

Maternal and Newborn Standards and Indicators Compendium



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December 2004



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The **CORE Group**, a membership association of international nongovernmental organizations (NGOs) registered in the United States, promotes and improves the health and well being of women and children in developing countries through collaborative NGO action and learning. Collectively, its member organizations work in more than 140 countries, supporting health and development programs. CORE's Safe Motherhood and Reproductive Health Working Group supports NGOs to engage communities for better sexual and reproductive health for all by sharing knowledge resources and promoting the most up-to-date evidence-based practices, including those affecting safe delivery and newborn health.

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Abstract

The *Maternal and Newborn Standards and Indicators Compendium* is designed to assist program designers in selecting essential components, actions and appropriate indicators for chosen interventions in maternal and newborn care. It includes five interrelated tables that correspond to the temporal phases of a woman's reproductive cycle: 1) Pre-Conception/ Inter-Conception; 2) Antenatal; 3) Labor and Delivery; 4) Postpartum Care; and 5) Newborn Care. The Compendium provides NGOs with a single source of information to: 1) determine recommended practices and standards of care at the household, community, and health care facility levels to address maternal and newborn care, and 2) identify which indicators are appropriate to use with the different interventions. Endnotes with detailed technical information and essential references are included.

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The CORE SMRH Working Group presents this document as a reference guide for the nongovernmental organization (NGO) community, understanding that as the evidence base changes so will this guidance. This guide presents the most up-to-date information at the time it was written. Users of this *Compendium* may keep abreast of new developments in standards of care and recommended practices by checking with experts in the field and by consulting the web-based resources listed at the end of the *Compendium*.

This collection of programming standards and indicators is dedicated to the 1,440 women around the world who die in pregnancy or childbirth each day, and to the thousands of women who suffer disability due to labor.

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Acronyms



ACNM	American College of Nurse-Midwives
ADRA	Adventist Development and Relief Agency International
AED	Academy for Educational Development
AIDS	acquired immune deficiency syndrome
ANC	antenatal care [household level: ACHH; community level: ACCL; first level: ACFL; second level: ACSL]
ART	anti-retroviral
BASICS	Basic Support for Institutionalizing Child Survival project
BCC	behavior change communications
BCG	bacillus Calmette et Guerin
BF	breastfeeding
BP	blood pressure
CA	cooperating agency
CARE	Cooperative for Assistance and Relief Everywhere, Inc.
CBDA	community-based distribution agent
CHW	community health worker
CMV	cytomegalovirus
CPR	contraceptive prevalence rate
CRS	Catholic Relief Services
C-section	Cesarian section
CSHGP	Child Survival Health Grants Program
CSTS+	Child Survival Technical Support project
DPT3	diphtheria, pertussis and tetanus vaccine (3rd dose)
EmOC	emergency obstetric care
EOC	essential obstetric care
EPI	Expanded Program on Immunization
FCI	Family Care International
FGC/FGM	female genital cutting/female genital mutilation
FP	family planning
GBV	gender-based violence
HBV	hepatitis B vaccine
HF	health facility



HFA	health facility assessment
hgb/hct	hemoglobin/hematocrit
HIV	human immunodeficiency virus
HMIS	health management information system
IEC	information, education and communication
IM	intra-muscular
IMPAC	integrated management of pregnancy and childbirth
IMR	infant mortality rate
IPPF	International Planned Parenthood Federation
IPT	intermittent preventive treatment
IR	intermediate result
IRC	International Rescue Committee
ITN	insecticide-treated net
IUD	intrauterine device
IV	intravenous
IVACG	International Vitamin A Consultative Group
JHU	Johns Hopkins University
KAP or KPC	knowledge, attitudes and practices (or coverage) survey
LAM	Lactational Amenorrhea Method
LBW	low birth-weight
LD/L&D	labor and delivery [household level: LDHH; community level: LDCL; first level: LDFL; second level: LDSL]
ORC MACRO	Macro International, Inc., Opinion Research Corporation
MIS	management information system
MMR	maternal mortality ratio
MOH	Ministry of Health
MOV	means of verification
NC	newborn care [household level: NCHH; community level: NCCL; first level: NCFL; second level: NCSL]
NCHS	National Center for Health Statistics
NGO	nongovernmental organization
OPV	oral poliovirus vaccine
PAC	post-abortion care
PC	pre-conception (pre-conception/interconceptional care) [household: PCHH; community level: PCCL; first level: PCFL; second level: PCSL]
PCB	polychlorinated biphenyls
PLA	Participatory Learning Appraisal
PMTCT	prevention of mother-to-child transmission (of HIV)



PPC	postpartum care [household: PPHH; community level: PPCL; first level: PPFL; second level: PPSL]
PPH	postpartum hemorrhage
PROM	premature rupture of membranes
RH	reproductive health
RPR	rapid plasma reagin test
SD	standard deviation
SDM	Standard Days Method
SMRH	safe motherhood & reproductive health
SO	strategic objective
STI	sexually transmitted infection
TB	tuberculosis
TBA	traditional birth attendant
TFR	total fertility rate
TRM	Technical Reference Materials
UNAIDS	Joint United Nations Program on HIV/AIDS
UNICEF	United Nations Children's Fund
URC	University Research Co., LLC
USAID/GH	United States Agency for International Development, Global Health Bureau
VA	vitamin A
VCCT	voluntary confidential counseling and testing
VCT	voluntary counseling and testing
WHO	World Health Organization
WRA	women of reproductive age

Introduction

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“Women are not dying because of diseases we cannot treat. . . they are dying because societies have yet to make the decision that their lives are worth saving.”

—Mahmoud Fathalla

The *Maternal and Newborn Standards and Indicators Compendium* is designed to assist program designers working for international nongovernmental organizations (NGOs) develop high quality programs focused on women and children.

The *Maternal and Newborn Standards and Indicators Compendium* is the result of a three-year collaborative effort led by the Safe Motherhood/Reproductive Health (SMRH) Working Group, CORE Group. The CORE Group is a membership organization of international NGOs registered in the United States that promotes and improves the health and well being of women and children and the communities in which they live, through collaborative NGO action and learning.

CORE’s main collaborating partners in creating this *Compendium* include:

- The **American College of Nurse-Midwives (ACNM)**, which promotes the health and well being of women and infants within their families and communities through the development and support of the profession of midwifery, as practiced by certified nurse midwives, and certified midwives,
- The **Child Survival Technical Support (CSTS+) Project** team at ORC/Macro, a group whose mission is to provide technical support to U.S.-based NGOs implementing child health programs supported through the Child Survival and Health Grants Program (CSHGP) of the United States Agency for International Development (USAID), and
- **USAID**, which provided financial support for this effort.

In addition, more than 40 experts in the fields of safe motherhood, reproductive health, child survival, and program design, monitoring, evaluation, and implementation contributed to this effort by providing technical comments, providing illustrations, and offering suggestions in the design of the *Compendium*. These contributing experts represent USAID Cooperating Agencies (CAs), US-based international NGOs, universities, and USAID staff members.

What Is the Compendium?

The Maternal and Newborn Standards and Indicators Compendium consists of five inter-related tables that correspond to the temporal phases of a woman’s reproductive cycle:

1. Pre-Conception/ Inter-Conception
2. Antenatal
3. Labor and Delivery
4. Postpartum Care
5. Newborn Care

Each table is divided into four levels that correspond to where (and to whom) most programmatic interventions and activities are focused:

1. *Household*—refers to behaviors and care provided by family members and other persons living in the same household or compound.
2. *Community*—refers to health education, actions, and care provided by community health workers (CHWs) and educators, community-based distribution agents (CBDAs), traditional birth attendants (TBAs), local community leaders, community groups, traditional healers, and junior health staff (such as auxiliary nurses) at health posts.
3. *First-Level Care*—refers to basic or Essential Obstetric Care (EOC) provided by physicians and/or midwives, nurses, paramedical, and support staff at a health center. Essential Obstetric Care represents the minimum amount of interventions needed to promote a healthy pregnancy and birth outcome. This includes antenatal care (screening for infection, diseases, provision of tetanus toxoid injections, good nutrition), birth planning, ensuring delivery with a skilled attendant, proper referral for the management of obstetrical complications (emergency obstetric care), and post-partum monitoring and care.
4. *Second-Level Care*—refers to comprehensive [emergency] obstetric care (including blood transfusions and operations such as C-sections) provided by physicians, midwives, nurses, paramedical, and support staff at a district hospital (or in a referral tertiary facility). Emergency Obstetric Care (EmOC) represents the minimum amount of interventions needed to appropriately manage obstetrical complications. This includes surgical obstetrics (C-sections, treatment of lacerations, laparotomy), anesthesia, medical treatment of shock, eclampsia and anemia, blood replacement, manual procedures, and assisted delivery.

Please note that the actions and activities described at each level are the ideal. The actual level and quality of care offered at various facility types varies widely by country and by region within countries.

What is the Purpose of the Compendium?

The purpose of the *Maternal and Newborn Standards and Indicators Compendium* is to assist program designers to select the essential components and actions for their chosen interventions (from the “Standards of Care and Recommended Practices” columns in the tables) and to select appropriate indicators (from the “Indicators” columns in the tables).

The *Compendium* may also be helpful to those who need to know the standards of care to assess program effectiveness through monitoring and evaluation, and for those who create protocols and tools (such as job aids and checklists) for service delivery. In addition, the

Compendium may assist policy makers to know what standards of care and recommended practices to include when drafting policy documents.

How Can the Compendium of Standards and Indicators Be Used?

Once an overall framework for a program is selected, and the objectives identified, program designers may use the Compendium in the following ways:

- To learn more about what are the recommended practices and standards of care for maternal and newborn health
- To help determine what components of the recommended practices and standards of care should be incorporated into the program design and into project activities
- To select appropriate indicators that relate to the standards (or develop their own after considering the indicators that are presented)
- To identify the key indicators (highlighted)
- To identify the most common data sources for constructing the indicators
- To learn more about technical interventions relating to maternal and newborn care
- To identify references and sources supporting evidence-based practices

In each of the five tables, for each of the four levels of care, there is a set of interrelated **standards and indicators**.

The **standards** are recommended essential components and actions to be included in programmatic interventions. The standards may be considered ‘best practices’ based upon the current expert opinion. Not all of the standards presented are evidenced-based, because not all of the recommended essential actions have been scientifically tested or proven. In selecting the standards to be addressed by your program, consider the following:


- Which most closely align with my program priority?
- Which reflect national policies and protocols?
- Which are most practical, given the context?

The **indicators** are measurable statements of program objectives and activities. Indicators are used to measure program process and progress towards desired program results. The majority of the indicators presented in the *Compendium* are illustrative, and may be used ‘as is’ or be modified depending upon the programmatic objectives and population of interest.

The **key indicators** are highlighted throughout the *Compendium*, and are found together and defined in **Appendix 1**. This short list of key indicators are the most important indicators to collect, as they are standardized, widely used, and can be readily used to compare results among programs.

Why reduction in the Maternal Mortality (Ratio or Rate) is *not* an indicator typically used in NGO programs designed to reduce maternal mortality:

- Maternal mortality is a relatively rare event. The actual number of maternal deaths in a particular place and time is relatively small, so very large populations must be surveyed to get estimates.
- Maternal mortality is typically underreported, maternal deaths are often misclassified, and methods used to calculate maternal mortality are complex and costly to use.



Most of the indicators in the *Compendium* identify a **means of verification** (MOV)—a data source from which to gather data to construct the indicator. The MOVs include, but are not limited to, the following data sources:

- Population-based household surveys such as a KAP or KPC survey (Knowledge, Attitudes, and Practices (or Coverage) Surveys)
- Community Assessments
- Health Facility Assessments (HFA)
- Ministry of Health (MOH) statistics
- HF (Health Facility) statistics
- Health Management Information System (HMIS) (project data)
- Exit Interviews
- Focus groups
- In-depth interviews

Note: Several tools used by many international NGOs, including the KPC 2000+ Survey, are available on the Child Survival Technical Support Project (CSTS+) web site at: <http://www.childsurvival.com/kpc2000/kpc2000.cfm>.

The **endnotes**, located at the end of each of the five tables, provide detailed technical information and are directly linked (by numbers) to the main standards and indicators tables.

Additional information and references relating to designing programs for maternal and newborn health can be found in **Appendix 2**. Topics include using frameworks for program design, program planning, needs assessments, and the causes of maternal and newborn mortality and evidenced-based interventions. *Essential References* and helpful web sites are also included.

Future Editions of this Compendium

The document that you are holding is unique because it provides NGOs with a single source to find information 1) to determine recommended practices and standards of care at the household and community levels to address maternal and newborn care, and 2) to identify what indicators are appropriate to use with community-based maternal health and newborn programs.

Although this *Compendium* focuses on the provision of care for mothers and their newborns, many NGOs work at the local, district and national levels to improve policies that affect health. Although the policy level is not explicitly included in the current edition of the *Compendium*, it is hoped that in possible future editions of this document that a policy level will be included.

We hope to improve the *Compendium* by asking those who use it to provide CORE with feedback about its relevance, usefulness, and accuracy. We also wish to learn about what we can include in a future edition that would make the *Compendium* more useful.

Please send any comments or suggestions about this *Compendium* to contact@coregroup.org. Additional information about CORE can be found at www.coregroup.org.

Intervention Focus: Pre-conception/Inter-conception Care [PC]

RECOMMENDED PRACTICES AND STANDARDS OF CARE

INDICATORS

HH Household Level (PCHH): Provides Security, Support, Safety and Self-Esteem² to girls (<5 years old), female youth (ages 5–18) and Women of Reproductive Age (WRA ages 15–49)

PCHH S-1. Girls, female youth, and WRA get adequate food and micronutrients for appropriate growth.³

PCHH I-1. Percent of boys and girls age 0–23 months who are underweight (-2 SD from the median weight-for-age, according to the WHO/NCHS reference population)* (Means of Verification [MOV]: population-based survey)

Key Indicator Definition: *Numerator:* Number of children age 0–23 months whose weight is -2 SD from the median weight of the WHO/NCHS reference population for their age.

Denominator: Number of children age 0–23 months in the survey who were weighed (If there is reason to believe that girls are fed differently than boys, then compute a ratio of malnutrition [girls to boys] using the data collected.)

PCHH I-2. Percent of WRA living in households using adequately iodized salt** (MOV: population-based survey)

PCHH I-3. Percent of WRA who have a low body mass index** (MOV: population-based survey)

PCHH I-4. Percent of WRA with a low mid-upper arm circumference* (MOV: population-based survey)

PCHH I-5. Percent of WRA with anemia** (MOV: population-based survey or surveillance)

PCHH S-2. Girls receive appropriate care when ill.

PCHH I-6. Percent of sick girls age 0–23 months who received increased fluids and continued feeding during an illness in the past two weeks* (MOV: population-based survey)

PCHH I-7. Percent of mothers of girls age 0–23 months that recognize at least two danger signs of child illness*:

- Looks unwell or not playing normally
 - Not eating or drinking
 - Lethargic or difficult to wake
 - High fever
 - Fast or difficult breathing
 - Vomits everything
 - Convulsions
- (MOV: population-based survey)

Intervention Focus: Pre-conception/Inter-conception Care [PC]

RECOMMENDED PRACTICES AND STANDARDS OF CARE

INDICATORS



Household Level (PCHH): Provides Security, Support, Safety and Self-Esteem² to girls (<5 years old), female youth (ages 5–18) and Women of Reproductive Age (WRA ages 15–49)

PCHH S-3. Girls, female youth and WRA live and work in a safe environment, including protection from gender based violence (GBV) (female genital cutting [FGC], child and sexual abuse, domestic violence), smoking, alcohol, and environmental hazards.⁴

PCHH I-8. Percent of caregivers that can state what GBV means (MOV: population-based survey; client exit interview)

PCHH I-9. Percent of children (girls) age 0–23 months who slept under an insecticide-treated net (in malaria risk areas) the previous night.* (MOV: **population-based survey**)

PCHH I-10. Percent of WRA (or subset) not exposed to smoking, alcohol, and environmental hazards, including GBV in past year (MOV: population-based survey; youth survey)

PCHH I-11. Percent of WRA allowed to go alone to the health center** (MOV: population-based survey; youth survey)

PCHH I-12. Participation of women in household decision-making index** (MOV: population-based survey)

PCHH I-13. Percent of WRA who have weekly exposure to mass media** (MOV: population-based survey; youth survey)

PCHH I-14. Percent of youth who regularly use drugs/alcohol (MOV: youth survey)

Intervention Focus: Pre-conception/Inter-conception Care [PC]

RECOMMENDED PRACTICES AND STANDARDS OF CARE

INDICATORS

III Household Level (PCHH): Provides Security, Support, Safety and Self-Esteem² to girls (<5 years old), female youth (ages 5–18) and Women of Reproductive Age (WRA ages 15–49)

PCHH S-4. Girls attend school at least through primary school education.⁵
In regions with high primary school completion, we would recommend using ‘secondary school’ in the standard.

PCHH I-15. Ratio of girls to boys in primary schools in catchment area (MOV: school records)

PCHH I-16. Percent of WRA who have completed at least four years of schooling** (MOV: population-based survey)

Key Indicator Definition: Numerator: #of women ages 15–49 who completed four years of schooling;
Denominator: Total # of women ages 15–49

This indicator measures the percent of women ages 15–49 who have completed at least a primary level of education. For different countries, primary education may vary from four years to eight to ten years.

PCHH S-5. Girls delay marriage/childbirth to the age of 18.⁶

PCHH I-17. Percent of WRA married in the past year that were 18 years or older at the time of marriage⁷ (MOV: population-based survey; marriage registry)

PCHH S-6. Girls and boys get information on sexual and reproductive health issues⁸ including protection from unintended pregnancy (family planning⁹) and HIV/AIDS.¹⁰

PCHH I-18. Percent of girls and boys who can state:

- Two benefits to delaying marriage and childbirth
- Two ways to avoid pregnancy
- Two ways to prevent HIV/AIDS

(MOV: youth survey)

Intervention Focus: Pre-conception/Inter-conception Care [PC]

RECOMMENDED PRACTICES AND STANDARDS OF CARE

 Household Level (PCHH): Provides Security, Support, Safety and Self-Esteem² to girls (<5 years old), female youth (ages 5–18) and Women of Reproductive Age (WRA ages 15–49)

INDICATORS

PCHH S-7. Youth practice safe sex and avoid unintended pregnancy and sexually transmitted infections (STIs).

PCHH I-19. Percent of sexually active youth who used a condom at first/last sexual intercourse** (MOV: youth survey)

PCHH I-20. Percent of sexually active youth who used contraception at last intercourse (MOV: youth survey)

PCHH I-21. Percent of youth that abstain from sexual intercourse (MOV: youth survey)

PCHH I-22. Number of sexual partners among sexually active youth during the past six months** (MOV: youth survey)

PCHH I-23. Number/percent of youth who have experienced coercive or forced sex** (MOV: youth survey)

PCHH S-8. WRA practice birth spacing.

PCHH I-24. % of women married or in union 15–49 years who are not pregnant or are unsure, who are using a modern family planning method*** (MOV: population-based survey)

PCHH I-25. Percent of mothers who report at least one place where she can obtain a method of family planning* (MOV: population-based survey)

PCHH I-26. Percent of children aged 0–23 months who were born at least 24 months after the previous surviving child* (MOV: population-based survey)

PCHH I-27. Percent of mothers who received family planning information during a postpartum check-up* (MOV: population-based survey)

Intervention Focus: Pre-conception/Inter-conception Care [PC]

RECOMMENDED PRACTICES AND STANDARDS OF CARE

INDICATORS

C Community Level (PCCL): Monitors health status of girls and boys, youth, and WRA; helps households with environmental issues.

PCCL S-1. Community Health Workers (CHWs)/community leaders monitor health status of both girls and boys in the community, recommend standards of care and refer for care when needed.

