628_eng.pdf, accessed 22 May 2014).

Box 7. Topics for health counselling, education and promotion in pregnancy

- Prevention of sexually transmitted infections
- Nutritional management (undernutrition, obesity, and micronutrient deficiencies)
- Interventions for smoking cessation during pregnancy
- Counselling on birth, triage and basic emergency care
- Counselling on post-abortion
- Bereavement assessment
- Management of mental health disorders
- Counselling of gender-based violence

Further reading

Counselling for maternal and newborn health care: a handbook for building skills. Geneva: World Health Organization; 2013 (http://apps.who.int/iris/bitstream/10665/44016/1/9789241547628_eng.pdf, accessed 22 May 2014).

Safe abortion: technical and policy guidance for health systems. Second edition. Geneva: World Health Organization; 2012 (http://apps.who.int/iris/bitstream/10665/70914/1/9789241548434_eng.pdf, accessed 22 May 2014).

Box 8. Topics for health counselling, education and promotion in postnatal mothers

- Support for breastfeeding
- Advice in family planning
- Management of postpartum depression
- Prevention of sexually transmitted infections
- Nutritional management (undernutrition, obesity and micronutrient deficiencies)
- Counselling for gender-based violence
- Bereavement assessment
- Advice in family planning
- Sexual and reproductive education
- Management of mental health disorders

Further reading

Counselling for maternal and newborn health care: a handbook for building skills. Geneva: World Health Organization; 2013 (http://apps.who.int/iris/bitstream/10665/44016/1/9789241547628_eng.pdf, accessed 22 May 2014).

Box 9. Topics for health counselling, education and promotion for postnatal babies (newborns)

- Promotion and provision of thermal care (immediate drying, warming, skin-to-skin – kangaroo mother care and delayed bathing)
- Promotion and support for early initiation of and exclusive breastfeeding
- Detection of abnormal state of nutrition (obesity and undernutrition)
- Promotion and provision of hygienic cord and skin care
- Newborn stimulation and play
- Birth registration

Further reading

Counselling for maternal and newborn health care: a handbook for building skills. Geneva: World Health Organization; 2013 (http://apps.who.int/iris/bitstream/10665/44016/1/9789241547628_eng.pdf, accessed 22 May 2014).

Caring for the newborn at home: a training course for community health workers. Geneva: World Health Organization; 2012 (http://www.who.int/maternal_child_adolescent/documents/caring_for_newborn/en/index.html, accessed 22 May 2014).

Home visits for the newborn child: a strategy to improve survival. Geneva: World Health Organization; 2009 (http://whqlibdoc.who.int/hq/2009/WHO_FCH_CAH_09.02_eng.pdf, accessed 22 May 2014).

Box 10. Topics for health counselling, education and promotion in infancy and childhood

- Monitoring of early childhood development
- Detection of abnormal state of nutrition (obesity and undernutrition)
- Assessment of breastfeeding and supplementary feeding programme
- Teaching mother to give oral drugs at home
- Teaching mother to treat local infections at home
- Identification of emergency signs
- Advise of immunization status of mother and children
- Counselling on family planning and reproductive health
- Human immunodeficiency virus (HIV) counselling
- Toys and play therapy

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Counselling for maternal and newborn health care: a handbook for building skills. Geneva: World Health Organization; 2013 (http://apps.who.int/iris/bitstream/10665/44016/1/9789241547628_eng.pdf, accessed 22 May 2014).

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Interagency list of priority medical devices for essential interventions for reproductive, maternal, newborn and child health

For more information , please contact:

World Health Organization
Department of Essential Medicines and Health Products
Medical Devices
20 Avenue Appia,
CH 1211, Geneva 27
Switzerland

Tel: (+41)22 791 1239

Email: medicaldevices@who.int
http://www.who.int/medical_devices

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