PCCL I-1. Percent of CHWs/community leaders that recognize at least two danger signs of child illness:

- Looks unwell or not playing normally
- Not eating or drinking
- Lethargic or difficult to wake
- High fever
- Fast or difficult breathing
- Vomits everything
- Convulsions

(MOV: community assessment)

PCCL I-2. Percent of trained CHWs serving the community appropriately (MOV: CHW supervisory records)

PCCL S-2. CHWs/community leaders promote and/or have policies to ensure a safe environment for WRA:

- Develop and/or support clean water supply and use of latrines¹¹
- Discourage and have disciplinary action for persons who commit GBV¹², (domestic violence, child and sexual abuse)
 - Identify and monitor for environmental hazards such as toxic waste
 - Actively support anti-smoking programs and no use of alcohol by youth

PCCL I-3. Percent of CHWs/community leaders who can state 3 ways to ensure a safe environment for WRA. (MOV: community assessment)

PCCL I-4. Percent of households of mothers with children age 0–23 months that have soap readily available for hand-washing.*¹³

(MOV: population-based survey)

PCCL I-5. Percent of families with functional latrines

(MOV: population-based survey)

PCCL I-6. Percent of CHWs/community leaders who support anti-smoking and no use of alcohol by youth

(MOV: community assessment)

See also *PCHH I-10, I-14*

Intervention Focus: Pre-conception/Inter-conception Care [PC]

RECOMMENDED PRACTICES AND STANDARDS OF CARE	INDICATORS
<p>C Community Level (PCCL): Monitors health status of girls and boys, youth, and WRA; helps households with environmental issues.</p> <p>PCCL S-3. Community leaders ensure the availability of schools and encourage parents to send all girls and boys to school</p>	<p><i>See PCHH I-15, I-16</i></p>
<p>PCCL S-4. CHWs/community leaders openly support and encourage delayed marriage (after 18 years) for the health and well-being of WRA and families</p>	<p>PCCL I-7. Percent of villages with leadership that supports girls delaying marriage until age 18. (MOV: community assessment) <i>See also PCHH I-17</i></p>
<p>PCCL S-5. Community leaders recognize the importance of women and their contributions to the community</p>	<p>PCCL I-8. Percent of community leadership positions held by women (MOV: community assessment)</p>
<p>PCCL S-6. CHWs/community leaders provide counseling and education on pregnancy, birth planning and STIs¹⁴</p>	<p>PCCL I-9. Percent of CHWs/community leaders providing counseling and education on pregnancy, birth planning and STIs (MOV: community assessment, CBDA records)</p>

Intervention Focus: Pre-conception/Inter-conception Care [PC]

RECOMMENDED PRACTICES AND STANDARDS OF CARE

INDICATORS

1 First Level (PCFL): Works with community-based distribution agents (CBDAs), community leaders, teachers, religious leaders to promote the health of girls, and discourage violence, abuse and body mutilation including FGC¹⁵; provides ‘youth friendly’ reproductive health services and referral

- PCFL S-1. Health facility personnel support and promote the health of girls, female youth, and WRA:
- Screen for and treat malaria and infectious diseases¹⁶
- Screen for and treat malnutrition and anemia¹⁷
- Screen for GBV, including sexual and child abuse and FGC
- Treatment and follow-up for congenitally or birth-acquired, as well as sexually-acquired, STIs (gonorrhea, chlamydia, syphilis)
- Health education
- Provide ‘youth friendly’ reproductive health services,¹⁸ including education/information and contraception, and promote the use of dual protection¹⁹ family planning for sexually active WRA in order to delay pregnancy until at least 18 years of age

PCFL I-1. Percent of facilities screening for GBV (MOV: Health Facility Assessment (HFA) /checklist JHPIEGO/IPPF)

PCFL I-2. Percent of facilities providing care for GBV in non-judgmental manner (MOV: HFA /checklist JHPIEGO/IPPF)

PCFL I-3. Percent of clients satisfied with services provided (MOV: client satisfaction survey; client exit interviews)

PCFL I-4. Percent of facilities that provide ‘youth-friendly’ services (MOV: HFA)

PCFL I-5. Percent of staff trained to work with and provide services to youth** (MOV: HFA)

PCFL I-6. Percent of youth aware of ‘youth-friendly’ health services** (MOV: youth survey)

PCFL I-7. Percent of youth served or reached by the ‘youth friendly’ services** (MOV: health facility records)

PCFL I-8. Percent of female youth/WRA who can explain dual protection (MOV: youth survey)

PCFL I-9. Percent of facilities exhibiting gender sensitivity in the service delivery environment** (MOV: HFA)

See also PCHH I-1 – I-10, I-14, I-17 – I-27

Intervention Focus: Pre-conception/Inter-conception Care [PC]

RECOMMENDED PRACTICES AND STANDARDS OF CARE

INDICATORS

1 First Level (PCFL): Works with community-based distribution agents (CBDAs), community leaders, teachers, religious leaders to promote the health of girls, and discourage violence, abuse and body mutilation including FGC¹⁵; provides ‘youth friendly’ reproductive health services and referral

PCFL S-2. Health facilities are prepared to provide the essential services²⁰

- PCFL S-3. Health facility personnel work with teachers at public, private and religious schools to:
- Support girls from 10–24 years to continue in school
 - Promote good nutrition through development of school gardens, consumption of locally available foods, and micronutrient supplementation
 - Share accurate basic sexual and reproductive health information
 - Hold peer discussion groups on body changes; sexuality; GBV; prevention of: pregnancy, sexually transmitted infections (STI), and HIV/AIDS
 - Provide periodic assessments and IEC with a focus on malnutrition, infectious diseases, GBV

In areas where children do not have access to school:

Health facility personnel work with community leaders and youth groups to support literacy training.

PCFL I-10. Percent of facilities prepared to provide the essential services** (MOV: HFA, including interviews with staff and facility inventory of equipment and supplies)

PCFL I-11. Number of school visits by health facility personnel per year (MOV: school and health personnel management records)

PCFL I-12. Percent of schools with active peer discussion groups (MOV: school records)

PCFL I-13. Percent of students who pass school examination on sexual and reproductive health issues (MOV: school records)

PCFL I-14. Percent of schools with school gardens (MOV: school assessment)

PCFL I-15. Percent of schools providing micronutrient supplements to at-risk youth (MOV: school records; health facility records)

See also *PCHH I-14 – I-23*

Intervention Focus: Pre-conception/Inter-conception Care [PC]

RECOMMENDED PRACTICES AND STANDARDS OF CARE

INDICATORS

1 First Level (PCFL): Works with community-based distribution agents (CBDAs), community leaders, teachers, religious leaders to promote the health of girls, and discourage violence, abuse and body mutilation including FGC¹⁵; provides ‘youth friendly’ reproductive health services and referral

- PCFL S-4. Clinic personnel identify WRA approaching marriage age or 1-2 years younger and provide the following services and support:
- Nutrition (including micronutrients and/or multivitamin supplements) counseling to young WRA and parents/caretaker/ husband-to-be:
 - Need for nutritious food and adequate weight of woman/ mother for healthy pregnancy and infant survival
 - Encourage the regular intake of iron/folate tablets
 - Monitor for GBV and provide counseling regarding abuse and its devastating affects on women, infants and families
 - FP counseling and services including the importance of pregnancy delay until at least 18 years
 - Health education on STIs and HIV/AIDS prevention²¹
 - Education and support for living and working in a safe environment including protection from gender violence (domestic violence and sexual abuse), smoking and alcohol, environmental hazards
- PCFL S-5. Establishes and promotes the use of a “marriage visit” by young couples that would include:
- Adequate food intake and iron/folate for WRA prior to and during pregnancy, and during breastfeeding
 - Physical exams focusing on nutritional status, reproductive health, STIs, HIV/AIDS²²
 - Other topics listed in PCFL S-4.

- PCFL I-16. Percent of girls/young WRA of marriage age provided services and support by clinic personnel
(MOV: health facility records)
- PCFL I-17. Percent of female youth/WRA who are anemic
(MOV: HF records)
- PCFL I-18. Percent of anemic female youth/WRA who are given iron/folate tablets
(MOV: HF records)
- PCFL I-19. Percent of WRA who cite at least two known ways of reducing the risk of HIV infection*
(MOV: population-based survey; client exit interview)
- PCFL I-20. Percent of facilities offering three or more modern FP methods
(MOV: HFA)

See also *PCHH I-10, I-19 – I-23; PCFL I-1 – I-9*

- PCFL I-21. Percent of young married couples who attended a “marriage visit”
(MOV: health facility records)
- PCFL I-22. Couple-years of protection**
(MOV: service statistics or MIS)
- PCFL I-23. Percent of young couples who state the reason to delay pregnancy until after 18 years old
(MOV: client exit interview)
- PCFL I-24. Unmet need for family planning**
(MOV: population-based survey)

PCFL S-6. Health facilities provide post-abortion care²³.

- PCFL I-25. Percent of facilities providing post-abortion care**
(MOV: HFA)
- PCFL I-26. Percent of practitioners trained in PAC**
(MOV: HFA)
- PCFL I-27. Percent of health facilities that offer family planning to PAC patients**
(MOV: HFA)

Intervention Focus: Pre-conception/Inter-conception Care [PC]

RECOMMENDED PRACTICES AND STANDARDS OF CARE	INDICATORS
<p>2 Second Level (PCSL): Promotes the health of girls, female youth, and WRA, and their education, awareness of issues in reproductive health, violence, abuse and body mutilation including FGC, and provide nonjudgmental care.</p>	
<p>PCSL S-1. Apply PCFL S-1 to the hospital and out-patient clinics</p>	<p>PCSL I-1. Percent skilled health workers providing comprehensive care (MOV: supervisory records; HFA) <i>See also PCFL I-1 – I-9; PCHH I-1 – I-10, I-14, I-17 – I-27</i></p>
<p>PCSL S-2. Provide in-service training for facility staff and other area health workers on the care of female youth and WRA prior to pregnancy</p>	<p>PCSL I-2. Percent of facility staff and area health workers receiving in-service training on the care of female youth and WRA prior to pregnancy (MOV: health facility records) PCSL I-3. Percent of staff and area health workers who distribute iron/folate to girls/young WRA (MOV: supervisory records)</p>

* Source: taken directly or derived from KPC 2000+; CSTS, CORE.

** Source: taken directly or derived from Bertrand J and Escudero G. *Compendium of Indicators for Evaluating Reproductive Health Programs*. MEASURE Evaluation: 2002.

*** Source: *Flexible Fund Family Planning Guidance*; USAID, 2004.

Endnotes

1. “Main interventions to be available to women and men of reproductive age include nutrition education . . . family planning . . . prevention and treatment of sexually transmitted infections [including HIV/AIDS], and general health services to enhance knowledge and understanding of their bodies.” *Promoting Quality Maternal and Newborn Care: A Reference Manual for Program Managers*. (1998). Cooperative for Assistance and Relief Everywhere, Inc. (CARE), Chapter 5.

Pre-pregnancy care

- Education for girls
 - o Higher levels of schooling for girls and women are correlated with increased obstetric survival.
- Reducing prevalence of female genital cutting (FGC)
 - o Conducting community-wide education and creating alternative rituals for FGC can reduce the risks of maternal morbidity and stillbirths.
- Delivering micronutrient supplementation through schools
 - o Iron supplementation delivered through the school and targeted to at-risk adolescents is an effective way to prevent anemia and iron deficiency.
- Providing multivitamins prior to conception can improve maternal health
 - o Combined supplements prior to conception are more effective than single supplements.
- Starting smoking cessation programs in adolescence
 - o Smoking cessation education programs for adolescents can be effective in preventing tobacco use.
- Providing family planning
 - o Access to a choice of safe, affordable, and appropriate family planning knowledge and methods, especially for adolescents, is essential to ensuring safe motherhood by reducing unwanted pregnancies.
 - o Also refer to the forthcoming module on Reducing Unintended Pregnancy.

Gay J, Hardee K, et al. *What Works: Safe Motherhood*. Policy Project, Washington: 2003, p. 85-94.

2. All girls and young women need ‘security’, which includes food, shelter and clothing; ‘support’, which includes schooling, health care, etc.; ‘safety’, which includes protection from unsanitary living conditions, domestic/child/sexual abuse, smoking and alcohol, and environmental and occupational hazards such as use of pesticides, poisonous materials; ‘self-esteem’, which includes decision-making, having choices in life and belief in the possibility of a healthy, happy and safe future for herself and her family.
3. “Girls are often underfed and their malnutrition is closely linked with low women’s status and societal norms.” “...Emphasis should be placed on improving pre-pregnancy weights (of girls) so that women do not enter pregnancy in a nutritionally disadvantaged state.” “The combination of low pre-pregnancy weight and pregnancy weight gain has detrimental effects on infant outcomes. An estimated 450 million adult women in the developing world are stunted (short for their age) resulting from chronic protein-energy malnutrition throughout their lives. *Promoting Quality Maternal and Newborn Care: A Reference Manual for Program Managers*. (1998). Cooperative for Assistance and Relief Everywhere, Inc. (CARE) Chapter 2.

“If weights are known before or early in pregnancy, a low weight for height of 10 percent or more below reference can be a rough indicator of undernutrition.” “When caloric

supplementation was given to women with low pre-pregnancy weight and low caloric intake (under 1700 calories), the percentage of low birth-weight infants decreased significantly, and the viability of the infants increased. *Mother and Child Health: Delivering the Services*. Williams, C. Baunslag, N. Jelliffe, D.B. 1994 Chapter 6.

The most common micronutrient deficiencies to monitor for are iron, folic acid, vitamin A and iodine. *Promoting Quality Maternal and Newborn Care: A Reference Manual for Program Managers*. (1998). Cooperative for Assistance and Relief Everywhere, Inc. (CARE) Chapter 2.

Check local or national guidelines regarding adequate nutrient intake.

Energy requirements differ from place to place because of variance in body weight and activity levels.

King FS and Burgess A, *Nutrition for Developing Countries, second edition*. Oxford University Press, Oxford: 1988. p. 426–7.

“Increasing food intakes for girls until three years of age may increase their adult height and decrease risk of maternal mortality.” Gay J, Hardee K, et al. *What Works: Safe Motherhood*. Policy Project, Washington: 2003, p. 78.

4. “In some societies, women are responsible for cloth dying and weaving in factories and are susceptible to bladder cancer from the aniline dyes used. They are also at risk from dust diseases. Women in agriculture exposed to insecticides or herbicide sprays are at risk of such disorders as sterility, stillbirths, and congenital defects in their offspring.” Girls who are growing and developing are at even greater risk. *Mother and Child Health: Delivering the Services*. Williams, C., Baunslag, N., Jelliffe, D.B. 1994 Chapter 6, pg. 94.

“Averting exposure by women of reproductive age to high-level polychlorinated biphenyls (PCBs) may reduce the numbers of stillbirths.” Gay J, Hardee K, et al. *What Works: Safe Motherhood*. Policy Project, Washington: 2003, p. 60.

“Decreasing exposure to pesticides may reduce the numbers of spontaneous abortions...A study in Canada found strong evidence that women’s exposure to pesticides in the three months prior to conception or in the month of conception significantly increased their risk of spontaneous abortion.” Gay J, Hardee K, et al. *What Works: Safe Motherhood*. Policy Project, Washington: 2003, p. 61.

5. UNICEF points out in its *Programming for Safe Motherhood: Guidelines for Maternal and Neonatal Survival* (1999) that it is important to increase girls’ access to education. “There is a clear relation between girls’ access to education and literacy and reduced maternal mortality. Pg. 26 “Of the 130 million children who are not attending primary school in the developing world, 60 percent are girls. Of the estimated 960 million people who are illiterate, 66 percent are women. *Promoting Quality Maternal and Newborn Care: A Reference Manual for Program Managers*. (1998). Cooperative for Assistance and Relief Everywhere, Inc. (CARE) Chapter 2.
6. “. . . Age at marriage is closely linked to first birth due to cultural norms and expectations, and due to the fact that contraception is less commonly used to delay first births than it is to delay later births. Where women marry later, they have more time to complete their education, learn about reproduction and contraceptive methods and develop marketable skills. Moreover, delayed marriage and first birth means fewer years spent in childbearing, and is often linked to lower total fertility.” Due to physiological and social factors, girls/young women are more vulnerable than older women to pregnancy-related complications; sexually transmitted diseases (infections), including HIV/AIDS; and unsafe abortion. *Safe Motherhood Fact Sheet—Safe Motherhood Inter-Agency Group (IAG) 1998* Girls aged 15–19 are twice as likely to die from childbirth as women in their twenties. *The Safe Motherhood Action Agenda: Priorities for the Next Decade*. Report on the Safe Motherhood Technical Consultation, 18–23 October 1997 Colombo, Sri Lanka
7. The appropriate age of marriage will vary by place, according to culture and custom.
8. Facts about reproductive health issues of girls/young women: Nearly half of the world’s

population is under age 25. Adolescents account for approximately 10 percent of all births worldwide. Each year 15 million girls ages 15-19 have babies. Girls under 16 years old are twice as likely to die in childbirth as women in their early twenties. Two to four million adolescents in developing countries have unsafe abortions each year. Nearly half of all HIV infections worldwide occur in people under age 25. Seven in 10 new sexually transmitted infections (STIs) occur among individuals 15-24 years old. *Meeting the Needs of Young Clients: A Guide to Providing Reproductive Health Services to Adolescents*, Family Health International, 2002 available at www.fhi.org

Adolescents account for 21 percent of all maternal deaths. *Promoting Quality Maternal and Newborn Care: A Reference Manual for Program Managers*. (1998). Cooperative for Assistance and Relief Everywhere, Inc. (CARE) Chapter 2

9. “Enabling couples to determine whether, when, and how often to have children is vital to safe motherhood and child health. By limiting births, preventing closely spaced births or births to very young or old mothers, infant, child and maternal mortality can be reduced.”

“Family planning encompasses a full range of modern methods, both temporary and permanent. Modern methods include condoms (male and female) and other barrier methods (diaphragms, cervical caps), pills, injectables, intrauterine devices (IUDs), implants (Norplant), voluntary surgical sterilization (male or female). Lactation Amenorrhea Method (LAM) and the Standard Days Method (SDM) are modern natural methods. Emergency contraceptives are methods of *preventing* pregnancy *after* unprotected sexual intercourse. Emergency contraception can be used when a condom breaks, after a sexual assault, or any time unprotected sexual intercourse occurs. However, emergency contraception *does not* protect against sexually transmitted infections. Most women can be safely offered emergency contraception (EC) in advance of need to have it available when it is needed.”

Two quotes above from: USAID CSHGP, *Technical Reference Materials (TRMs); Family Planning Module*. 2004: pages 7 and 11, respectively.

“Access to affordable, high-quality family planning services is one of the most important interventions to reduce maternal mortality . . . Reducing unwanted pregnancies and unsafe abortions can have major impacts on reducing maternal mortality.” Gay J, Hardee K, et al. *What Works: Safe Motherhood*. Policy Project, Washington: 2003, p. 87.

“It is estimated that 67,000 women die annually worldwide following complications of abortion. This accounts for a considerable portion (10% to 50%, depending on the country) of all maternal deaths. Many of these deaths could be prevented if women were able to avoid unwanted pregnancies, and had access to safe abortions and post-abortion care. Complications due to abortion can be prevented, and a substantial reduction in maternal deaths can be achieved if complications are recognized early and treated appropriately.” USAID CSHGP, *Technical Reference Materials (TRMs); Maternal and Newborn Care Module 2004*: p. 18


10. “Women’s relative lack of decision-making power, education, and economic independence in many parts of the world affects their ability to both protect themselves from HIV infection and seek and receive treatment and support. According to United Nations figures... young women in the region [Sub-Saharan Africa] are now 6 times more likely than young men to be infected; women, in general, die faster from the disease than men.” Kiragu, K. (2001). *Youth and HIV/AIDS: Can we avoid catastrophe?* Population Reports. Series L (12).
11. “A high prevalence of fever, diarrhea, and infectious parasitic and debilitating diseases is commonly associated with poor sanitation.” These acute and chronic diseases cause the women to use more calories and lose protein and other nutrients, making their malnutrition or undernutrition worse. *Mother and Child Health: Delivering the Services*. Williams, C., Baumslag, N., Jelliffe, D.B. 1994 Chapter 6, pg. 98
12. Gender violence is defined as any act of violence that results in or is likely to result in physical, sexual, or psychological harm or suffering to women, including threats of such acts and/or coercion or arbitrary deprivations of liberty, taking place in public or private life. Violence

against women across the lifespan includes: *Pre-birth*: sex-selective abortion; effects of battering during pregnancy on birth outcomes; *Infancy*: female infanticide; physical, sexual and psychological abuse; *Girlhood*: child marriage; female genital mutilation (FGM); physical, sexual and psychological abuse; incest; child prostitution and pornography; *Adolescence and Adulthood*: dating and courtship violence (e.g. acid throwing and date rape); economically coerced sex (e.g. school girls having sex with “sugar daddies” in return for school fees); incest; harassment; forced prostitution and pornography; dowry abuse and murders; partner homicide; psychological abuse; abuse of women with disabilities; forced pregnancy). *Programming for Safe Motherhood: Guidelines for Maternal and Neonatal Survival*. UNICEF (1999) pg. 109–110

13. Washing hands at appropriate times is one of the most important ways of preventing the spread of disease. WHO and UNICEF have acknowledged appropriate handwashing as a key family practice to improve child health and nutrition in communities. Because handwashing cannot be observed directly in most household surveys and mother’s recall of appropriate time of handwashing reflects actual practice poorly, the observation of the presence of soap in a place where handwashing is usually done is suggested as a more objective measure. Studies have shown that the presence of soap is related to health outcomes such as diarrhea. In many countries most households will have soap, but not necessarily readily available for handwashing. This is the reason for first asking the interviewee to see the place where hands are usually washed and what is used for handwashing.
14. HIV/AIDS prevention before pregnancy includes: (a) community awareness and mobilization including lessen the stigma surrounding voluntary testing, (b) dispel local myths such as that sex with a virgin will cure the disease or that condoms contain HIV, (c) link prevention to care and support. Israel E and Kreger, M. 2003. Integrating Prevention of Mother to Child HIV Transmission into Existing Maternal, Child, and Reproductive Health Programs. Technical Guidance Series, Pathfinder International, Watertown. www.Pathfind.org
15. FGC = female genital cutting
16. Screening and treatment for malaria and hookworm infection are especially important because these diseases/infections significantly contribute to anemia and malnutrition—major reasons why young women enter pregnancy in poor health and under-weight or malnourished. Malaria substantially increases the risks of maternal anemia, prematurity and low birth-weight during a woman’s first pregnancy. *Programming for Safe Motherhood: Guidelines for Maternal and Neonatal Survival* (1999) pg. 52 and 54

Malaria in Africa is estimated to cause up to 15% of maternal anemia and 35% of preventable low birth-weight. Lives at Risk: *Malaria and Pregnancy*. SARA project funded by USAID
17. Decreasing anemia in young women through good nutrition and iron/folate tablets is important for their health and for their future childbearing. Women need three times more iron than men. Maternal death rates are five times higher in anemic than in non-anemic women. WHO reported that half of pregnant and more than a third of nonpregnant women are anemic. *Mother and Child Health: Delivering the Services*. Williams, C. Baumslag, N. Jelliffe, D.B. 1994 Chapter 6, pg. 101.

Folic acid supplementation prior to pregnancy can reduce the risk of neural tube defects by more than two thirds. Recommendations are: 0.4–.08 mg/day beginning at least one month prior to conception and continuing through the first trimester. This amount is increased to 4 mg for women with a history of a prior pregnancy affected by a neural tube defect. Barash, J. Weinstein, LC, *Preconception and prenatal care*, Primary Care Clinical Office Practice (journal), 29(2002) 519–542
18. ‘Youth friendly’ services “have policies and attributes that attract adolescents to the facility or program, provide a comfortable and appropriate setting for youth, meet the needs of adolescents, and are able to retain their adolescents for follow-up and repeat visits” (Senderowitz, 1999; as quoted in Bertrand J and Escudero G. *Compendium of Indicators for Evaluating Reproductive Health Programs*. MEASURE Evaluation: 2002, p. 374.) “Aspects of an ‘adolescent friendly’ environment can include space or rooms dedicated to adolescent reproductive health



services, policies and procedures to ensure privacy and confidentiality, peer educators on site, nonjudgmental staff, and acceptance of drop-in clients” (also MEASURE Evaluation, Compendium . . .).

19. “Dual protection – Offering condoms to prevent the spread of STIs and HIV should be routine in family planning and STI clinics. The idea of using condoms in addition to another family planning method choice, or using only condoms, may be new to clients. Counseling on the importance of dual protection, as well as on the necessary skills to implement dual protection effectively, is a necessary part of HIV/AIDS prevention.” Israel, E and Kroeger, M. 2003. *Integrating Prevention of Mother-to-Child HIV Transmission into Existing Maternal, Child, and Reproductive Health Programs*. Technical Guidance Series, Pathfinder International, Watertown.
20. Services include family planning, STIs, maternal health and child health. (Bertrand J and Escudero G. *Compendium of Indicators for Evaluating Reproductive Health Programs*. MEASURE Evaluation: 2002, p. 169)
21. It is important to provide information on STIs and HIV/AIDS to young women and men. Additionally, IEC strategies should address delay of sexual debut (first experience with sexual intercourse), sexually transmitted infection prevention and safer sex, voluntary confidential counseling and testing (VCCT), and basic facts of HIV/AIDS. . . . IEC efforts can contribute to prevention and to the de-stigmatization of HIV/AIDS . . . The majority of women are not infected and they need services and care to help them stay that way. Israel, E and Kroeger, M. 2003. *Integrating Prevention of Mother-to-Child HIV Transmission into Existing Maternal, Child, and Reproductive Health Programs*. Technical Guidance Series, Pathfinder International, Watertown. www.pathfind.org

“Youth as a special focus: explore ways to reach young women and men with HIV information in schools, at the market, at football matches, on the job, on the street, and in youth-friendly counseling, which has shown to be valued by youth.” Macquarrie, K. 2001. *Making VCT more youth-friendly: Designing services to reach young people*. Horizons report: Operations research on HIV/AIDS.
22. Voluntary testing before marriage has been promoted in Uganda and is suggested for other high prevalence countries.
23. Post-abortion care (PAC) “generally includes clinical treatment for complications of incomplete abortion, provision of counseling and contraceptive supplies (to avoid repeat abortion), and in some locations, referral to other reproductive health care. PAC may also include community education to improve reproductive health and to reduce unwanted pregnancy and the need for abortion.” Bertrand J and Escudero G. *Compendium of Indicators for Evaluating Reproductive Health Programs*. MEASURE Evaluation: 2002, p. 397.

Intervention Focus: Antenatal Care¹ [AC]

RECOMMENDED PRACTICES AND STANDARDS OF CARE

INDICATORS

HH Household Level (ACHH): The Household² prepares for birth and is ready for complications, including accessing essential and emergency care during pregnancy, identifying danger signs, and establishing a supportive environment for the pregnant woman.

ACHH S-1. Family plans for the use of a skilled provider at birth.

ACHH I-1. Percent of pregnant women receiving ANC who have a birth plan (including use of a skilled provider at birth)
(Means of Verification [MOV]: HF records; population-based survey; ANC client survey or exit interview)

ACHH S-2. Pregnant woman seeks antenatal care³ four times during an uncomplicated pregnancy from a skilled provider when:

ACHH I-2. Percent of pregnant women/family in catchment area who can state the benefits of antenatal care (MOV: population-based survey; ANC client survey or exit interview)

- Pregnancy first suspected (before end of 16 weeks)
- Between 24 and 28 weeks
- At 32 weeks
- At 36 weeks

ACHH I-3. Percent of mothers of children aged 0-23 months in catchment area that saw a skilled provider three or more times during last pregnancy*
(MOV: population-based survey; HF records)

Key Indicator Definition: *Numerator:* number of mothers of children aged 0-23 months in catchment area that saw a skilled provider three or more times during last pregnancy. *Denominator:* number of mothers of children aged 0-23 months.

ACHH S-3. Household-level use of key ANC interventions:

- Nutrition⁴: take iron/folate⁵, vitamin A⁶ (in areas of endemic vitamin A deficiency); eat an extra meal; drink 6-8 cups liquids daily⁷
- Rest daily⁸
- Practice safer sex
- Malaria prevention and management in areas of endemic malaria
- Hookworm prevention/treatment⁹ in areas of endemic hookworm
- TB prevention and treatment¹⁰
- Safe environment (including protection from GBV, smoking¹¹, alcohol, and environmental hazards¹²)

ACHH I-4. Percent of women receiving ANC who can name two local dietary sources of iron (MOV: population-based survey; HF records)

ACHH I-5. Percent of mothers who received/bought iron supplements while pregnant with the youngest child less than 24 months of age*
(MOV: population-based survey; HF records; ANC client or exit interview)

ACHH I-6. Percent of pregnant women who gain at least 1kg per month in the last two trimesters of pregnancy (MOV: HF records)

ACHH I-7. (In malaria endemic area) Percent of women receiving ANC who took two or more doses of IPT (MOV: population-based survey; HF records)

ACHH I-8. (In malaria endemic area) Percent of women using ITNs (MOV: population-based survey)

ACHH I-9. Percent of women attending ANC who cite at least two known ways of reducing the risk of HIV infection
(MOV: ANC client survey or exit interview; HF records)

Intervention Focus: Antenatal Care¹ [AC]

RECOMMENDED PRACTICES AND STANDARDS OF CARE

INDICATORS

HH Household Level (ACHH): The Household² prepares for birth and is ready for complications, including accessing essential and emergency care during pregnancy, identifying danger signs, and establishing a supportive environment for the pregnant woman.

<p>ACHH I-10. Percent of pregnant women who receive antihelminthic treatment ^{***} (MOV: population-based survey; HF records; ANC client or exit interview)</p> <p>ACHH I-11. Percent of women attending ANC who receive vitamin A supplementation (in areas of endemic vitamin A deficiency) (MOV: population-based survey; HF records; ANC client or exit interview)</p> <p>ACHH I-12. Percent of pregnant women with TB who complete treatment (MOV: HF records)</p>	<p>ACHH I-10. Percent of pregnant women who receive antihelminthic treatment ^{***} (MOV: population-based survey; HF records; ANC client or exit interview)</p> <p>ACHH I-11. Percent of women attending ANC who receive vitamin A supplementation (in areas of endemic vitamin A deficiency) (MOV: population-based survey; HF records; ANC client or exit interview)</p> <p>ACHH I-12. Percent of pregnant women with TB who complete treatment (MOV: HF records)</p>
<p>ACHH S-4. Pregnant woman and family recognize and act appropriately on the danger signs of pregnancy¹⁴:</p> <ul style="list-style-type: none"> • Any bleeding¹⁵ • Swelling of hands/face and severe headache¹⁶ • Fits¹⁷ • No fetal movement after 24 weeks¹⁸ • Fever¹⁹ • Severe pain in abdomen or when passing urine²⁰ 	<p>ACHH I-13. Percent of women/families receiving ANC who can state four danger signs of pregnancy (MOV: population-based survey; HF records; ANC client survey or exit interview)</p>
<p>ACHH S-5. Pregnant woman and household make plans for normal and complicated birth.²¹</p> <ul style="list-style-type: none"> • Planning for normal delivery²² (travel and lodging to facility with skilled provider, or clean birth kit²³ for delivery at home) • Recognition of danger signs and complications of pregnancy • Establishing transport plans • Knowing where to go in case of emergency • Money in case of emergency • Identifying blood donors • Preparing to breastfeed²⁴ or not if HIV+ mother decides 	<p>ACHH I-14. Percent of women/families who have chosen feeding option for baby (MOV: population-based survey; HF records; ANC client survey or exit interview)</p> <p>ACHH I-15. Percent of women/families receiving ANC who have prepared clean birthing kit / necessary supplies for birth (MOV: population-based survey; HF records; ANC client survey or exit interview)</p> <p>ACHH I-16. Percent women/families who have given birth in past 12 months who report</p> <ul style="list-style-type: none"> • use of skilled provider during birth • feeding option chosen before birth • having, during pregnancy, a plan for what to do in event of danger sign <p>(MOV: population-based survey; HF records; ANC client survey or exit interview)</p> <p><i>Also see ACHH I-13.</i></p>

Intervention Focus: Antenatal Care¹ [AC]

RECOMMENDED PRACTICES AND STANDARDS OF CARE

INDICATORS

HH Household Level (ACHH): The Household² prepares for birth and is ready for complications, including accessing essential and emergency care during pregnancy, identifying danger signs, and establishing a supportive environment for the pregnant woman.

ACHH S-6. Pregnant woman/partner have plans for birth spacing after birth^{2,5, 26}

ACHH I-17. Percent women receiving ANC who report birth spacing plans (MOV: population-based survey; HF records; ANC client survey or exit interview)

ACHH I-18. Percent of women who report at least one place where she can obtain a method of family planning* (MOV: population-based survey)

ACHH I-19. Percent of children aged 0–23 months who were born at least 24 months after the previous surviving child* (MOV: population-based survey)

ACHH I-20. Percent of pregnant women who can state two benefits of birth spacing (MOV: HF records; ANC client or exit interviews)

ACHH I-21. Percent of postpartum mothers who report initiating use of a modern method of FP within six weeks after birth** (MOV: population-based survey; HF records; CBDA records)

Intervention Focus: Antenatal Care¹ [AC]

RECOMMENDED PRACTICES AND STANDARDS OF CARE

INDICATORS

<p>C Community Level (ACCL): The COMMUNITY facilitates birth preparedness and birth complication readiness at the household and community levels.</p>	<p>facilitates birth preparedness and birth complication readiness at the household</p>
<p>ACCL S-1. Community mobilization (TBAs, CHWs, and other community members) for birth planning, complication readiness and education²⁷ including^{28, 29, 30}:</p> <ul style="list-style-type: none"> • Key household ANC interventions (see ACHH S-3) • Planning for normal delivery • Recognize and respond to danger signs in mother • First aid care in order to stabilize the woman or newborn with a complication until reaching trained health worker • Encourage four ANC visits • PMTCT (in HIV/AIDS-affected areas) • Family planning and birth spacing <p>See other services in endnotes³¹</p>	<p>ACCL I-1. Percent of TBAs/CHWs/community members interviewed who can state two benefits of pregnancy care (MOV: HF records; community assessment)</p> <p>ACCL I-2. Percent TBAs/CHWs/community members interviewed who can name four components of birth planning/complication readiness (MOV: HF records; community assessment)</p> <p>ACCL I-3. Percent TBAs/CHWs/community members interviewed who can name four danger signs for the woman (MOV: HF records; community assessment)</p> <p>ACCL I-4. Percent of TBAs/CHWs/community members interviewed who have knowledge of PMTCT (MOV: HF records; community assessment)</p> <p>Also see ACHH I-4 – I-11</p>
<p>ACCL S-2. Community mobilization for emergency finance scheme, emergency transport scheme, and blood donor pool³²</p>	<p>ACCL I-5. Percent of communities that have an emergency transport system (MOV: HF records; community assessment)</p> <p>ACCL I-6. Percent of communities that have an emergency financing system (MOV: HF records; community assessment)</p> <p>ACCL I-7. Percent of communities that have a blood donor system (MOV: HF records; community assessment)</p>
<p>ACCL S-3. TBAs/CHWs/community members record pregnant women and outcomes³³</p>	<p>ACCL I-8. Percent of TBAs/ CHWs/community members/communities that have a register recording pregnant women and outcomes (MOV: community assessment)</p>

Intervention Focus: Antenatal Care¹ [AC]

RECOMMENDED PRACTICES AND STANDARDS OF CARE

INDICATORS

1 First Level³⁴ (ACFL): Skilled ANC provides for normal pregnancies and manages and/or refers complications.

- ACFL S-1. Provide skilled ANC³⁵ including:
 - Discuss preparation for birth³⁶
 - Identify/manage complications³⁷
 - Provide iron/folate, tetanus toxoid, vitamin A
 - Provide malaria and parasite prevention³⁸ and treatment³⁹ according to country protocols
 - Screen and manage anemia, hypertension, TB, STIs, (provide essential antenatal laboratory tests)⁴⁰
 - Counsel and test for HIV/AIDS⁴¹
 - Screen and provide counseling and referrals for GBV⁴² and protection from environmental hazards
 - Counsel woman and family on danger signs, rest and nutrition, safer sex, birth spacing, LAM, breastfeeding
 - Referral system in place for care not available at first level
 - Encourage involvement of partner/family in education, birth planning and care

ACFL I-1. Percent of women receiving ANC who are counseled and tested for HIV (MOV: population-based survey; HF records; ANC client survey or exit interview)

ACFL I-2. Percent of women receiving ANC who report being counseled on danger signs; rest and nutrition; safer sex; breastfeeding; LAM; birth spacing; protection from environmental hazards (MOV: population-based survey; ANC client survey or exit interview)

ACFL I-3. Percent of women receiving ANC who report that partner/family were included in education, birth planning and care (MOV: ANC client survey or exit interview)

ACFL I-4. Percent of mothers with children age 0–23 months who received at least two tetanus toxoid injections before the birth of their youngest child* (MOV: population-based survey)

Key Indicator Definition: *Numerator:* number of mothers with children age 0–23 months who received at least two tetanus toxoid injections before the birth of her youngest child (confirmed by maternal health card). *Denominator:* Number of mothers with children age 0–23 months.

ACFL I-5. Percent of women with child under 12 months of age who report receiving at least 90 iron tablets during last pregnancy (MOV: population-based survey)

ACFL I-6. Percent of service sites where providers encourage participation of partner/family in education, birth planning, and care (MOV: population-based survey; HF records; ANC client survey or exit interview)

ACFL I-7. Percent of facilities screening for GBV in non-judgmental manner (MOV: HFA/checklist JHPIEGO/IPPF)

ACFL I-8. Percent of clients satisfied with services provided (MOV: client satisfaction survey; client exit interviews)

ACFL I-9. Percent of facilities exhibiting gender sensitivity in the service delivery environment*** (MOV: HFA)

ACFL I-10. Percent of ANC service delivery points with adequate supplies. (MOV: HFA)

ACFL I-11. Percent of pregnant women receiving ANC who have received hgb/hct and RPR testing (MOV: HF records)

ACFL I-12. Percent of pregnant women diagnosed with and treated for syphilis (MOV: HF records)

Also see *ACHH I-1 – I-11*

Intervention Focus: Antenatal Care¹ [AC]

RECOMMENDED PRACTICES AND STANDARDS OF CARE

INDICATORS

1 First Level³⁴ (ACFL): Skilled ANC provides for normal pregnancies and manages and/or refers complications.

ACFL S-2. ANC providers link to community networks, and works with community, providing information about family planning and building capacity for activities listed in ACCL S-1.

ACFL I-13. Percent of ANC service sites that have a method for eliciting/seeking community input re: ANC services (MOV: HFA)

ACFL I-14. Percent of ANC service sites that have met with community committee or key community group/member(s) during past three months (MOV: HF records)

ACFL I-15. Percent of ANC service sites that have program/plan to reach community with information about birth planning, danger signs, and family planning (MOV: HFA)

Also see ACCL I-1 – I-3.

ACFL S-3. Provide pregnant women with HIV counseling and services, using country HIV protocol, regarding:

- Counseling and testing
- Transmission of HIV—how virus is spread
- Feeding options^{45, 46, 47} for HIV-positive mothers
- Treatment with anti-retroviral drugs, if appropriate and feasible/country HIV protocol
- How to avoid sexual transmission of HIV

ACFL I-16. Percent health facility staff with knowledge about HIV counseling, testing, prevention, and treatment (MOV: HFA)

ACFL I-17. Percent pregnant women receiving HIV counseling and testing (MOV: HF records; ANC client survey or exit interview)

ACFL I-18. Percentage of mothers with children age 0–23 months who cite at least two known ways of reducing the risk of HIV infection* (MOV: population-based survey)

See ACHH I-16 – I-20

ACFL S-4. Provide pregnant women with information regarding family planning options available so that children are spaced at least 36 months apart (PVOs may choose to select 24 months as a benchmark)

Intervention Focus: Antenatal Care¹ [AC]

RECOMMENDED PRACTICES AND STANDARDS OF CARE

INDICATORS

2 Second Level⁴⁸ (ACSL): Provides comprehensive ANC for pregnancy complications and referrals.

- ACSL S-1. Reduce delays in receiving treatment:
 - Health workers skilled in providing care for pregnant women with signs of a complication of pregnancy⁴⁹
 - Essential drugs⁵⁰ for complications during pregnancy available in facilities
 - Skilled and informed workers available 24 hours a day, seven days per week for complications

ACSL I-1. Percent of staff who can demonstrate how to perform a manual vacuum aspiration for bleeding in early pregnancy. (MOV: HFA)

ACSL I-2. Percent of staff who can state how to manage bleeding in later pregnancy (MOV: HFA)

ACSL I-3. Percent of staff who can state how to manage headache/blurred vision/convulsions during pregnancy (MOV: HFA)

ACSL I-4. Percent of staff who can state how to manage fever during pregnancy (MOV: HFA)

ACSL I-5. Percent of women with convulsions during pregnancy who were treated with magnesium sulfate in the past 12 months (MOV: HF records)

ACSL I-6. Percent of facilities with uterotonic, magnesium sulfate, RL or NS infusion, ampicillin, gentamycin, and amoxicillin (or trimeth/sulfamethoxazole) available on day of survey (MOV: HFA).

ACSL I-7. Percent of health facilities with skilled attendant (doctor, nurse or midwife) available 24 hours per day, seven days per week (MOV: HFA)

Key Indicator Definition: *Numerator:* number of health facilities with skilled attendant (doctor, nurse or midwife) available 24 hours per day, seven days per week. *Denominator:* number of health facilities

* Source: derived or taken directly from KPC 2000+; CSTS, CORE

** Source: Flexible Fund Family Planning Guidance; USAID, 2004

*** Source: derived or taken directly from Bertrand J. and Escudero G. *Compendium of Indicators for Evaluating Reproductive Health Programs*. MEASURE Evaluation: 2002.

Endnotes

1. Focused antenatal care recognizes that every pregnancy is at risk. Antenatal care is not able to predict all complications, but effective antenatal care balances support for women with normal pregnancies and early detection and effective management of complications. JHPIEGO. (2004) "Focused Antenatal Care: Planning and Proving Care During Pregnancy," Baltimore, U.S.A.
2. Household level is defined as the mother of the baby, her family and helpers providing first aid in the home or during referral. Buffington, S., Sibley, L., Beck, D., Armbruster, D. (2004). *Home Based Life Saving*. Guidelines for Decision Makers and Trainers: Protocols. American College of Nurse-Midwives, Silver Spring, MD, U.S.A.
3. Essential antenatal care: 1. Identify/manage complications, 2. Provide iron/folate, tetanus toxoid, vitamin A, malaria and parasite prevention and treatment according to country protocols, 3. Screen and manage HIV/AIDS, tuberculosis, STDs, 4. Discuss preparation for birth including five cleans, identification of birth attendant, plan for contacting attendant at time of delivery, transportation plan, family caregivers, ready for emergency with money, transportation, blood donors, and decision makers, 4. Counsel woman and family on danger signs, nutrition, family planning, breastfeeding, HIV. Beck, D., Buffington, S., McDermott, J., Berney, K. (1998). *Healthy Mother Healthy Newborn Care*. American College of Nurse-Midwives, Washington, D.C., USA.,
4. See *Maternal Nutrition During Pregnancy and Lactation*. LINKAGES and The CORE Group's Nutrition Working Group; August, 2004; www.linkagesproject.org and www.coregroup.org
"Universal or targeted food fortification can reduce nutritional deficits. In most societies, women are more likely to be malnourished." Gay J, Hardee K, et al. *What Works: Safe Motherhood*. Policy Project, Washington: 2003, p. 78.
"Periconceptual intake of 400ug of folic acid daily can reduce the risk of neural tube defects, including anencephaly, spina bifida, iniencephaly, craniorachischisis, and encephalocele, but not isolated hydrocephalus . . . Adequate amounts of calcium and magnesium reduce the risk of eclampsia and prematurity . . . Adequate maternal iodine can halve infant mortality rates and improve infant health." Ibid., pp. 81–2.
"Increasing women's access to microcredit, nutritional information, and technical assistance, may improve the effectiveness of micronutrient interventions." Ibid., p. 83.
5. Iron/folate tablets 320 mg (60 mg elemental iron) two times a day, folic acid 500 mcg daily, and vitamin C daily either 250 mg tablet or advise three daily servings of citrus or leafy green vegetables; taken during pregnancy and 40 days after baby is born to prevent anemia. Beck, D., Buffington, S., McDermott, J., Berney, K. (1998). *Healthy Mother Healthy Newborn Care*. American College of Nurse-Midwives, Washington, D.C., USA.
"Treating severe iron-deficiency during pregnancy may reduce the risk of maternal mortality . . . Treating iron-deficiency anemia with iron during pregnancy has been shown to reduce the prevalence of anemia and maternal morbidity; in the second trimester, providing iron together with folate, B-12, riboflavin, and treatment for parasitic infections reduces the risk of maternal morbidity . . . Training, IEC campaigns, and distribution of iron tablets can reduce anemia." Gay J, Hardee K, et al. *What Works: Safe Motherhood*. Policy Project, Washington: 2003, pp. 78–9.
6. Vitamin A is essential for normal maintenance and functioning of body tissues, for growth and development, and a strong immune system. Although the increased vitamin A requirement during pregnancy is small, in countries where vitamin A deficiency is endemic, women need supplementation. *Promoting Quality Maternal and Newborn Care: A Reference Manual for Program Managers*. (1998). Cooperative for Assistance and Relief Everywhere, Inc. (CARE), Chapter 5.

- “A 7,000ug retinol equivalent of weekly supplement of vitamin A prior to conception, through pregnancy and lactation, can reduce maternal mortality and morbidity . . . Daily low dose vitamin A given during the second and third trimesters of pregnancy substantially reduces the risk of maternal postpartum infections in women who are deficient in vitamin A.” Gay J, Hardee K, et al. *What Works: Safe Motherhood*. Policy Project, Washington: 2003, pp. 82–3.
7. A pregnant woman should be encouraged to increase her intake (of food) and reduce her workload. *Promoting Quality Maternal and Newborn Care: A Reference Manual for Program Managers*. (1998). Cooperative for Assistance and Relief Everywhere, Inc. (CARE), Chapter 5.
 8. The most important factors affecting birth outcomes are: 1. Pre-pregnancy weight of the woman, 2. Pregnancy weight gain, and 3. Workload or energy expenditure. *Promoting Quality Maternal and Newborn Care: A Reference Manual for Program Managers*. (1998). Cooperative for Assistance and Relief Everywhere, Inc (CARE), Chapter 5.
 9. “Treating parasitic infections in pregnant women can improve maternal health, reduce maternal anemia and increase birthweight of infants.” Gay J, Hardee K, et al. *What Works: Safe Motherhood*. Policy Project, Washington: 2003, p. 57.
 10. “Preventing, detecting, diagnosing, and treating TB can reduce the numbers of maternal deaths among pregnant women, including those with HIV.” *Ibid.*, p. 58.
 11. “Providers can successfully encourage pregnant women to stop smoking, as well as other family members who live with the woman . . . Education efforts should encourage pregnant women to stop smoking, as well as other family members who live with the woman.” Gay J, Hardee K, et al. *What Works: Safe Motherhood*. Policy Project, Washington: 2003, pp. 75–6.
 12. “Averting exposure to DDT may decrease preterm births and women’s abilities to lactate.” DDT is widely used against mosquitoes, and is “reasonably anticipated to be a human carcinogen.”
 “Decreasing exposure to pesticides may reduce the numbers of spontaneous abortions.” *Ibid.*, p. 60–1.
 13. “In areas of moderate to high endemicity: the percent of pregnant women who receive presumptive antihelminthic treatment during their pregnancy. According to the 1998 IVACG/WHO/UNICEF *Guidelines for the Use of Iron Supplements to Prevent and Treat Iron Deficiency Anemia*, ‘treatment should be done once in the second and third trimester.’ In areas of low endemicity: the percent of pregnant women who received prescribed treatment during their pregnancy.” Bertrand J and Escudero G. *Compendium of Indicators for Evaluating Reproductive Health Programs*. MEASURE Evaluation: 2002, p. 299.
 14. Every woman must know that she may develop a pregnancy-related complication, each time she becomes pregnant. *Promoting Quality Maternal and Newborn Care: A Reference Manual for Program Managers*. (1998). Cooperative for Assistance and Relief Everywhere, Inc. (CARE), Chapter 5. JHPIEGO. (2004) *Basic Maternal and Newborn Care: a guide for skilled providers*. Chapter 5. Baltimore, U.S.A.
 15. Any bleeding during pregnancy is serious. The bleeding may happen during early pregnancy, later pregnancy or during labor. Any bleeding during pregnancy is a sign of danger, a sign of losing the pregnancy, or a sign the woman may die. “Antenatal hemorrhage...between 28-40 weeks of gestation . . . (may cause a) maternal death . . . within the first 12 hours (of the bleeding) . . . Intrapartum bleeding is usually due to uterine rupture during obstructed or prolonged labor and may cause maternal death.” UNICEF/WHO. (1996). *Maternal Mortality: Guidelines for Monitoring Progress*. UNICEF. New York.
 16. Swelling of hands and face with severe headaches are signs of danger. The pregnant woman must see a trained health worker as soon as possible. Buffington, S., Sibley, L., Beck, D., Armbruster, D. (2004). *Home Based Life Saving Skills*. Community Meeting 2 and 8. American College of Nurse-Midwives, Silver Spring, MD, U.S.A. (2004) *Basic Maternal and Newborn Care: a guide for skilled providers*. Chapter 5. Baltimore, U.S.A.

Signs and symptoms of severe pre-eclampsia when associated with hypertension, proteinuria, or edema include (a) hyper-reflexia, (b) headaches, (c) visual disturbances, (d) epigastric pain (e) oliguria, and (f) increasingly elevated blood pressure and greater proteinuria. Varney, Helen (1997). *Varney's Midwifery*, 3rd edition. Jones and Bartlett Publishers, Sudbury, MA.

17. Fits during pregnancy. Pregnancy fit (eclampsia) is a contributor to maternal mortality. Marshall, M.A., Buffington, S.T. (1998). *Life-Saving Skills Manual for Midwives*, 3rd Edition. Module 2. American College of Nurse-Midwives, Washington, D.C., U.S.A.
18. Lack of fetal movement may be a sign of fetal death or distress. (2004) *Basic Maternal and Newborn Care: a guide for skilled providers*. Chapter 5. Baltimore, U.S.A. WHO (2000) *Managing Complications in Pregnancy and Childbirth: a guide for midwives and doctors*. Geneva, Switzerland.
19. Fever may be a sign of infection. (2004) *Basic Maternal and Newborn Care: a guide for skilled providers*. Chapter 5. Baltimore, U.S.A. WHO (2000) *Managing Complications in Pregnancy and Childbirth: a guide for midwives and doctors*. Geneva, Switzerland.
20. Severe pain in abdomen may be a sign of infection or abruption placenta. Pain when passing urine may be bladder or kidney infection. JHPIEGO. (2004) *Basic Maternal and Newborn Care: a guide for skilled providers*. Chapter 5. Baltimore, U.S.A. Buffington, S., Sibley, L., Beck, D., Armbruster, D. (2004). *Home Based Life Saving Skills*. Community Meeting 6. American College of Nurse-Midwives, Silver Spring, MD, U.S.A.
21. It is essential the decision makers (woman and family) have identified a skilled provider and/or have items needed for clean birth, have money and transport for care, have support for the woman and for her family at home. Buffington, S., Sibley, L., Beck, D., Armbruster, D. (2004). *Home Based Life Saving Skills*. Community Meeting 4. American College of Nurse-Midwives, Silver Spring, MD, U.S.A. JHPIEGO. (2001) *Birth Preparedness and Complication Readiness: a matrix of shared responsibility*. Baltimore, U.S.A.
22. Ibid.
23. Minimum clean birth things at home: 1. Clean surface, 2. Clean cord to tie cord, 3. Clean blade to cut cord, 4. Clean pads, cloths, and clothes for mother, 5. Clean cloth to wrap baby, 6. Caregivers: Clean hands, apron and gloves. Buffington, S., Sibley, L., Beck, D., Armbruster, D. (2004). *Home Based Life Saving Skills*. Community Meeting 3. American College of Nurse-Midwives, Silver Spring, MD, U.S.A.

WHO refers to the six cleans (A) Clean surface, (B) Clean string to tie the cord, (C) clean blade to cut the cord, (D) Clean hands of attendant and other helpers, (E) Clean cloths/clothes to wrap and cover the baby, (F) Clean cloths for mother. World Health Organization. (1999). *Care in Normal Birth: A Practical Guide*. WHO/FRH/MSM/96.24. Geneva.

24. Each pregnant woman should receive adequate HIV counseling so she can make an informed choice regarding ways to prevent HIV and HIV transmission (if HIV-positive) through breastfeeding. She should fully understand the risk to her child and should receive information about the risks of HIV transmission through breastfeeding as well as the potential risk of other infant morbidities if breastfeeding is not selected. World Health Organization, *Mother-Baby Package: Implementing safe motherhood in countries*, WHO/FHE/MSM/94.11. Protocols vary according to country policy and programs.
25. Pregnancy, delivery, and breastfeeding put a considerable strain on a woman's body. Pregnancies less than two years apart increase the strain. Severe anemia is common in women with frequent pregnancies. A woman's body needs at least 3 years to recover between pregnancies. Arkutu, A.A. (1995). *Healthy Women, Healthy Mothers: An Information Guide*, 2nd Edition. Family Care International, New York.

26. New studies show that longer intervals are even better for infant survival and health, and for maternal survival and health as well. Children born 3 to 5 years after a previous birth are about 2.5 times more likely to survive than children born before 2 years. *Population Reports*, Volume XXX, Number 3, Summer 2002 Series L, Number 13. Issues in World Health.
27. Care During Pregnancy: Health Promotion for Mothers, Partners, and Communities:
- Health education is effective in improving the numbers of women who seek skilled attendance with lower rates of stillbirths and neonatal deaths.
 - Women and men desire more information on birth, breastfeeding, family planning, and couple communication.
 - Training providers to involve men in maternity care and provide STI counseling and services can increase the numbers of men accompanying their wives to ANC clinics ‡.
 - Educating male partners and family members concerning safe motherhood improves ANC attendance.
 - Educating male partners concerning safe motherhood improves maternal health outcomes.
 - Community education programs as well as individual counseling programs about danger signals requiring EmOC can increase knowledge and use of EmOC, and are effective in increasing referrals to EmOC.
 - Women, families, and communities should be counseled on the short-term and long-term positive effects of breastfeeding for the health of infants and the mother, and the need and/or provision of adequate nutrition for the breastfeeding woman.

‡ “Involvement of male partners, while respecting women’s autonomy for decision making, can increase needed care during pregnancy and birth. ‘The process of bringing men in needs to be carefully considered so that in no way are we undermining the often precarious rights of women to control their own bodies and make their own decisions . . . It must always be kept in mind that what needs to be protected at all costs is the right of each individual woman not to involve her partner if she so chooses—without the need of an explanation.’ (Raju S and A Leonard (eds.) 2000. *Men as Supportive Partners in Reproductive Health: Moving from Rhetoric to Reality*. Population Council South and East Asia Regional Office. p. 51)”

Gay J, Hardee K, et al. *What Works: Safe Motherhood*. Policy Project, Washington: 2003, p. 65–74.

28. Information found in *Promoting Quality Maternal and Newborn Care: A Reference Manual for Program Managers*. (1998). Cooperative for Assistance and Relief Everywhere, Inc. (CARE), Chapter 5; and Buffington, S., Sibley, L., Beck, D., Armbruster, D. (2004). *Home Based Life Saving Skills*. Community Meetings 3 and 4. American College of Nurse-Midwives, Silver Spring, MD, U.S.A.
29. Key elements of birth planning: What to expect during pregnancy; Danger signs of pregnancy, childbirth, and postpartum; Importance of a skilled provider at birth; Know which health facility to go to if a complication arises; Know how to get to facility; Develop a plan to pay for complication services; Importance of immediate and exclusive breastfeeding; Recognize danger signs for newborns; Importance of family planning and where to get services. *Promoting Quality Maternal and Newborn Care: A Reference Manual for Program Managers*. (1998). Cooperative for Assistance and Relief Everywhere, Inc. (CARE), Chapter 5.
30. Community supports and values use of ANC, recognizes danger signs and implements complication readiness plan, supports mother- and baby-friendly decision-making, promotes concept of birth preparedness and complication readiness, has community financing funds, has functional transport system, has functional blood donor system, conducts dialogue with providers to ensure quality of care, supports the facility that serves the community. JHPIEGO. “Birth Preparedness and Complication Readiness: a matrix of shared responsibility. (2001). Baltimore, U.S.A.

Women face several barriers that may delay them from seeking or receiving skilled delivery care during a life-threatening emergency. These ‘four delays’ are Delay 1) recognizing danger signs; Delay 2) deciding to seek care; Delay 3) reaching appropriate care; and Delay 4) receiving care at health facilities. Ransom R, and Yinger N (2002). *Making Motherhood Safer: Overcoming Obstacles on the Pathway to Care*. Population Reference Bureau.

31. “Traditional birth attendants (TBAs) and community volunteers can be effective in distributing iron tablet supplements.” Gay J, Hardee K, et al. *What Works: Safe Motherhood*. Policy Project, Washington: 2003, p. 64.
- See also: Sibley L, Sipe TA, and Koblinsky M, “Does TBA Training Increase Use of Antenatal Care? A Review of the Evidence” *Journal of Midwifery and Women’s Health*. (2004) ACNM; and Sibley L, Sipe TA, and Koblinsky M, “Does TRA Training Improve Referral of Women with Obstetric Complications: A Review of the Evidence” *Social Science and Medicine*. (2004) Elsevier Ltd.
32. Delay 3: Reaching the Health Facility. Once the decision has been made that the mother or the newborn should seek emergency care, availability and cost of transport are common barriers. The key to overcoming this problem, especially in isolated communities with few resources, is community participation. A community that has discussed and recognized underlying reasons for delays in transportation can often prevent these delays. A specific community plan for transport emergencies can be helpful, even in remote areas. *The Healthy Newborn: A Reference Manual for Program Managers, CARE, 2001, Part 4, pg. 4.14*
33. Buffington, S., Sibley, L., Beck, D., Armbruster, D. *Home Based Life Saving Skills, Guidelines for Decision Makers and Trainers*, American College of Nurse-Midwives, Silver Spring, Maryland, U.S.A., 2004 pg. 32
34. First level is defined as physicians and/or midwives, nurses, paramedical and support staff providing Basic Emergency Care in health center and during referral. World Health Organization, *Mother-Baby Package: Implementing safe motherhood in countries*, WHO/FHE/MSM/94.11, page 12. Facilities vary according to country.
35. “Routine ANC provided by midwives or general practitioners can have similar outcomes as when ANC is provided by obstetricians-gynecologists. Midwives can be trained to provide EmOC. Midwives, particularly with training, can become sources of health information for pregnant women.” Gay J, Hardee K, et al. *What Works: Safe Motherhood*. Policy Project, Washington: 2003, p. 63.
36. Household birth planning includes preparation for birth using the five cleans, locating a birth attendant and planning for contacting attendant at time of delivery, having a transportation plan in case of emergency, family caregivers ready to help at home as needed, having some money for care during emergency and transportation, finding people willing to give blood if this is needed, and decision makers available during pregnancy. (If decision makers must travel, agreements should be reached for travel and care in case of an emergency.) Buffington, S., Sibley, L., Beck, D., Armbruster, D. (2004). *Home Based Life Saving Skills*. Community Meetings 3 and 4. American College of Nurse-Midwives, Silver Spring, MD, U.S.A.
37. One complication that may present is pre-eclampsia. “Once identified, there is still no clearly defined treatment or effective intervention to prevent pre-eclampsia becoming eclampsia.” Gay J, Hardee K, et al. *What Works: Safe Motherhood*. Policy Project, Washington: 2003, p. 59
38. “Sulphadoxine-pyrimethamine is an effective prophylaxis for malaria among pregnant women, including those who are HIV-positive.” *Ibid.* p. 55.
39. “Artemisinin drugs can be superior to quinine in preventing death in severe or complicated malaria, especially for multidrug resistant malaria, but recurrence of malaria after treatment is frequent . . . Combining artemisinin with other agents, such as mefloquine or lumofantrine, while expensive, provides effective treatment for malaria and less likelihood of the disease recurring.” *Ibid.*, p. 56.
40. “Routine counseling and offer of HIV testing should be made to all pregnant women.” UNAIDS/WHO Policy Statement on HIV testing (June 2004). UNAIDS/WHO.

41. Essential laboratory tests: urine analysis for albumin and diabetes, blood analysis for blood type/Rh, sickle cell (as appropriate) hemoglobin and hematocrit for anemia (use visual screening where lab not available), counseling and testing for HIV according to government protocols. Syndromic screening may be used where tests are not available. Beck D, Buffington S, McDermott J, Berney K (1998). *Healthy Mother Healthy Newborn Care*. American College of Nurse-Midwives, Washington, D.C., USA and World Health Organization, *Mother-Baby Package: Implementing safe motherhood in countries*, WHO/FHE/MSM/94.11, pages 27, 29, 30, 31, 33.
42. “Clinical interventions can increase abused women’s safety-seeking behavior... A simple abuse assessment protocol during ANC can lead to increased detection of abuse and referral.” Gay J, Hardee K, et al. *What Works: Safe Motherhood*. Policy Project, Washington: 2003, p. 61–62.
43. “ ‘Gender sensitivity’ is the way service providers treat male or female clients in service delivery facilities and thus affects client willingness to seek services, continue to use services, and carry out the health behaviors advocated by the services. This indicator also measures aspects of the services themselves (e.g. in the case of family planning, whether a range of male as well as female methods is offered) . . . For a service delivery facility to demonstrate gender-sensitivity, it must adhere to the principles of informed choice, voluntarism and a target-free approach, which might otherwise not be the case given the low status of women in the locality. A gender-sensitive approach has much in common with a quality of care approach. A program cannot be gender-sensitive if both male and female clients fail to receive complete information and to participate fully in decisions regarding their care and treatment. Many women want opportunities to involve their partners in counseling and in decisions concerning contraceptive use and reproductive and child health. Similarly, many men wish to participate in RH counseling as well as in decisions regarding reproductive and child health, but have felt excluded from this arena.”
- A menu of indicators is provided in Bertrand J and Escudero G. *Compendium of Indicators for Evaluating Reproductive Health Programs*. MEASURE Evaluation: 2002, pp. 196–7.
44. “Before HIV testing, health care providers should provide the following minimum information: HIV is the virus that causes AIDS. HIV is spread through unprotected sexual contact and injection-drug use. Approximately 25% of HIV-infected pregnant women who are not treated during pregnancy can transmit HIV to their infants during pregnancy, during labor /delivery, or through breastfeeding. A woman might be at risk for HIV infection and not know it, even if she has had only one sex partner. Effective interventions (such as highly active combination anti-retroviral) for HIV-infected pregnant women can protect their infants from acquiring HIV and can prolong the survival and improve the health of these mothers and their children. For these reasons, HIV testing is recommended for all pregnant women. Services are available to help women reduce their risk for HIV and to provide medical care and other assistance to those who are infected. Women who decline testing will not be denied care for themselves or their infants.” CDC Recommends: Prevention Guidelines System. (2001/2002).
- Revised Recommendations for HIV Screening of Pregnant Women*, MMWR 50(RR19); 59–86, CDC, Atlanta, GA, USA. <http://www.phppo.cdc.gov/cdcRecommends>. Protocols vary by country.
45. HIV and Infant Feeding Counseling Guidelines in Resource-Poor Communities Health Worker Guidelines
- Mother’s HIV status is unknown:*
- Promote availability and use of confidential testing
 - Promote breastfeeding as safer than artificial feeding ‡
 - Teach mother how to avoid exposure to HIV
- HIV-negative mother:*
- Promote breastfeeding as safest infant feeding method (exclusive breastfeeding for first 6 months, introduction of appropriate complementary foods at about 6 months, and continued breastfeeding to 24 months and beyond)
 - Teach mother how to avoid exposure to HIV

HIV-positive mother who is considering her feeding options:

- Treat with anti-retroviral drugs, if feasible
- Counsel mother on the safety, availability, and affordability of feasible infant feeding options
- Help mother choose and provide safest available infant feeding method
- Teach mother how to avoid sexual transmission of HIV

HIV-positive mother who chooses to breastfeed:

- Promote safer breastfeeding (exclusive breastfeeding up to 6 months, prevention and treatment of breast problems of mothers and thrush in infants, and shortened duration of breastfeeding when replacements are safe and feasible)

HIV-positive mother who chooses to feed artificially:

- Help mother choose the safest alternative infant feeding strategy (methods, timing, etc.)
- Support her in her choice (provide education on hygienic preparation, health care, family planning services, etc.)

‡ Where testing is not available and where mothers' HIV status is not known, widespread use of artificial feeding would improve child survival only if the prevalence of HIV is high and if the risk of death due to artificial feeding is low, a combination of conditions that does not generally exist.

Breastfeeding and HIV/AIDS: Frequently Asked Questions. (April, 2004). LINKAGES Project. <http://www.linkagesproject.org/publications/index.php> Protocols vary by country.

46. "During the first two months of life, babies who are not breastfed have a six times greater risk of dying from infections . . ." WHO Collaborative Study Team. On the role of breastfeeding on the prevention of infant mortality. *Effect of Breastfeeding on infant and child mortality due to infectious diseases in less developed countries: A pooled analysis.* Lancet 2000; 355: 451–455.
47. "HIV passes via breastfeeding to about 1 out of 7 infants born to HIV-infected women . . . the lack of breastfeeding is also associated with a three- to five-fold increase in infant mortality. Infants can die from either the failure to appropriately breastfeed or from the transmission of HIV through breastfeeding."

Breastfeeding and HIV/AIDS: Frequently Asked Questions. (2001). LINKAGES Project. http://www.linkagesproject.org/FAQ_Html/FAQhivrev.htm

48. Second level is defined as physicians, midwives, nurses, paramedical, and support staff providing *Comprehensive Emergency Care (includes operations and blood transfusions)* in district hospital and during referral to tertiary facility. World Health Organization, *Mother-Baby Package: Implementing safe motherhood in countries*, WHO/FHE/MSM/94.11, page 12. Facilities vary according to country.
49. Significant signs of complications of pregnancy include shock, vaginal bleeding, headache/ blurred vision/convulsions, fever, abdominal pain, difficulty breathing, loss of fetal movements, pre-labor rupture of membranes.

Integrated Management of Pregnancy and Childbirth (IMPAC), *Managing Complications in Pregnancy and Childbirth: A guide for midwives and doctors.* (2000), World Health Organization. WHO/RHR/00.7.

50. Essential drugs for managing complications in pregnancy include: antibiotics, steroids, emergency drugs, IV fluids, anticonvulsants, antihypertensives, oxytocics, anaesthetics, analgesics, sedatives, antimalarials, and supplements (tetanus, iron, folic acid, vitamin K). Integrated Management of Pregnancy and Childbirth (IMPAC), *Managing Complications in Pregnancy and Childbirth: A guide for midwives and doctors.* (2000), World Health Organization. WHO/RHR/00.7.

Intervention Focus: Labor and Delivery [LD]

Note: the progression represented by the layout of this list (household, community, first-level, second-level) is 'best practice' regarding normal and complicated deliveries. In other words, standards and illustrative indicators for normal deliveries are listed under 'household' and 'community'; standards and illustrative indicators for complicated deliveries are included under 'first-level' and 'second-level'.

RECOMMENDED PRACTICES AND STANDARDS OF CARE

INDICATORS

HH Household Level¹ (LDHH): The household prepares for a safe and clean birth, and has an emergency plan.

LDHH S-1. Pregnant women/families/caregiver know² signs of complications during labor and delivery³:

1. Heavy bleeding
2. Labor longer than 12 hours
3. Convulsions
4. Pushing more than one hour
5. Malpresentation or head not down or baby's head is not coming first⁵
6. Fever, chills
7. Membranes ruptured⁶ for more than 12 hours before labor

LDHH I-1. Percent of pregnant women and family who are able to state at least three danger signs of labor and delivery^{** **}
(Means of verification [MOV]: population-based survey; client or exit interviews)

LDHH I-2. Percent of caregivers who are able to state at least three danger signs of labor and delivery^{** **}
(MOV: population-based survey; Community-based assessment [community assessment])

LDHH I-3. Percent of pregnant women who arrive at the facility due to labor and delivery complications.
(MOV: HF records)

LDHH S-2. Pregnant women and their families have a birth plan that includes an emergency plan⁷

LDHH I-4. Percent of pregnant women and their families who have a birth plan that includes an emergency plan
(MOV: population-based survey; client or exit interviews)

LDHH S-3. Pregnant women/families/caregivers use clean birth practices⁸:

Pregnant women/families:

1. Clean surface
2. Clean cord to tie cord
3. Clean blade to cut cord
4. Clean pads, cloths, and clothes for mother
5. Clean cloth to wrap baby

LDHH I-5. Percent of pregnant women and their families who are able to list basic clean birth practices
(MOV: population-based survey; client or exit interviews)

LDHH I-6. Percent of caregivers who are able to list basic clean birth practices
(MOV: population-based survey; community assessment)

LDHH I-7. Percent of recent mothers who report use of clean birth practices during her last delivery
(MOV: population-based survey; client or exit interviews)

LDHH I-8. Percent of caregivers who report use of clean birth practices in every birth during the last 12 months
(MOV: population-based survey; community assessment)

Caregivers:

6. Clean hands, apron and gloves

Intervention Focus: Labor and Delivery [LD]

RECOMMENDED PRACTICES AND STANDARDS OF CARE

INDICATORS

Household Level¹ (LDHH): The household prepares for a safe and clean birth, and has an emergency plan.

- LDHH S-4. Pregnant women/their families/caregivers can assist the birth using safe practices:
1. Allow free position to women during labor and birth, but avoid flat on the back
 2. Allow the mother to eat and drink as she wants⁹
 3. Allow spontaneous pushing
 4. Do not use any kind of uterotonic (tea, herbs, drugs)¹⁰
 5. Make sure that the placenta comes out¹¹
 6. Completely dry the newborn, then put the baby skin-to-skin on the abdomen of the mother immediately after birth, and cover both¹²

- LDHH I-9. Percent of pregnant women and their families who are able to list basic safe birth practices
(MOV: population-based survey; client or exit interviews)
- LDHH I-10. Percent of caregivers who are able to list basic safe birth practices
(MOV: population-based survey; community assessment)
- LDHH I-11. Percent of recent mothers who report use of safe birth practices in her last birth
(MOV: population-based survey; client or exit interviews)
- LDHH I-12. Percent of caregivers who report use of safe birth practices in every birth during the last 12 months
(MOV: population-based survey; community assessment)

LDHH S-5. Pregnant women/their families/caregivers know home-based life saving skills (HBLSS)¹³ to provide emergency care in the home.¹⁴

1. Identify signs of complications
 - a) too much bleeding—call for help, rub womb, stimulate nipples or baby to breast, squat and pass urine, external massage and uterine compression, apply pressure with cloth/pad to bleeding site, refer¹⁵
 - b) birth delay—squat and pass urine, position changes, fluids, refer¹⁶
 - c) swelling and fits—support to the mother during a convulsion, refer¹⁷
 - d) sickness with pain and fever—position semi-sitting, cover, 1 cup fluids every hour, sponge bathe, paracetamol 1000mg every 6 hours, pass urine, when baby has delivered then breastfeed every 2–3 hours, refer¹⁸
2. Safe referral (position lying down, warm, fluids, companion go to skilled provider, tell what happened, what was done)¹⁹

- LDHH I-13. Percent pregnant women and their families who are able to describe emergency care in the home
(MOV: population-based survey; client or exit interviews)
- LDHH I-14. Percent of caregivers who can demonstrate emergency care in the home
(MOV: HF records)

LDHH S-6. Skilled providers assist women during birth.

LDHH I-15. Percent of children aged 0–23 months whose delivery was attended by a skilled health personnel^{20*}
(MOV: population-based survey)

Key Indicator Definition: *Numerator:* Number of women who delivered with a doctor, nurse midwife, or auxiliary midwife. *Denominator:* Total number of children aged 0–23 months.

Also see LDHH I-4.

Intervention Focus: Labor and Delivery [LD]

RECOMMENDED PRACTICES AND STANDARDS OF CARE

INDICATORS

C Community Level (LDCL): Standards in addition to household level; The community supports families in efforts to ensure safe and clean deliveries, and mobilizes around emergency plans.

LDCL S-1. Community is mobilized around an emergency finance scheme, emergency transport²² scheme, and blood donor pool^{23, 24, 25}

LDCL I-1. Percent of communities with an emergency transport plan in place (MOV: HF records; community assessment survey)

Key Indicator Definition: *Numerator:* Number of communities that have an emergency transport system; *Denominator:* Number of communities

LDCL I-2. Percent of communities that have an emergency financing system (MOV: HF records; community assessment)

LDCL I-3. Percent of communities that have a blood donor system (MOV: HF records; community assessment)

LDCL I-4. Percent of communities that have used an emergency transport plan (MOV: HF records; community assessment)

LDCL S-2. Apply LDHH S-1 to TBAs/CHWs/skilled providers

LDCL I-5. Percent of TBAs/CHWs/skilled providers who are able to state at least three danger signs of labor and delivery^{**} (MOV: HF records; TBA survey)

LDCL S-3. Apply LDHH S-5 to TBAs/CHWs/skilled providers.

LDCL I-6. Percent of TBAs/CHWs/skilled providers who can demonstrate HBLSS (MOV: HF records; TBA survey)

LDCL S-4. TBAs/CHWs/skilled providers are linked with health facilities to ensure timely/efficient referral of complications.²⁶

LDCL I-7. Percent of TBAs/CHWs/skilled providers who regularly meet with health facility staff (MOV: HF records)

Intervention Focus: Labor and Delivery [LD]

RECOMMENDED PRACTICES AND STANDARDS OF CARE

INDICATORS

C Community Level (LDCL): Standards in addition to household level; The community supports families in efforts to ensure safe and clean deliveries, and mobilizes around emergency plans.

LDCL S-5. Apply LDHH S-3 to TBAs/CHWs/skilled providers

LDCL I-7. Percent of TBAs/CHWs/skilled providers who regularly meet with health facility staff (MOV: HF records)

LDCL I-8. Percent of TBAs/CHWs/skilled providers who are able to list basic clean birth practices (MOV: population-based survey; c. assessmt.)

LDCL I-9. Percent of TBAs/CHWs/skilled providers who report use of clean birth practices in every birth during the last 12 months

(MOV: population-based survey; community assessment)

See also *LDHH I-5 and LDHH I-7.*

LDCL S-6. Apply LDHH S-4 to TBAs/CHWs/skilled providers

LDCL I-10. Percent of TBAs/CHWs/skilled providers who are able to list basic safe birth practices (MOV: population-based survey; community assessment)

LDCL I-11. Percent of TBAs/CHWs/skilled providers who report use of safe birth practices in every birth during the last 12 months

(MOV: population-based survey; community assessment)

See also *LDHH I-9 and LDHH I-11.*

Intervention Focus: Labor and Delivery [LD]

RECOMMENDED PRACTICES AND STANDARDS OF CARE

INDICATORS

1 First Level²⁷ (LDFL): Standards in addition to the above levels. Health facilities are staffed with skilled attendants and stocked with essential supplies to ensure safe and clean deliveries. Health facilities work with communities to reduce delays in complication recognition and treatment.

- LDFL S-1. Skilled attendants are able to identify and implement basic management of labor and delivery complications according to the WHO guidelines^{2,8}
1. Hemorrhage
 2. Prolonged expulsive phase
 3. Obstructed labor
 4. Severe pre-eclampsia and eclampsia
 5. Retained placenta/pieces
 6. Cervical tears
 7. Hypovolemic shock
 8. Sepsis

LDFL I-1. Percent of health providers trained to identify and manage L&D complications (MOV: HF records)

LDFL I-2. Percent of pregnant women with L&D complications managed according to protocols (MOV: HF records)

LDFL I-3. Percent of women with obstetrical complications treated within two hours at a health facility^{*,**} (MOV: HF records; client or exit interview)

- LDFL S-2. Health providers are able to use best practices to promote the normal labor process:²⁹
1. Use partograph
 2. Encourage walking around (free ambulation)
 3. Allow companion husband/family/friends as desired by the woman
 4. Encourage the woman in labor to take any position she finds comfortable, avoiding lying on her back³⁰
 5. Use natural ways to manage pain
 6. Encourage the woman to drink nourishing fluids or water during labor
 7. Encourage a woman in labor to pass urine every two hours
 8. Avoid unnecessary interventions (enema, shave, routine IV fluids, excess vaginal examination, routine episiotomy)
 9. Encourage spontaneous pushing
 10. Assure privacy, confidentiality/stigma

LDFL I-4. Percent of health providers who use best practices to promote normal labor process (MOV: HF records)

Intervention Focus: Labor and Delivery [LD]

RECOMMENDED PRACTICES AND STANDARDS OF CARE

INDICATORS

1 First Level²⁷ (LDFL): Standards in addition to the above levels. Health facilities are staffed with skilled attendants and stocked with essential supplies to ensure safe and clean deliveries. Health facilities work with communities to reduce delays in complication recognition and treatment.

- LDFL S-3.** Health facilities with equipment and supplies available for EOC³¹ during L&D according to protocols:
1. Use partograph
 2. Normal birth
 3. Perform active management of third stage of labor³²
 4. Perform manual removal of retained placenta/pieces
 5. Perform assisted vaginal delivery (vacuum extraction or forceps)
 6. Administer antibiotics, anticonvulsants, and uterotonics IM or IV and IV fluids or blood transfusions
 7. Cesarean surgical resolution if needed

LDFL I-5. Percent of EOC facilities that:

- a) have equipment and supplies; and
 - b) use protocols
- (MOV: HFA; HF records)

LDFL I-6. Number of facilities per 500,000 population providing essential obstetric functions^{**}

(MOV: HFA)

LDFL I-7. Percent of health providers trained in the practice of active management of third stage of labor

(MOV: HF records)

LDFL I-8. Percent of vaginal deliveries documented as having active third stage management of labor

(MOV: HF records)

LDFL I-9. Percent of pregnant women with obstetric complications treated in EOC facilities^{**}

(MOV: HF records)

LDFL S-4. Proactive activities during labor and delivery to prevent maternal-to-child transmission (PMTCT) of HIV during labor and delivery:

1. Avoid rupture of membranes before the birth
2. Avoid vaginal examinations
3. Promote vaginal delivery
4. Use universal precautions
5. Education on breastfeeding options
6. Give anti-retroviral medication (per specific drug and country protocol)

LDFL I-10. Percent of health providers trained in PMTCT

(MOV: HF records)

LDFL I-11. Percent of HIV-positive women who received appropriate treatment in labor, according to PMTCT recommendations

(MOV: HF records)

LDFL I-12. Percent of previously untested women in labor who received appropriate counseling and testing for HIV/AIDS

(MOV: HF records)

Intervention Focus: Labor and Delivery [LD]

RECOMMENDED PRACTICES AND STANDARDS OF CARE

INDICATORS

1 First Level²⁷ (LDFL): Standards in addition to the above levels. Health facilities are staffed with skilled attendants and stocked with essential supplies to ensure safe and clean deliveries. Health facilities work with communities to reduce delays in complication recognition and treatment.

LDFL S-5. Health facilities have maternal and neonatal clinical records in place, including labor and delivery information (process, outcome, interventions and treatment if needed)

LDFL S-6. Health facilities have a referral and answer system functioning

LDFL I-13. Percent of health facilities that maintain complete maternal records (MOV: HFA)

LDFL I-14. Percent of health facilities that have a referral and answer system in place (MOV: HFA)

LDFL I-15. Percent of health facilities that have record of referrals and answer (counter-referral) (MOV: HFA)

LDFL I-16. Percent of health facilities that have a method for eliciting/seeking community input re: labor and delivery services (MOV: HFA)

LDFL I-17. Percent of health facilities that have met with community committee or key community group/member(s) during past 3 months (MOV: HF records)

LDFL I-18. Percent of health facilities that have program/plan to reach community with information about birth planning, danger signs, and referral (MOV: HFA)

Intervention Focus: Labor and Delivery [LD]

RECOMMENDED PRACTICES AND STANDARDS OF CARE

INDICATORS

2 Second Level³³ (LDSL): Standards in addition to the above levels; Secondary health facilities provide emergency obstetric care.

LDSL S-1. Health facilities with equipment and supplies available for emergency obstetric care (EmOC³⁴) during L&D according to protocols, which include

1. EOC in addition to
2. Surgery
3. Anesthesia
4. Blood replacement

LDSL I-1. Percent of cesarean sections ^{35**}
Also see LDFL I-6 and I-9.

* Source: derived or taken directly from KPC 2000+; CSTS, CORE.

** Source: derived or taken directly from Gay J, Hardee K, et al. *What Works: Safe Motherhood*. Policy Project, Washington: 2003

*** Source: derived or taken directly from Bertrand J and Escudero G. *Compendium of Indicators for Evaluating Reproductive Health Programs*. MEASURE Evaluation: 2002.


Endnotes

1. Household level is defined as the mother of the baby, her family and helpers providing first aid in the home or during referral. Buffington, S., Sibley, L., Beck, D., Armbruster, D. (2004). *Home Based Life Saving*. Guidelines for Decision Makers and Trainers. American College of Nurse-Midwives, Silver Spring, MD, USA.
2. “Know” refers to the percentage that can spontaneously name at least the primary warning signs of specific obstetric complications . . . Bertrand, Jane, T. and Gabriela Escudero August 2002, *Compendium of Indicators for Evaluating Reproductive Health Programs*, MEASURE Evaluation Series, No. 6, p. 293.
3. Some problems can be prevented if the woman/family understand what actions to do. Sometimes it is not easy to tell when a problem is going to happen. The labor may be too long when the baby is not in a head-down position, the baby is too big to come out, something blocks or stops the baby from coming out, the mother is too weak and tired, the mother has no strength to push, the womb is too weak and tired, the birth pains are not strong. Buffington, S., Sibley, L., Beck, D., Armbruster, D. (2004). *Home Based Life Saving*. Guidelines for Decision Makers and Trainers. Community Meetings 3 and 4. American College of Nurse-Midwives, Silver Spring, MD, USA.

See also: *Promoting Quality Maternal and Newborn Care*, CARE, 1998, Chapter 5, pg. 5.31
4. “It is not normal to bleed too much after birth. When the bleeding is any amount of continuous bleeding, or large fist-sized clots, or the woman has weakness and fainting, it is very serious.” *Home Based Life Saving Skills* Community Meeting 5, p. 26.
5. If the baby’s head IS down, the birth is more likely to go well. If the baby’s head IS NOT down, the birth may be difficult. It is safer for the mother and her baby to give birth at a facility with trained staff. Burns, A.A., Lovich, R., Maxwell, J., Shapiro, K., (1997). *Where Women Have Not Doctor: A Health Guide for Women*. The Hesperian Foundation, Berkeley, CA, USA.
6. If at all possible, it is best to go to a referral facility as soon as possible. “. . . rupture of membranes can increase chances of infection, increase the difficulty of the labor for mother and baby, and increase risk of mother-to-child transmission of HIV . . . if bag ruptures spontaneously . . . delivery should occur in less than 4 hours.” Israel, E., and Kroeger, M. 2003. *Integrating Prevention of Mother-to-Child HIV Transmission into Existing Maternal, Child, and Reproductive Health Programs*. Technical Guidance Series. Pathfinder International. Watertown.
7. “. . . planning for childbirth is important because the window of opportunity to treat women and newborns is short. Reducing the four delays to accessing and receiving services can make the difference between life and death. It is important to encourage women and their families to think about the practical aspects of seeking obstetric services prior to an emergency.” *Promoting Quality Maternal and Newborn Care*, CARE, 1998, Chapter 5, pg. 5.36
8. Minimum clean birth things at home: 1. Clean surface, 2. Clean cord to tie cord, 3. Clean blade to cut cord, 4. Clean pads, cloths, and clothes for mother, 5. Clean cloth to wrap baby, 6. Caregivers: Clean hands, apron and gloves. Buffington, S., Sibley, L., Beck, D., Armbruster, D. (2004). *Home Based Life Saving Skills* Community Meetings 3 and 4, and Beck, D., Buffington, S., McDermott, J., Berney, K. (1998). *Healthy Mother Healthy Newborn Care*. Both are publications of American College of Nurse-Midwives, Silver Spring, MD USA.
9. “Adequate food and drink during labor is advised to improve fetal outcomes and maternal well-being.” Gay J, Hardee K, et al. *What Works: Safe Motherhood*. Policy Project, Washington: 2003, p. 171.
10. “Uterotonic drugs include: oxytocin, ergometrin, prostaglandin and misoprostol.” *Basic Maternal and Newborn Care: A Guide for Skilled Providers*. JHPIEGO (2004). Table 3-3 Uterotonic Drugs, p. 3–106.

11. “Wait for the placenta to come out. Do not squeeze, push, or press on the womb. Do not pull on the cord. After placenta comes out, rub the womb, put placenta into waterproof container.” *Home Based Life Saving Skills*, Community Meeting 3, p. 57 American College of Nurse-Midwives, Silver Spring, Maryland, USA. 2004
12. “Mother holds the baby in good sucking position to breastfeed.” Ibid.
13. Home Based Life Saving Skills, Community Meetings 2 and 4, American College of Nurse-Midwives, Silver Spring, Maryland, USA. 2004
14. The principle of obstetric first aid is to provide immediate measures that can stabilize the woman and not inflict harm. Table 5.13, page 56 describes current best practices of childbirth. Table 5.15 describes actions that a family member or a TBA can be trained to perform in the community to stabilize the woman while mobilizing and carrying out the referral, pg. 5.65. In case of hemorrhage, reduce or stop bleeding; convulsions, take measures to prevent the woman from hurting herself before anticonvulsants are administered; in case of fever or rupture of membranes, administer antibiotics or antipyretics orally as a temporary measure before being transferred, pg. 5.63. Promoting Quality Maternal and Newborn Care, CARE, 1998, Chapter 5.
15. Home Based Life Saving Skills, Community Meeting 5, American College of Nurse-Midwives, Silver Spring, Maryland, USA. 2004
16. Ibid. Meeting 7
17. Ibid. Meeting 8
18. Ibid. Meeting 6
19. MOTHER CARE: Call for help, lay the woman down, cover to keep warm, give liquids to drink, go directly to the skilled provider at the referral place, tell what happened and what was done. NEWBORN CARE: Before birth: Help mother/family prepare for birth and in case of an emergency have money and transportation. At birth: Perform resuscitation, keep warm and go with family to referral site. Other signs of complications: help mother/family hold baby, keep baby warm, give baby breast milk, give antibiotics according to country protocols, and go with family to referral site. Buffington, S., Sibley, L., Beck, D., Armbruster, D. (2004). *Home Based Life Saving Skills* Community Meeting 4. American College of Nurse-Midwives, Silver Spring, MD, USA.
20. “A skilled attendant” is a health professional—a midwife, doctor or nurse—who has been educated and trained to proficiency in the skills needed to manage normal deliveries and diagnose, manage or refer obstetric complications.” WHO: Fact sheet, *Making pregnancy safer*. 2/2004
21. Community Level is defined as traditional birth attendants, junior health staff, local leaders, women’s groups, community workers, traditional healers, other families providing *first aid including specific medications per country protocol* in the home, health post, or during referral. Buffington, S., Sibley, L., Beck, D., Armbruster, D. (2004). *Home Based Life Saving*. Guidelines for Decision Makers and Trainers. American College of Nurse-Midwives, Silver Spring, MD, USA.
22. “Successful transportation systems linked to EmOC have decreased the number of maternal deaths . . . Transportation networks for maternal health can be arranged.” Gay J, Hardee K, et al. *What Works: Safe Motherhood*. Policy Project, Washington: 2003, p. 171.
23. Delay 3: Reaching the Health Facility. Once the decision has been made that the mother or the newborn should seek emergency care, availability and cost of transport are common barriers. The key to overcoming this problem, especially in isolated communities with few resources, is community participation. A community that has discussed and recognized underlying reasons for delays in transportation can often prevent these delays. A specific community plan for transport emergencies can be helpful, even in remote areas. *The Healthy Newborn: A Reference Manual for Program Managers*, CARE, 2001, Part 4, pg. 4.14

24. In each setting the communication and transportation needs will vary. However, some common principles that must be in place to ensure access to obstetric services are: 1) They must be easily accessible (community must know where to find them), 2) They must be affordable, 3) They must be safe, 4) They must be reliable, 5) They must be adaptable in order to deal with seasonal variations, 6) They must be efficient (know which facility to go to and fastest way to get there), 7) They must be culturally appropriate, 8) They must be technologically appropriate so that they can be properly maintained, 9) They must be endorsed by the community and transport workers, and 10) They must be available 24 hours a day. *Promoting Quality Maternal and Newborn Care*, CARE, 1998, Chapter 5, pg. 5.62
25. “Ensuring adequate blood supplies that have been screened for HIV can avert maternal deaths.” Gay J, Hardee K, et al. *What Works: Safe Motherhood*. Policy Project, Washington: 2003, p. 171.
26. Improving linkages among the health workers, the community leaders, TBAs, village doctors and the private sector can encourage health-seeking practices. *Promoting Quality Maternal and Newborn Care*, CARE, 1998, Chapter 5, pg. 5.60
27. First level is defined as physicians and/or midwives, nurses, paramedical and support staff providing *Basic Emergency Care* in health center and during referral. World Health Organization, *Mother-Baby Package: Implementing safe motherhood in countries*, WHO/FHE/MSM/94.11, page 12. Facilities vary according to country.
28. *Managing Complications in Pregnancy and Childbirth: A guide for midwives and doctors*, WHO 2000
29. Beck, D., Buffington, S., McDermott, J., Berney, K. (1998). *Healthy Mother Healthy Newborn Care*. American College of Nurse-Midwives, Washington, D.C., USA, pgs. 110–111
30. “Allowing women to choose the position in which they want to deliver and increased mobility for women during labor leads to decreased use of analgesia and reduces time in labor . . . An upright position during labor increases positive health outcomes for the mother.” Gay J, Hardee K, et al. *What Works: Safe Motherhood*. Policy Project, Washington: 2003, p. 171.
31. “EOC facilities administer parenteral antibiotics, parenteral oxytocic drugs, parenteral anticonvulsants for pre-eclampsia and eclampsia, and perform manual removal of the placenta, removal of retained products (e.g. manual vacuum aspiration), and assisted vaginal delivery” *Ibid.*, p. 165.
32. Active management of the third stage of labor includes: immediate after-birth use of 10 IU oxytocin IM, controlled cord traction and uterine massage. *Managing Complications in Pregnancy and Childbirth: A guide for midwives and doctors*, WHO 2000, C-73
33. Second level is defined as physicians, midwives, nurses, paramedical, and support staff providing *Comprehensive Emergency Care (includes operations and blood transfusions)* in district hospital and during referral to tertiary facility. World Health Organization, *Mother-Baby Package: Implementing safe motherhood in countries*, WHO/FHE/MSM/94.11, page 12. Facilities vary according to country.
34. “EmOC includes parenteral (administered by IV) antibiotics; parenteral oxytocic drugs; parenteral sedatives for eclampsia; manual removal of placenta; manual removal of retained products plus surgery (including cesarean section); anesthesia; and blood transfusion.” Gay J, Hardee K, et al. *What Works: Safe Motherhood*. Policy Project, Washington: 2003, p. 165.
35. Regarding Cesarean Sections, evidence indicates:
- “Access to timely and necessary cesarean sections is critical to reducing maternal mortality.
 - Use of prophylactic antibiotics at the time of cesarean sections decreases the incidence of post-operative infectious morbidity.
 - Use of a partogram can decrease rates of cesarean sections.
 - In some cases, symphysiotomy can be reasonably performed where cesarean sections are not available.

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- A subhypnotic dose of 1–2mg/kg per hour of propofol effectively controls the nausea and vomiting associated with regional anesthesia during cesarean section.
 - Vesico-vaginal fistula can be completely averted through timely cesarean section when a woman has a prolonged labor.”

Ibid., p. 172.

Intervention Focus: Postpartum Care¹ [PP]

Note: Best practice in postpartum care considers the mother-baby dyad, recognizing that this is a critical time for both mother and baby. For instructional/educational purposes, these lists maintain separate sections for postpartum and newborn care; however, integrated programming in these areas is strongly recommended. Postpartum mother and newborn should not be separated.

RECOMMENDED PRACTICES AND STANDARDS OF CARE

INDICATORS

HH Household Level (PPHH): The HOUSEHOLD² prepares for the postpartum period and is ready for complications, including accessing essential and emergency care, identifying danger signs, and establishing a supportive environment for the postpartum woman.

- PPHH S-1.** Women/families “know”³ danger signs after delivery
1. Heavy bleeding (any amount of continuous bleeding, or large fist-sized clots, or the woman has weakness and fainting)
 2. Loss of consciousness
 3. Placenta not delivered within 30 minutes after delivery
 4. Fever with or without chills
 5. Foul smelling discharge
 6. Convulsions/rigidity
 7. Headache, visual disturbances
 8. No urine output in first eight hours
 9. Severe abdominal pain

PPHH I-1. Percent of women/ family members who are able to name three danger signs after delivery^{**} (Means of verification [MOV]: population-based survey; ANC client or exit interviews)

PPHH I-2. Percent of women/families who self refer to health facility for postpartum complications (MOV: HF records)

PPHH S-2. Mothers/caregivers practice postpartum cleanliness/hygiene.⁵

PPHH I-3. Percent of women/caregivers counseled in postpartum cleanliness/hygiene (MOV: ANC client or exit interviews)

PPHH S-3. Infants are immediately breastfed in the first hour. Infants are exclusively breastfed for six months (no food or drink other than breast milk).⁶

PPHH I-4. Percent of women/ families who can state two benefits of exclusive breastfeeding for six months (MOV: population-based survey; ANC or PPC client or exit interview)

PPHH I-5. Percent of children aged 0–23 months who were breastfed within the first hour after birth* (MOV: population-based survey)

PPHH I-6. Percent of infants who were exclusively breastfed in the last 24 hours^{**} (MOV: population-based survey)⁷

PPHH I-7. Percent of mothers who can name at least two benefits of initiating breastfeeding within one hour postpartum (MOV: population-based survey; client or exit interview)

Intervention Focus: Postpartum Care¹ [PP]

RECOMMENDED PRACTICES AND STANDARDS OF CARE

INDICATORS

HH Household Level (PPHH): The HOUSEHOLD² prepares for the postpartum period and is ready for complications, including accessing essential and emergency care, identifying danger signs, and establishing a supportive environment for the postpartum woman.

- PPHH S-4.** Women/families have an emergency plan⁸:
- Know which facility to go to if a complication arises
 - Know how to get to that facility/plan for transport
 - Have money saved or access to a community fund

PPHH I-8. Percent of women/families with an emergency plan (MOV: population-based survey; client or exit interview)

PPHH S-5. All postpartum women are counseled regarding family planning options.^{9, 10}

PPHH I-9. Percent of women/families who can state at least two benefits of birth spacing (MOV: HF records; client or exit interviews)

PPHH I-10. Percent of mothers who use a method of family planning that does not interfere with breastfeeding (MOV: population-based survey; HF records; client or exit interviews)

PPHH I-11. Percent of postpartum mothers who report initiating use of a modern method of FP within six weeks after birth^{**} (MOV: population-based survey; HF records)

PPHH I-12. Percent of women who report at least one place where she can obtain a method of family planning* (MOV: population-based survey)

PPHH I-13. Percent of children aged 0–23 months who were born at least 24 months after the previous surviving child*

PPHH I-14. Percent of mothers with infants less than six months who report using LAM^{11**} (MOV: population-based survey; HF records)

Intervention Focus: Postpartum Care¹ [PP]

RECOMMENDED PRACTICES AND STANDARDS OF CARE



Household Level (PPHH): The HOUSEHOLD² prepares for the postpartum period and is ready for complications, including accessing essential and emergency care, identifying danger signs, and establishing a supportive environment for the postpartum woman.

INDICATORS

- PPHH S-6.** Postpartum mothers and newborns receive postpartum care^{1,2} at appropriate intervals from skilled personnel^{1,3}:
- Every 15 minutes for one hour and every 30 minutes for two hours after delivery ; then at:
 - Six hours
 - One day
 - Six days
 - Six weeks
 - Six months

PPHH I-15. Percent of women/families who can state two benefits of postpartum care (MOV: population-based survey; HF records; client or exit interviews)

PPHH I-16. Percent of mothers and newborns who received postpartum care at each recommended interval from skilled personnel^{1,3,4} (MOV: population-based survey; HF records; client or exit interviews)

Key Indicator Definition: *Numerator:* number of women attended at each postpartum interval by skilled personnel; *Denominator:* number of live births

- PPHH S-7.** Postpartum mothers take appropriate micronutrient supplementation:
- All postpartum women take vitamin A supplementation within six weeks as per recommendations.^{1,5}
 - Iron/folate^{1,6}

PPHH I-17. Percent of women/families who can state one benefit of postpartum iron supplementation (MOV: population-based survey; client or exit interviews)

PPHH I-18. Percent of women/families who can state one benefit of vitamin A for postpartum mother or baby (MOV: population-based survey; client or exit interviews)

PPHH I-19. Percent of anemic postpartum women who took one to two tablets of 60 mg essential iron daily for three to six months postpartum (MOV: HF records)

PPHH I-20. Percent of postpartum women who took 200,000 IU vitamin A supplementation within six weeks of delivery (MOV: population-based survey; HF records)

Intervention Focus: Postpartum Care¹ [PP]

RECOMMENDED PRACTICES AND STANDARDS OF CARE

INDICATORS

C Community Level (PPCL): The community facilitates postpartum preparedness and complication readiness at the household and community levels.

PPCL S-1. Community is mobilized for emergency finance scheme, emergency transport scheme, and blood donor pool.¹⁷

PPCL I-1. Percent of communities that have an emergency transport system (MOV: HF records; community assessment)

Key Indicator Definition: Numerator: Number of communities that have an emergency transport system; Denominator: Number of communities

PPCL I-2. Percent of communities that have an emergency financing system (MOV: HF records; community assessment)

PPCL I-3. Percent of communities that have a blood donor system (MOV: HF records; community assessment)

PPCL S-2. Community is mobilized (TBAs, CHWs, and other community members) for complication readiness and education including:

- Recognize and respond to danger signs in mother and newborn
- Obstetric first aid care in order to stabilize the woman or newborn with a complication until reaching trained health worker¹⁸
- Encourage postpartum visits
- Support consumption of iron and vitamin A supplements (when necessary)
- Support family planning choice
- Support chosen infant feeding method¹⁹
- PMTCT (in HIV/AIDS-affected areas), specifically infant feeding counseling and breast care information
- Linking with health facilities for referral, advice, and support

PPCL I-4. Percent of TBAs/CHWs/community members who can state two benefits of postpartum care (MOV: HF records; community assessment)

PPCL I-5. Percent TBAs/CHWs/community members who can name four danger signs for the woman (MOV: HF records; community assessment)

PPCL I-6. Number of TBAs/CHWs/community members trained in obstetric first aid (MOV: project or HF records)

PPCL I-7. Percent of women with postpartum complications at home who received obstetric first aid from trained TBA/community member (MOV: HF records)

PPCL I-8. Percent of trained TBAs/CHWs who can state at least two reasons why breastfeeding should be initiated within one hour postpartum (MOV: HF records; program records; community assessment)

Also see PPHH I-1 – I-15.

See other services in endnotes^{20,21}.

Intervention Focus: Postpartum Care¹ [PP]

RECOMMENDED PRACTICES AND STANDARDS OF CARE

1 First Level (PPFL): Skilled providers give postpartum care to all delivered mothers. Facilities are equipped, staffed, and managed to provide skilled care to the postpartum mother and child.

INDICATORS

- **PPFL S-1.** Health workers provide comprehensive postpartum care:
- Support mother/family
- Diagnose and treat complications, including prevention of vertical transmission of diseases from mother to infant (e.g. HIV; specifically infant feeding counseling and breast care)
- Refer mother and infant for specialist care when necessary
- Screen and provide counseling and referrals for GBV and protection from environmental hazards
- Encourage use of ITN (where appropriate)
- Counsel on baby care
- Counsel/support breastfeeding
- Counsel on maternal nutrition and provide supplementation (Iron and vitamin A)
- Counsel and provide contraception
- Counsel on cleanliness and hygiene

PPFL I-1. Percent of health workers trained in postpartum care (MOV: HFA; HF records)

PPFL I-2. Percent of health workers trained to provide postpartum breastfeeding support, counseling, and management of breastfeeding complications (MOV: HF records)

PPFL I-3. Percent of women receiving postpartum breastfeeding counseling and support from health workers (MOV: population-based survey; HF records; client or exit interviews)

PPFL I-4. Percent of health facilities with no stock-outs of essential supplies in the last quarter²⁷ (MOV: HFA)

PPFL I-5. Percent of health facilities with policy of initiating breastfeeding within one hour postpartum (MOV: HFA)

PPFL I-6. Percent of health workers who know how to prevent and manage postpartum complications (MOV: HFA; HF records)

PPFL I-7. Percent of postpartum complications managed correctly according to protocols (MOV: HF records)

PPFL I-8. Percent maternal deaths occurring in postpartum period (MOV: HF records)

PPFL I-9. Percent of facilities screening for GBV in non-judgmental manner (MOV: HFA/checklist JHPIEGO/ IPPF)

PPFL I-10. Percent of clients satisfied with services provided (MOV: client satisfaction survey; client exit interviews)

PPFL I-11. Percent of facilities exhibiting gender sensitivity²⁸ in the service delivery environment^{***} (MOV: HFA)

Also see PPHH I-5; I-14; I-17; I-18

Intervention Focus: Postpartum Care¹ [PP]

RECOMMENDED PRACTICES AND STANDARDS OF CARE

INDICATORS

1 First Level (PPFL): Skilled providers give postpartum care to all delivered mothers. Facilities are equipped, staffed, and managed to provide skilled care to the postpartum mother and child.

PPFL S-2. Emergency equipment and supplies are available.²⁹ Protocols for management of postpartum emergencies are available.³⁰

PPFL I-12. Percent of health facilities with no stock-outs of emergency supplies³¹ during the previous quarter
(MOV: HFA)

PPFL I-13. Percent of facilities with equipment and supplies available for postpartum emergencies
(MOV: HFA)

PPFL I-14. Percent of all women with major obstetric complications who are treated in EOC facilities in a given reference period^{**}
(MOV: HF records)³²

PPFL I-15. Percent of postpartum complications managed correctly according to protocols
(MOV: HF records)

PPFL S-3. Health facilities provide a range of contraceptive methods.^{33, 34}

PPFL I-16. Number of family planning methods available at nearest service delivery point
(MOV: HFA)

PPFL I-17. Percent of women who, PRIOR to discharge from health facility after birth of baby, receive counseling on family planning and where/how to obtain contraceptive methods
(MOV: population-based survey; HF records; client or exit interview)

PPFL I-18. No stock-outs of family planning methods in the last quarter
(MOV: HFA)

PPFL I-19. Percent of health facilities with both hormonal and non-hormonal methods of family planning available
(MOV: HFA)

PPFL I-20. Percent of women who are discharged from facility with family planning method
(MOV: population-based survey; HF records; client or exit interview)

Intervention Focus: Postpartum Care¹ [PP]

RECOMMENDED PRACTICES AND STANDARDS OF CARE

INDICATORS

1 First Level (PPFL): Skilled providers give postpartum care to all delivered mothers. Facilities are equipped, staffed, and managed to provide skilled care to the postpartum mother and child.

PPFL S-4. All women delivered in health facilities are monitored for at least 24 hours postpartum 35, 36

PPFL I-21. Percent of health facilities with policy of monitoring women for at least 24 hours postpartum (MOV: HFA)

PPFL I-22. Percent of women delivered in health facilities who are monitored for at least 24 hours postpartum (MOV: HF records)

PPFL S-5. Postpartum care providers link to community networks, and work with community, providing information about family planning and building capacity for activities listed in PPCL S-2.

PPFL I-23. Percent of postpartum service sites that have a method for eliciting/seeking community input re: postpartum services (MOV: HFA)

PPFL I-24. Percent of postpartum service sites that have met with community committee or key community group/member(s) during past three months (MOV: HF records)

PPFL I-25. Percent of postpartum service sites that have program/plan to reach community with information about postpartum danger signs, breastfeeding support, and family planning (MOV: HFA)

Also see PPCL I-4 – I-8.

Intervention Focus: Postpartum Care¹ [PP]

RECOMMENDED PRACTICES AND STANDARDS OF CARE

INDICATORS

2 Second Level (PPSL): Provides comprehensive care for postpartum complications and referrals

- PPSL S-1.** Reduce delays in receiving treatment:
- Health workers skilled in providing care for pregnant women with signs of a complication of pregnancy³⁷
 - Essential drugs³⁸ for complications during pregnancy available in facilities
 - Skilled and informed workers available 24 hours a day, seven days a week for complications

Also see *PPFL S-1 – S-5*

PPSL I-1. Percent of health facilities with skilled attendant (doctor, nurse or midwife) available 24 hours per day, seven days per week (MOV: HFA)

Key Indicator Definition: *Numerator:* number of health facilities with skilled attendant (doctor, nurse or midwife) available 24 hours per day, seven days per week. *Denominator:* number of health facilities

Also see *PPFL I-1 – I-26*

* Source: derived or taken directly from KPC 2000+; CSTS, CORE

** Source: Flexible Fund Family Planning Guidance; USAID, 2004

*** Source: derived or taken directly from Bertrand J and Escudero G. *Compendium of Indicators for Evaluating Reproductive Health Programs*. MEASURE Evaluation: 2002.

Endnotes

1. The ‘postpartum period’ begins after delivery of the placenta and lasts until six weeks after delivery. Postpartum care includes prevention/early detection and treatment of complications and disease, and provision of advice/services in breastfeeding, birth spacing, immunization and maternal nutrition.

Postpartum care includes monitoring:

	6–12 hours	3–6 days	6 weeks	6 months
Baby	Breathing Warmth Feeding Cord Immunization	Feeding Infection Routine tests	Weight Feeding Immunization	Development Weaning
Mother	Blood loss Pain BP Advice Warning signs	Breast care Temperature Infection Lochia Mood	Recovery Anemia Contraception	General health Contraception Continuing morbidity

WHO: *Postpartum Care of the Mother: A Practical Guide*. 1998.

“ Technically, the postpartum period refers only to the first 6 weeks following birth. Returning the body to a true non-pregnant state takes longer than 6 weeks. This longer duration is sometimes referred to as the extended postpartum period and may last 6 months or more.”
Varney H, Kriebs J, Gegor C, *Varney’s Midwifery*, 4th Edition (2004) p.214, Jones & Bartlett.

2. “An important element of routine postpartum care is monitoring of the mother and the newborn. Most postpartum deaths occur within the first 24 hours . . . Early detection, referral, and treatment of maternal infection or hemorrhage are essential. Postpartum care includes the promotion and provision of family planning methods appropriate to lactation, as well as breastfeeding support as needed. Education about hygiene, rest, nutrition, and infant care will assist the mother in feeling more secure in tending to her new infant. In settings with maternal night blindness prevalence > 5% or documented vitamin A deficiency in children, high-dose VA should be given to mothers within the first eight weeks after delivery (and within six weeks if the mother is not exclusively or fully breastfeeding). Counseling on continued or initiation of sleeping under ITNs is important for postpartum women in malaria endemic areas. Daily maternal iron/folate supplementation should continue in the postpartum period for three months in areas where anemia prevalence in pregnant women is >40%. In areas with <40% anemia prevalence in pregnant women, if women have not completed six months of daily iron/folate supplement consumption during pregnancy, they should continue in the postpartum period until they have consumed the full amount of 180 tablets.” *CSTS+ Technical Reference Materials: Maternal and Newborn Care*. 2004: p.15.

“. . . need to assure early continuing care and monitoring (immediate postpartum period up to 4–6 hours; again 1 day postpartum, and within the first week for mom and second week for baby....The first several days after birth are important to get at any complications arising from antenatal and intrapartum concerns and management.” *Comments of Donna Vivio, Deputy Director, Maternal and Neonatal Health, JHPIEGO; 9/28/04*

3. Household level is defined as the mother of the baby, her family and helpers providing first aid in the home or during referral. Buffington, S., Sibley, L., Beck, D., Armbruster, D. (2004). *Home Based Life Saving Skills*. Guidelines for Decision Makers and Trainers: Protocols. American College of Nurse-Midwives, Silver Spring, MD, U.S.A.

3. “Know” refers to the percentage who can spontaneously name at least the primary warning signs of specific obstetric complications... Bertrand, Jane, T. and Gabriela Escudero August 2002, *Compendium of Indicators for Evaluating Reproductive Health Programs*, MEASURE Evaluation Series, No. 6, p. 293.
4. *Promoting Quality Maternal and Newborn Care*, CARE, 1998, Chapter 5, pg. 5.69
5. “Training women postpartum in pelvic floor exercises can promote urinary continence.” Gay J, Hardee K, et al. *What Works: Safe Motherhood*. Policy Project, Washington: 2003, p. 44.
Prevention of Infection. Good hygiene must be promoted if infection is to be minimized. Regular washing of the hands is important, particularly before caring for the baby. The mother must be encouraged to keep her perineal area clean, particularly after passing urine or feces. *Antenatal, Perinatal, and Postpartum Care*, WHO, 1998, Module 19, pg. 2
6. The Mother-Baby Package (WHO 1994) states that apart from its unquestioned nutritional superiority, breastfeeding protects against infant death and morbidity. Infants who are exclusively breastfed are likely to suffer only one quarter as many episodes of diarrhea and respiratory infections as babies who are not breastfed. *Essential Antenatal, Perinatal, and Postpartum Care*, WHO, 1998, Module 20, Infant feeding, pg. 1
7. “Gender Implications of this Indicator: The rate of exclusive breastfeeding, if disaggregated by sex, can be an indication of whether gender bias exists in the country.” For example, in India, women more often discontinue breastfeeding girls in the first six months as compared to boys, contributing to higher malnutrition and death rates for female infants and children. Bertrand J and Escudero G. *Compendium of Indicators for Evaluating Reproductive Health Programs*. MEASURE Evaluation: 2002, p. 361.
8. “. . . planning for childbirth is important because the window of opportunity to treat women and newborns is short. Reducing the four delays to accessing and receiving services can make the difference between life and death. It is important to encourage women and their families to think about the practical aspects of seeking obstetric services prior to an emergency.” *Promoting Quality Maternal and Newborn Care*, CARE, 1998, Chapter 5, pg. 5.36
9. New studies show that longer intervals are even better for infant survival and health and for maternal survival and health as well. Children born 3 to 5 years after a previous birth are about 2.5 times more likely to survive than children born before 2 years. *Population Reports*, Volume XXX, Number 3, Summer 2002 Series L, Number 13, Issues in World Health
10. “Postpartum provision of contraception is effective at increasing knowledge of contraception, desired contraceptive use, potentially increasing the use of ANC, and potentially decreasing maternal and infant mortality.” Gay J, Hardee K, et al. *What Works: Safe Motherhood*. Policy Project, Washington: 2003, p. 48.
11. LAM (Lactational Amenorrhea Method) is an introductory modern method of family planning that has three criteria and one parameter: 1) baby is less than six months, 2) baby is fully or nearly fully breastfeeding, and 3) the mother has not returned to menses. The parameter is that the mother has readily available a method of FP to use whenever one of the criteria is no longer true. To realize the fertility impact of LAM, at least 85% of the baby’s nutrition must come from breast milk. However, exclusive breastfeeding is encouraged until the baby is six months old. After that, it is recommended to breastfeed the baby first before offering appropriate weaning foods.
12. “Training midwives to conduct postpartum visits can increase skilled attendance postpartum.” Gay J, Hardee K, et al. *What Works: Safe Motherhood*. Policy Project, Washington: 2003, p. 43
13. “Women should be monitored postnatally for at least 24 hours and preferably for one week following delivery.” Gay J, Hardee K, et al. *What Works: Safe Motherhood*. Policy Project, Washington: 2003, p. 43.
14. Beck, D., Buffington, S., McDermott, J., Berney, K. (1998). *Healthy Mother Healthy Newborn Care*. American College of Nurse-Midwives, Washington, D.C., USA, pgs. 192–198

15. Integrated Management of Pregnancy and Childbirth: Managing Complications in Pregnancy and Childbirth: A guide for midwives and doctors, WHO 2000, pg. S-26

In settings with maternal night blindness prevalence > 5% or documented vitamin A deficiency in children, high-dose VA should be given to mothers within the first eight weeks after delivery (and within six weeks if the mother is not exclusively or fully breastfeeding). *CSTS+ Technical Reference Materials: Maternal and Newborn Care*. 2004.

16. “Counseling on continued or initiation of sleeping under ITNs is important for postpartum women in malaria endemic areas. Daily maternal iron/folate supplementation should continue in the postpartum period for three months in areas where anemia prevalence in pregnant women is >40%. In areas with <40% anemia prevalence in pregnant women, if women have not completed six months of daily iron/folate supplement consumption during pregnancy, they should continue in the postpartum period until they have consumed the full amount of 180 tablets.” *CSTS+ Technical Reference Materials: Maternal and Newborn Care*. 2004: p.15.

Also see Maternal Nutrition During Pregnancy and Lactation. LINKAGES and The CORE Group’s Nutrition Working Group; August, 2004; www.linkagesproject.org and www.coregroup.org

17. Delay 3: Reaching the Health Facility. Once the decision has been made that the mother or the newborn should seek emergency care, availability and cost of transport are common barriers. The key to overcoming this problem, especially in isolated communities with few resources, is community participation. A community that has discussed and recognized underlying reasons for delays in transportation can often prevent these delays. A specific community plan for transport emergencies can be helpful, even in remote areas. *The Healthy Newborn: A Reference Manual for Program Managers*, CARE, 2001, Part 4, pg. 4.14
18. The principle of obstetric first aid is to provide immediate measures that can stabilize the woman and not inflict harm. Table 5.15 describes actions that a family member or a TBA can be trained to perform in the community to stabilize the woman while mobilizing and carrying out the referral. *Promoting Quality Maternal and Newborn Care*, CARE, 1998, Chapter 5
19. These four behaviors are strongly linked to the prevention of infant malnutrition and illness: early initiation of breastfeeding (ideally within the first hour after birth), feeding of colostrums to the newborn, exclusive breastfeeding for the first 0-6 months, continued breastfeeding through the second year and beyond.

Exclusive breastfeeding for the first six months is a complex behavior involving multiple points of intervention. Mothers must decide initially to breastfeed and learn the correct techniques. They need to persevere when difficulties arise, and sometimes they must counter cultural norms and advice from people they respect regarding supplemental feeding. Information and counseling throughout this sequence of behaviors can keep mothers on track to exclusive breastfeeding. Research studies show that various types of interventions can contribute toward this outcome. Green, Cynthia P., *Improving Breastfeeding Behaviors: Evidence from Two Decades of Intervention Research*, AED, The Linkages Project, November 1999, pg. 13

Women who know they are HIV positive should be counseled about the potential risk of transmission through breast milk; and decide if they want to breastfeed and/or look for appropriate alternatives if needed. *Promoting Quality Maternal and Newborn Care*, CARE, 1998, Chapter 5 pg 56.

HIV and Infant Feeding Counseling Guidelines in Resource-Poor Communities Health Worker Guidelines

Mother’s HIV status is unknown:

- Promote availability and use of confidential testing
- Promote breastfeeding as safer than artificial feeding*
- Teach mother how to avoid exposure to HIV

HIV-negative mother:

- Promote breastfeeding as safest infant feeding method (exclusive breastfeeding for first 6 months, introduction of appropriate complementary foods at about 6 months, and continued breastfeeding to 24 months and beyond)
- Teach mother how to avoid exposure to HIV

HIV-positive mother who is considering her feeding options:

- Treat with anti-retroviral drugs, if feasible
- Counsel mother on the safety, availability, and affordability of feasible infant feeding options
- Help mother choose and provide safest available infant feeding method
- Teach mother how to avoid sexual transmission of HIV

HIV-positive mother who chooses to breastfeed:

- Promote safer breastfeeding (exclusive breastfeeding up to 6 months, prevention and treatment of breast problems of mothers and thrush in infants, and shortened duration of breastfeeding when replacements are safe and feasible)

HIV-positive mother who chooses to feed artificially:

- Help mother choose the safest alternative infant feeding strategy (methods, timing, etc.)
- Support her in her choice (provide education on hygienic preparation, health care, family planning services, etc.)

*Where testing is not available and where mothers' HIV status is not known, widespread use of artificial feeding would improve child survival only if the prevalence of HIV is high and if the risk of death due to artificial feeding is low, a combination of conditions that does not generally exist. *Breastfeeding and HIV/AIDS: Frequently Asked Questions*. (April, 2004). LINKAGES Project. <http://www.linkagesproject.org/publications/index.php> Protocols vary by country.

20. "Traditional birth attendants (TBAs) and community volunteers can be effective in distributing iron tablet supplements." Gay J, Hardee K, et al. *What Works: Safe Motherhood*. Policy Project, Washington: 2003, p. 64.
21. Improving linkages among the health workers, the community leaders, TBAs, village doctors and the private sector can encourage health-seeking practices. *Promoting Quality Maternal and Newborn Care*, CARE, 1998, Chapter 5, pg. 5.60
22. Adapted from JHPIEGO, "Birth Preparedness and Complication Readiness: A Matrix of Shared Responsibilities" (2001); www.jhpiego.org
23. Postpartum care of the mother and newborn: a practical guide, 1998-WHO/RHT/MSM/98.3, 10.2 Aims and timing of postpartum care
24. "In the event of a stillbirth, both parents benefit from providers allowing parents to choose time with their dead infant and tokens of remembrance . . . In the event of a diagnosis of intrauterine death, women benefit from a lapse of no more than 24 hours until induction of labor." Gay J, Hardee K, et al. *What Works: Safe Motherhood*. Policy Project, Washington: 2003, p. 47.
25. "Clinical interventions can increase abused women's safety-seeking behavior . . . A simple abuse assessment protocol during ANC can lead to increased detection of abuse and referral." Gay J, Hardee K, et al. *What Works: Safe Motherhood*. Policy Project, Washington: 2003, p. 61–62.
26. Policy Project offers the following evidence-based interventions regarding breastfeeding:
 - Successful breastfeeding combined with adequate maternal nutrition, unless a woman is HIV-positive, is correlated with improved maternal health outcomes.
 - Keeping babies with their mothers in the same room ('rooming in') or the same bed from birth (Kangaroo Care Method) prevents infections and increases the success of breastfeeding, especially when it is combined with breastfeeding guidance.
 - On-demand breastfeeding is associated with fewer complications and longer duration of breastfeeding.

- Ongoing support from nurses for breastfeeding can result in increased duration of exclusive breastfeeding.
Gay J, Hardee K, et al. *What Works: Safe Motherhood*. Policy Project, Washington: 2003, p. 45.
27. Including iron and vitamin A supplements
 28. “ ‘Gender sensitivity’ is the way service providers treat male or female clients in service delivery facilities and thus affects client willingness to seek services, continue to use services, and carry out the health behaviors advocated by the services. This indicator also measures aspects of the services themselves (e.g. in the case of family planning, whether a range of male as well as female methods is offered) . . . For a service delivery facility to demonstrate gender sensitivity, it must adhere to the principles of informed choice, voluntarism and a target-free approach, which might otherwise not be the case given the low status of women in the locality. A gender-sensitive approach has much in common with a quality of care approach. A program cannot be gender-sensitive if both male and female clients fail to receive complete information and to participate fully in decisions regarding their care and treatment. Many women want opportunities to involve their partners in counseling and in decisions concerning contraceptive use and reproductive and child health. Similarly, many men wish to participate in RH counseling as well as in decisions regarding reproductive and child health, but have felt excluded from this arena.”
A menu of indicators is provided in Bertrand J and Escudero G. *Compendium of Indicators for Evaluating Reproductive Health Programs*. MEASURE Evaluation: 2002, pp. 196–7.
 29. While there is relatively little evidence on the precise mix of interventions likely to be most effective in preventing and managing postpartum complications, specific interventions that have been shown to be effective need to be put in place. These include prophylactic oxytocic drugs in the third stage of labor to reduce the volume and the incidence of postpartum hemorrhage, magnesium sulfate for treatment of eclampsia, manual removal of placenta and removal of retained products of conception, surgical repair of perineal and cervical lacerations, and prophylactic administration of antibiotics . . . Safe Motherhood Initiatives: Critical Issues, Berer, M. and Ravindran TK, Editors, Blackwell Science Ltd. for *Reproductive Health Matters*, 1999. When Pregnancy Is Over: Preventing Post-Partum Deaths and Morbidity, Carla Abou-Zahr and Marge Berer, pg. 186
 30. Integrated Management of Pregnancy and Childbirth (IMPAC), *Managing Complications in Pregnancy and Childbirth: A guide for midwives and doctors*. (2000), World Health Organization. WHO/RHR/00.7.pgs S-25–S-50
 31. Oxytocics, Antibiotics, Magnesium sulfate (diazepam), IV fluids
 32. Numerator: number of women with major obstetric complication treated in EOC facilities. Denominator: estimated number of women with obstetric complications from the geographical area served by the EOC facilities. “The number of pregnant women who develop obstetric complications requiring medical care to avoid death or disability is estimated to be 15 percent (WHO, 1994a). The number of live births frequently serves as a proxy for all births or pregnancies; when data on the numbers of live births are absent, evaluators can estimate them from total expected births = population x crude birth rate.” Bertrand J and Escudero G. *Compendium of Indicators for Evaluating Reproductive Health Programs*. MEASURE Evaluation: 2002, p. 307.
 33. For women who are breastfeeding, first choice are methods containing no hormones; second choice are methods containing only progestin; third choice is a hormonal method containing both estrogen and progesterone (not advised until baby is six months old because it can reduce the mother’s milk supply and the long-term effects of the estrogen passing to the baby through the breast milk are not known). Family planning methods for breastfeeding women include: first choice-LAM, condoms, spermicide, IUD, sterilization; second choice-progestin-only pill, injectible progestin, norplant; third choice-combined estrogen/progesterone pill. *Healthy Mother and Healthy Newborn Care*, A Reference for Caregivers, ACNM 1998, pg. 229

34. Couples may be unaware of the range of family planning methods (short term, long-acting, hormonal, barrier, temporary or permanent) available to suit their varying goals, choices and needs. Such counseling, advice and the provision of services that accompanies it, must form an integral part of any postpartum service. *Postpartum care of the mother and newborn: a practical guide*, WHO/RT/MSM/98.3.
35. The results from an intervention program at a regional hospital in Kigoma, Tanzania, focusing on improving hospital management to provide a conducive working environment revealed a reduction in maternal mortality from 933 to 186 per 100,000 live births over the period 1984-1991 (Mbaruku and Bergstrom 1995). The intervention program focused on clarifying responsibilities, delegating more responsibility to nurses and midwives, regular monthly meetings with increased feedback, regular staff evaluation, and increased on-the-job training programs. Other interventions included: regular maintenance of equipment using local materials and resources, identification of norms for patient management and referral, and development of a detailed plan for the continuous supply of essential drugs including the initiation of a sub-store in the maternity ward. *Sara Issues Paper, Preventing Maternal Mortality Through Emergency Obstetric Care*, April 1997, May Post, MD DPTM
36. Postpartum Care of the Mother Intervention Package. *The overall vision is for every woman to have routine postpartum care, timely recognition of danger signs, and access to quality medical care in the event of complications.* Aims of key interventions in the postpartum period: 1. Contact with a skilled caregiver: Monitor mothers/newborns for at least the first 24 hours after delivery. Schedule visits at 6–12 hours, 6 days, and 4–6 weeks, depending on local policy. Provide support for mother and family, especially breastfeeding. Give vitamin A, 200,000 IU, for the mother. Provide family planning counseling. Immunize the baby and advise the mother on newborn care. 2. Reduce delays in access to emergency care: Educate women, households, and communities about early recognition of danger signs. Provide timely decision-making for referral. Provide timely transportation. Provide quality care including standard protocols, skilled staff, sustainable supplies and equipment, and a safe blood supply. *The Healthy Newborn: A Reference Manual for Program Managers*, CARE, 2001, Part 4, pg. 4.56
37. Significant signs of complications of pregnancy include shock, vaginal bleeding, headache/ blurred vision/convulsions, fever, abdominal pain, difficulty breathing, loss of fetal movements, pre-labor rupture of membranes. Integrated Management of Pregnancy and Childbirth (IMPAC), *Managing Complications in Pregnancy and Childbirth: A guide for midwives and doctors.* (2000), World Health Organization. WHO/RHR/00.7.
38. Essential drugs for managing complications in pregnancy include: antibiotics, steroids, emergency drugs, IV fluids, anticonvulsants, antihypertensives, oxytocics, anaesthetics, analgesics, sedatives, antimalarials, supplements (tetanus, iron, folic acid, vitamin K). Integrated Management of Pregnancy and Childbirth (IMPAC), *Managing Complications in Pregnancy and Childbirth: A guide for midwives and doctors.* (2000), World Health Organization. WHO/RHR/00.7.

Intervention Focus: Newborn Care¹ [NC]

RECOMMENDED PRACTICES AND STANDARDS OF CARE

INDICATORS

HH Household Level² (NCHH): The household recognizes danger signs, seeks appropriate treatment, and gives essential newborn care.

- NCHH S-1.** Mother/family members know and can name newborn danger signs^{4, 5}:
- trouble breathing
 - poor suck or is not able to suck
 - feels hot or cold
 - pus or redness any place on the baby: eyes, cord stump, skin
 - fits, rigid, stiff, floppy
 - born too small
 - poor skin color: pale, blue, yellow

NCHH I-1. Percent of mothers/family members who can state at least three danger signs. ** (Means of verification [MOV]: population-based survey; client or exit interviews)

NCHH S-2. Mother /family members practice essential newborn care:⁶

- Warming baby:
- Drying⁷ and⁸
 - Wrap baby, including head
 - Skin to skin contact to maintain warmth
 - Delay bathing for 24 hours⁹
- Clean cord care:
- Secure cord tie with clean ties
 - Clean cord cut
 - Keep cord dry
 - Put nothing on it

Initiating immediate breastfeeding¹⁰

Kangaroo care for low birth-weight (LBW) babies¹¹

NCHH I-2. Percent of mothers/family members who can name three essential newborn care practices (MOV: population-based survey; client or exit interviews)

NCHH I-3. Percent of children aged 0-23 months who were immediately breastfed at birth* (MOV: population-based survey)

Key Indicator Definition: *Numerator:* Number of children breastfed within the first hour after birth; *Denominator:* Number of children aged 0–23 months

NCHH I-4. Percent of children aged 0–23 months who were placed with the mother immediately after birth* (MOV: population-based survey; HF or TBA/CHW records)

NCHH I-5. Percent of children aged 0–23 months whose delivery involved use of a clean birth kit or whose cord was cut with a new razor*

(MOV: population-based survey; HF or TBA/CHW records)

Key Indicator Definition: *Numerator:* Number of children aged 0–23 months whose delivery involved use of a clean birth kit or whose cord was cut with a new razor; *Denominator:* Number of children aged 0–23 months

NCHH I-6. Percent of newborns with delayed bathing (MOV: population-based survey; HF or TBA/CHW records)

Intervention Focus: Newborn Care¹ [NC]

RECOMMENDED PRACTICES AND STANDARDS OF CARE

HH Household Level² (NCHH): The household recognizes danger signs, seeks appropriate treatment, and gives essential newborn care.

- NCHH S-3. Newborns receive a check-up visit¹² with skilled health worker, which should coincide with postpartum visits and care:^{13, 14}
- Every 30 minutes during the first two hours after delivery; then at:
 - six hours
 - one day
 - six days
 - six weeks
 - six months

(Note: this is a community-based indicator assuming a health worker comes to visit.)

Immunizations BCG, OPV, Hepatitis B according to country protocol; monitor for danger signs as listed above.

Purpose of visits¹⁵:

- Check for danger signs
- Encourage immunizations
- Counsel mothers on newborn care
- Counsel mothers on breastfeeding
- Check to see if mothers have had postpartum vitamin A
- Counsel on sleeping under an ITN (in malarial countries)

INDICATORS

NCHH I-7. Percent of newborns who receive postnatal care from a skilled provider at each recommended interval¹⁶ (MOV: population-based survey; HF records)

Key Indicator Definition: *Numerator:* Number of newborns who receive postnatal care from a skilled provider at each recommended interval; *Denominator:* Number of live births

NCHH I-8. Percent of recently delivered women who had a postpartum visit within 6 days (MOV: HF, TBA/CWH records; client interview)

NCHH I-9. Percent newborns referred for sepsis (MOV: HF records)

NCHH I-10. Percent of children aged 0–23 months who have a vaccination card* (MOV: population-based survey)

NCHH I-11. Percent of children aged 12–23 months who received measles vaccine* (MOV: population-based survey)

NCHH I-12. Percent of children aged 12–23 months who received BCG, DPT3, OPV3, and measles vaccines before the first birthday* (MOV: population-based survey)

NCHH I-13. Percent of infants aged 0–5 months who were fed breast milk only in the last 24 hours* (MOV: population-based survey)

NCHH I-14. Percentage of children aged 0–23 months who slept under an insecticide-treated bednet the previous night* (MOV: population-based survey)

Also see NCHH I-1 and I-2.

Intervention Focus: Newborn Care¹ [NC]

RECOMMENDED PRACTICES AND STANDARDS OF CARE

INDICATORS

C Community Level (NCCL): The community supports postnatal¹⁶ visits with a skilled provider and essential newborn care¹⁷

NCCL S-1. TBAs/CHWs:

- Recognize and respond to danger signs¹⁸ in newborn¹⁹
- Provide first aid care²⁰ in order to stabilize the newborn with a complication until reaching a skilled health worker
- See NCHH S-1.

NCCL I-1. Percent of TBAs/CHWs who can name 3 essential newborn care practices (MOV: population-based survey)

NCCL I-2. Percent of TBAs/CHWs who can demonstrate first aid care for at least three newborn danger signs (MOV: HF records; community assessment)

NCCL I-3. Percent of TBAs/CHWs who can state four newborn danger signs** (MOV: HF records; community assessment)

See *also* NCHH I-3 – I-5.

Intervention Focus: Newborn Care¹ [NC]

RECOMMENDED PRACTICES AND STANDARDS OF CARE

INDICATORS

1 First Level²¹ (NCFL): The health facility has trained staff, equipment, and supplies to provide essential newborn care, shows mothers how to care for newborns, and recognizes and treats complications. The health facility also links with the community to promote essential newborn care and recognition of danger signs.

NCFL S-1. Maternity facilities are “Baby-Friendly”²²;

1. Written breastfeeding policy for all health care staff
2. Train all health care staff in skills necessary to implement policy
3. Inform all pregnant women about breastfeeding and LAM
4. Help mothers initiate breastfeeding within an hour of birth
5. Show mothers how to breastfeed and how to maintain lactation²³
6. Give newborn infants no food or drink other than breast milk
7. Practice “rooming in” 24 hours a day
8. Kangaroo care for low birth-weight (LBW) babies
9. Encourage breastfeeding on demand
10. Give no artificial teats, or pacifiers to breastfeeding infants
11. Foster breastfeeding support groups and refer mothers to them

NCFL I-1. Percent of facilities that are designated “Baby Friendly”^{**} (MOV: HFA)

NCFL I-2. Percent of facilities with a delivery room adequately equipped for newborn care (MOV: HFA)

NCFL I-3. Percent of pregnant women informed about breastfeeding benefits (MOV: population-based survey; client or exit interview)

NCFL I-4. Percent of delivered women shown how to breastfeed (MOV: population-based survey; client or exit interview)

NCFL I-5. Percent of women shown how to maintain lactation (MOV: population-based survey; client or exit interview)

NCFL I-6. Percent of women who report that they were helped to initiate breastfeeding (MOV: population-based survey; client or exit interview)

NCFL I-7. Percent of newborns who had kangaroo care

Also see NCHH I-3, I-4, and I-10.

Intervention Focus: Newborn Care¹ [NC]

RECOMMENDED PRACTICES AND STANDARDS OF CARE

1 First Level²¹ (NCFL): The health facility has trained staff, equipment, and supplies to provide essential newborn care, shows mothers how to care for newborns, and recognizes and treats complications. The health facility also links with the community to promote essential newborn care and recognition of danger signs.

INDICATORS

- NCFL S-2. Skilled health workers²⁴ provide essential components of normal newborn care^{25, 26}:
 1. Clean delivery and cord care,
 2. Thermal protection to prevent newborn hypothermia,
 3. Early (started within 1 hour of birth) and exclusive breastfeeding, unless HIV + mother has decided otherwise
 4. Identification and management of birth asphyxia (including initiation of breathing and resuscitation), sepsis^{27, 28} and low birth weight²⁹
 5. Eye care to prevent and manage ophthalmia neonatorum
 6. HIV antiretroviral given to HIV + mother (according to drug and country protocol)
 7. Immunizations BCG, OPV, Hepatitis B according to country protocol, monitor for danger signs as listed above
 8. Monitor newborn for at least 24 hours

NCFL I-8. Percent of staff skilled in management of birth asphyxia (MOV: HFA)

NCFL I-9. Percent of staff skilled in eye care and immunization (MOV: HFA)

NCFL I-10. Percent of staff skilled in sepsis management (MOV: HFA)

NCFL I-11. Percent of staff skilled in low birth-weight management (MOV: HFA)

NCFL I-12. Percent of sepsis treatment and resuscitation managed according to protocols (MOV: HF records)

NCFL I-13. Percent of newborns monitored for at least 24 hours (MOV: HF, TBA/CHW records)

Also see NCFL I-3 and I-6.

Intervention Focus: Newborn Care¹ [NC]

RECOMMENDED PRACTICES AND STANDARDS OF CARE

INDICATORS

1 First Level²¹ (NCFL): The health facility has trained staff, equipment, and supplies to provide essential newborn care, shows mothers how to care for newborns, and recognizes and treats complications. The health facility also links with the community to promote essential newborn care and recognition of danger signs.

- NCFL S-3. Provide to all delivered women using country HIV protocol³⁰:
1. Counseling and testing³¹
 2. Information on how to avoid sexual transmission of HIV

Provide HIV information³² to HIV-positive delivered women using country HIV protocol:

1. Feeding options³³ of safety, availability,³⁴ and affordability,
2. Treat with anti-retroviral drugs, if appropriate and feasible/country HIV protocol
3. Teach how to avoid sexual transmission of HIV

NCFL I-14. Percent of staff trained in HIV³⁵:

- Prevention
 - Counseling and testing
 - Treatment
- (MOV: HF records)

NCFL I-15. Percent of delivered women receiving HIV PMTCT and prevention information (MOV: population-based survey; HF records; client or exit interview)

NCFL I-16. Percent of HIV-positive delivered women receiving PMTCT (ART, BF and prevention counseling, etc.) and prevention information (MOV: HF records)

NCFL S-4. Newborn care providers link to community networks, and work with community to build capacity to recognize newborn danger signs, give first aid, and refer to a health facility.

NCFL I-17. Percent of health facilities that have met with community committee or key community group/member(s) during past three months (MOV: HF records)

NCFL I-18. Percent of health facilities that have program/plan to reach community with information about newborn danger signs and breastfeeding support (MOV: HFA)

Intervention Focus: Newborn Care¹ [NC]

RECOMMENDED PRACTICES AND STANDARDS OF CARE

INDICATORS

2 Second Level (NCSL): Second level care facilities provide essential newborn care and manage newborn complications.

NCSL S-1. See NCFI S-1.

See NCFI I-1 – I-7.

Also see NCHH I-3, I-4, and I-10.

NCSL S-2. See NCFI S-2.

See NCFI I-8 – I-13.

Also see NCFI I-3 and I-6.

NCSL S-3. See NCFI S-3.

See NCFI I-14 – I-16.

NCSL S-4. Newborn care providers link to first-level referral facilities to build capacity to recognize newborn danger signs, give first aid, and refer to second level health facility appropriately

NCSL I-1. Percent of second-level health facilities that have program/plan to reach first-level health facilities with information about newborn danger signs, first aid, appropriate referral to higher level (MOV: MOH)

NCSL S-5. Infants of HIV-positive mothers receive antiretrovirals per country protocol

NCSL I-2. Percent of newborns of HIV-positive mothers who receive anti-retrovirals per country protocol (MOV: HR records)

* Source: derived or taken directly from KPC 2000+; CSTS, CORE

** Source: derived or taken directly from Bertrand J and Escudero G. *Compendium of Indicators for Evaluating Reproductive Health Programs*. MEASURE Evaluation: 2002.

Endnotes

1. Newborn refers to a baby between birth and one month of age. MAQ Exchange: Reproductive Health and HIV Presentations.
2. Household level is defined as the mother of the baby, her family and helpers providing first aid in the home or during referral. Buffington, S., Sibley, L., Beck, D., Armbruster, D. (2004). *Home Based Life Saving: Guidelines for Decision Makers and Trainers*. American College of Nurse-Midwives, Silver Spring, MD USA.
3. “Know” refers to the percentage who can spontaneously name the warning/danger signs of newborn complications. Bertrand, Jane, T. and Gabriela Escudero August 2002, *Compendium of Indicators for Evaluating Reproductive Health Programs*, MEASURE Evaluation Series, Volume Two, Indicators for Specific Programmatic Areas, p. 318.
4. *Pregnancy, Childbirth, Postpartum and Newborn Care: A Guide for Essential Practice*. World Health Organization, 2003, p. J7.
5. *Home Based Life Saving Skills*. Community Meeting 2. American College of Nurse-Midwives, Washington, D.C. USA.
6. Essential newborn care practices for home birth: 1. Breathing observation: person skilled in mouth suction for newborn resuscitation and newborn problem identification. 2. Warmth: dry baby and place skin to skin with mother, clean cloths to keep warm, delay bathing of baby for at least 24 hours, 3. Cord care: clamping/tying, cutting, air dry. 4. Prophylactic eye care: wipe with clean and dry cloth, antibiotic drops per local protocol. 5. Immediate breastfeeding. Buffington, S., Sibley, L., Beck, D., Armbruster, D. (2004). *Home Based Life Saving* Community Meeting 3. American College of Nurse-Midwives, Silver Spring, MD USA. and *Promoting Quality Maternal and Newborn Care: A Reference Manual for Program Managers*. (1998). Cooperative for Assistance and Relief Everywhere, Inc. (CARE), Chapter 5.
7. Blood on newborn is not a risk to newborn, but is a risk to caregiver. MAQ Exchange: Reproductive Health and HIV Presentations
8. Do not separate mother and newborn. Leave newborn skin-to-skin with mother. In areas with high HIV prevalence, consider bathing newborn earlier to reduce risk of maternal-fetal transmission, and to reduce risk to caregiver. MAQ Exchange: Reproductive Health and HIV Presentations.
9. Buffington, S., Sibley, L., Beck, D., Armbruster, D. (2004). *Home Based Life Saving Basic Information*. American College of Nurse-Midwives, Silver Spring, MD USA, p.72.
10. “During the first two months of life, babies who are not breastfed have a six times greater risk of dying from infections . . .” WHO Collaborative Study Team. On the role of breastfeeding on the prevention of infant mortality. *Effect of Breastfeeding on infant and child mortality due to infectious diseases in less developed countries: A pooled analysis*. *Lancet*. 2000; 355: 451–455.
11. Low birth-weight care includes: Adequate breast milk and warmth can substantially reduce mortality (CARE), keep baby warm and dry and with mother, breastfeed frequently; if the baby can not suck—express breast milk and use a cup to feed the baby. It takes a devoted mother/family and staff to help this baby survive. Staff go with mother/family to second level referral site. *Promoting Quality Maternal and Newborn Care: A Reference Manual for Program Managers*. (1998). Cooperative for Assistance and Relief Everywhere, Inc. (CARE), Chapter 5 and Beck, D., Buffington, S., McDermott, J., Berney, K. (1998). *Healthy Mother Healthy Newborn Care*. American College of Nurse-Midwives, Washington, D.C. USA.

12. “The first days and weeks in a baby’s life are critical. Two thirds of infant deaths occur within the first four weeks after birth, and more than 65% of these die within the first 7 days after birth. Close monitoring and care of a mother and baby and teaching in the postpartum period by a trained health worker may prevent some of these deaths.” Beck, D., Buffington, S., McDermott, J., Berney, K. (1998). *Healthy Mother Healthy Newborn Care*. American College of Nurse-Midwives, Washington, D.C. USA, p. 181.
13. Frequency of postnatal visits (10.4.3) for the newborn. “. . . with limited resources, a contact with the health care system at least during the first twenty-four hours and before the end of the first week would be most effective.” (10.5) The first months. “At the age of 6 weeks the baby receives a second dose of OPV and first dose of DPT vaccine. Baby’s growth should be assessed.” *Postpartum Care of the Mother and Newborn: WHO/RHT/MSM/98.3*, page 55–56.
14. Clean delivery and cord care (prevent infection), Thermal protection (baby sleeps with mother, bathing after 24 hours), Early asphyxia identification and management, Help mothers initiate breastfeeding within one hour of birth and sustain exclusive and demand breastfeeding, Monitor baby for 24 hours, Followup visits at end of first week after birth and 6 weeks (*Postpartum Care of the Mother and Newborn: WHO/RHT/MSM/98.3*, page 55–56.), Prevent and manage ophthalmia neonatorum, Provide immunizations, Identification and management of sick, preterm, and/or low birth weight newborn including. Beck, D., Buffington, S., McDermott, J., Berney, K. (1998). *Healthy Mother Healthy Newborn Care*. American College of Nurse-Midwives, Washington, D.C. USA., p.181–246.
15. Whenever possible this should happen together with the mother’s postpartum visit. The first visit can occur anytime before the mother is discharged from the facility (but within the first 24 hours). The aim is that with early recognition and management/treatment of problems, reinforcement of danger signs and complication readiness, and opportunities for health education and counseling to the mother and family, that some of the maternal and neonatal deaths could be averted.
16. ‘Postpartum visit’ varies by country, whether referring to the mother, baby, or both. This list refers to ‘postnatal’ visits because the focus of the list is newborn care; these are the same as postpartum visits.
- The ‘postnatal’ period begins one hour after the birth of the placenta and ends 6 weeks later. Bertrand, Jane, T. and Gabriela Escudero August 2002, *Compendium of Indicators for Evaluating Reproductive Health Programs*, MEASURE Evaluation Series, Volume Two, Indicators for Specific Programmatic Areas, p. 323.
17. Post delivery newborn care: Observe/feel: skin temperature, skin color, ability to breastfeed, activity, stools, eyes and cord for redness and/or discharge. If country protocol includes weighing the baby, this is done. Beck, D., Buffington, S., McDermott, J., Berney, K. (1998). *Healthy Mother Healthy Newborn Care*. American College of Nurse-Midwives, Washington, D.C. USA.
18. At birth: baby not breathing, skin color yellow, trouble breathing (labored), fits; and first seven days: hypothermia/fever, poor skin color, poor or not sucking, not active, diarrhea, discharge and redness in eyes or around the cord. Buffington, S., Sibley, L., Beck, D., Armbruster, D. (2004). *Home Based Life Saving Community Meeting 2*. American College of Nurse-Midwives, Silver Spring, MD USA and *Promoting Quality Maternal and Newborn Care: A Reference Manual for Program Managers*. (1998). Cooperative for Assistance and Relief Everywhere, Inc. (CARE), Chapter 5.

WHO lists danger signs as: fast breathing (more than 60 breaths per minute); slow breathing (less than 30 breaths per minute); severe chest in-drawing; grunting; convulsions; floppy or stiff; fever or feels hot; hypothermia or feels cold; discharge from cord, redness around cord stump, foul odor; more than 10 skin pustules or bullae (or swelling, redness, hardness of skin); bleeding from cord or stump; repeated vomiting; no stool by 24 hours of age; skin color pale or blue; skin color and eye color yellow from jaundice (1st three days); feeding poorly; born too small and discharge from eyes. "Pregnancy, Childbirth, Postpartum and Newborn Care: A guide for essential practice" WHO (2003). P. J7

19. Newborn danger signs: breathing difficulty, convulsions or spasms, blueness or pallor, hot or cold to touch, yellowness, diarrhea, persistent vomiting, not feeding or poor suckling, floppiness or lethargy, pus or redness of umbilicus or eyes or skin. JHPIEGO (2004) *Basic Maternal and Newborn Care: a guide for skilled providers*. Chapter 8. Baltimore, U.S.A.
20. Newborn care: Before birth: Help mother/family prepare for birth and in case of an emergency, have money and transportation. At birth: Perform resuscitation, keep warm and go with family to referral site. If other signs of complications: help mother/family hold baby, keep baby warm, give baby breast milk, give antibiotics according to country protocols, and go with family to referral site. Buffington, S., Sibley, L., Beck, D., Armbruster, D. (2003). *Home Based Life Saving Skills*. Community Meeting 3 and 4. American College of Nurse-Midwives, Washington, D.C. USA. and *Promoting Quality Maternal and Newborn Care: A Reference Manual for Program Managers*. (1998). Cooperative for Assistance and Relief Everywhere, Inc. (CARE), Chapter 5.
21. First level is defined as physicians and/or midwives, nurses, paramedical and support staff providing basic emergency care in health center and during referral. World Health Organization, *Mother-Baby Package: Implementing safe motherhood in countries*, WHO/FHE/MSM/94.11, page 12. Facilities vary according to country.
22. Baby-Friendly according to the ten UNICEF/WHO criteria related to breastfeeding and newborn care: 1. Written breastfeeding policy routinely communicated to all health care staff; 2. Train all health care staff in skills necessary to implement policy; 3. Inform all pregnant women about the benefits and management of breastfeeding; 4. Help mothers initiate breastfeeding within an hour of birth; 5. Show mothers how to breastfeed and how to maintain lactation, even if they should be separated from their infants; 6. Give newborn infants no food or drink other than breast milk, unless medically indicated; 7. Practice 'rooming in' by allowing mothers and infants to remain together 24 hours a day; 8. Encourage breastfeeding on demand; 9. Give no artificial teats, pacifiers, dummies, or soothers to breastfeeding infants; 10. Foster the establishment of breastfeeding support groups and refer mothers to them on discharge from the hospital or birthing center. World Health Organization, *Mother-Baby Package: Implementing safe motherhood in countries*, WHO/FHE/MSM/94.11. and Bertrand, Jane, T. and Gabriela Escudero August 2002, *Compendium of Indicators for Evaluating Reproductive Health Programs*, MEASURE Evaluation Series, Volume Two, Indicators for Specific Programmatic Areas, p. 317. Protocols vary according to country policy and programs.
23. Includes 24-hour 'rooming in,' feeding on demand, no artificial teats or pacifiers.
24. When things go well, the skilled attendant avoids complications through clean and safe delivery, as well as providing the link to other services such as family planning and treatment of sexually transmitted infections.
25. Clean delivery and cord care to prevent newborn infection, thermal protection to prevent and manage newborn hypo/hyperthermia, early (started within 1 hour of birth) and exclusive breastfeeding, identification and management of birth asphyxia including initiation of breathing and resuscitation, monitoring for at least 24 hours, eye care to prevent and manage ophthalmia neonatorum, immunization at birth with BCG, oral poliovirus vaccine (OPV) and hepatitis B vaccine (HBV) according to country protocols. MAQ Exchange: Reproductive Health and HIV Presentations; and World Health Organization 1999. *Care in Normal Birth: A Practical Guide*. WHO/FRH/MSM/96.24 Geneva.

26. Minimum preparation for any birth: The following should be available and in working order: one clock with second hand, at least one person skilled in newborn resuscitation present at the birth, heat source, mucus extractor, self-inflating bag of newborn size with normal and small-size masks (alternative devices in place of self-inflating bag are now being developed that are safe and effective. Milner, A. et al. 1990. A device for domiciliary neonate resuscitation. *Lancet* 335:273–275.), MAQ Exchange: Reproductive Health and HIV Presentations.
27. Sepsis in newborn: Hypothermia, fever/chills, unable to suck breast, breathe faster than 60 breaths per minute. Beck, D., Buffington, S., McDermott, J., Berney, K. (1998). *Healthy Mother Healthy Newborn Care*. American College of Nurse-Midwives, Silver Spring, MD USA.
28. Case fatality rate for severe bacterial infections such as pneumonia is high and it is important to quickly begin treatment and refer the infant. Antibiotics are essential as soon as possible. Treatment protocols vary according to country, however consideration should be made to prevent hypoglycemia with continued breast milk and intravenous fluids when baby unable to take sufficient breast milk, antibiotics. Go with mother/family to second level referral site. *Promoting Quality Maternal and Newborn Care: A Reference Manual for Program Managers*. (1998). Cooperative for Assistance and Relief Everywhere, Inc. (CARE), Chapter 5.
29. Low birth weight: Babies that are small at birth or weigh less than 2,500 grams need extra care. Their lack of fat stores as a source of energy and insulation make them at risk for hypothermia and poor growth. *Promoting Quality Maternal and Newborn Care: A Reference Manual for Program Managers*. (1998). Cooperative for Assistance and Relief Everywhere, Inc. (CARE), Chapter 5.
30. The first visit within 24 hours using country HIV protocol should include 1. A report from mother/family—How is the baby doing including breastfeeding; 2. Were there any problems at birth or immediately afterward; 3. Examine baby in a clean place where mother/others can watch: general appearance, breathing, temperature, weight, eyes, mouth, reflexes, skin, cord; 4. Counsel: reminder of danger signs for baby, cord care, eye care and delay bathing; 5. HIV prevention and treatment. Beck, D., Buffington, S., McDermott, J., Berney, K. (1998). *Healthy Mother Healthy Newborn Care*. American College of Nurse-Midwives, Washington, D.C. USA., p.198–207 and Anderson, J.R., (2001). *Care of Women with HIV Living in Limited-Resource Settings—HIV and Breastfeeding*. MAQ Exchange: Reproductive Health and HIV Presentations.

The second visit by the end of the first week after birth using country HIV protocol should include 1. Report from mother/family about how baby is doing and breastfeeding practice; 2. Examination of the baby in a clean place where the mother/others can watch: general appearance, breathing, temperature, weight, eyes, mouth, reflexes, skin cord; 3. Counsel: Danger signs, breastfeeding, hygiene, cord care, immunizations (BCG, OPV, Hepatitis B according to country protocol), jaundice; 4. HIV prevention and treatment. Beck, D., Buffington, S., McDermott, J., Berney, K. (1998). *Healthy Mother Healthy Newborn Care*. American College of Nurse-Midwives, Washington, D.C. USA., p 219–221 and Anderson, J.R., (2001). *Care of Women with HIV Living in Limited-Resource Settings—HIV and Breastfeeding*. MAQ Exchange: Reproductive Health and HIV Presentations.

Six weeks after birth, the exam is similar to the initial exam using country HIV protocol plus observing the baby breastfeeding. 1. Ask about breastfeeding, sleep, stool, immunizations; 2. General examination and growth monitoring; 3. Give immunizations if needed; 4. Counsel on breastfeeding, immunizations, growth monitoring, danger signs and family planning; 5. HIV prevention and treatment. Beck, D., Buffington, S., McDermott, J., Berney, K. (1998). *Healthy Mother Healthy Newborn Care*. American College of Nurse-Midwives, Washington, D.C. USA., p. 238–240 and Anderson, J.R., (2001). *Care of Women with HIV Living in Limited-Resource Settings—HIV and Breastfeeding*. MAQ Exchange: Reproductive Health and HIV Presentations.

31. Each HIV-positive mother should receive adequate counseling so she can make an informed choice regarding ways to prevent transmission through breastfeeding. She should fully understand the risk to her child and should receive information about the risks of HIV transmission through breastfeeding as well as the potential risk of other infant morbidities if breastfeeding is not selected. World Health Organization, *Mother-Baby Package: Implementing safe motherhood in countries*, WHO/FHE/MSM/94.11. Protocols vary according to country policy and programs.
32. “Before HIV testing, health care providers should provide the following minimum information: HIV is the virus that causes AIDS. HIV is spread through unprotected sexual contact and injection-drug use. Approximately 25% of HIV-infected pregnant women who are not treated during pregnancy can transmit HIV to their infants during pregnancy, during labor/delivery, or through breastfeeding. A woman might be at risk for HIV infection and not know it, even if she has had only one sex partner. Effective interventions (such as highly active combination anti-retrovirals) for HIV-infected pregnant women can protect their infants from acquiring HIV and can prolong the survival and improve the health of these mothers and their children. For these reasons, HIV testing is recommended for all pregnant women. Services are available to help women reduce their risk for HIV and to provide medical care and other assistance to those who are infected. Women who decline testing will not be denied care for themselves or their infants.” CDC Recommends: Prevention Guidelines System. (2001/2002). *Revised Recommendations for HIV Screening of Pregnant Women*, MMWR 50(RR19); 59-86, CDC, Atlanta, GA, USA. <http://www.phppo.cdc.gov/cdcRecommends>
33. “Mother’s HIV status unknown—promote breastfeeding as safer than artificial feeding where HIV testing not available and risk of infant death due to artificial feeding is high. Mother HIV-negative—promote breastfeeding as safest infant feeding method. Mother HIV-positive who chooses to breastfeed—promote *safer* breastfeeding; exclusive breastfeeding up to six months, prevent and treat any breast problems of mothers and thrush in infants, shorten duration of breastfeeding when replacements are safe and feasible. Mother HIV-positive who chooses to feed artificially—help mother and family choose safest alternative infant feeding, support mother/family with education on hygienic preparation, health care, family planning services, etc.” *Feeding options from Breastfeeding and HIV/AIDS: Frequently Asked Questions*. (2001). LINKAGES Project. http://www.linkagesproject.org/FAQ_Html/FAQhivrev.htm
34. “HIV passes via breastfeeding to about 1 out of 7 infants born to HIV-infected women . . . the lack of breastfeeding is also associated with a three- to five-fold increase in infant mortality. Infants can die from either the failure to appropriately breastfeed or from the transmission of HIV through breastfeeding.” *Breastfeeding and HIV/AIDS: Frequently Asked Questions*. (2001). LINKAGES Project. http://www.linkagesproject.org/FAQ_Html/FAQhivrev.htm
35. See WHO/CDC PMTCT Training Package (2004). www.womenchildrenhiv.org
36. Second level is defined as physicians, midwives, nurses, paramedical, and support staff providing *comprehensive emergency care (includes operations and blood transfusions)* in district hospital and during referral to tertiary facility. World Health Organization, *Mother-Baby Package: Implementing safe motherhood in countries*, WHO/FHE/MSM/94.11, page 12. Facilities vary according to country.

Appendix I

Key Indicators

Pre-conception/Inter-conception:

PCHH I-1. Percent of boys and girls age 0–23 months who are underweight (–2 SD from the median weight-for-age, according to the WHO/NCHS reference population)*
(MOV: population-based survey)

Key Indicator Definition: Numerator: Number of children age 0–23 months whose weight is –2 SD from the median weight of the WHO/NCHS reference population for their age; *Denominator:* Number of children age 0–23 months in the survey who were weighed (If there is reason to believe that girls are fed differently than boys, then compute a ratio of malnutrition [girls to boys] using the data collected)

PCHH I-16. Percent of WRA who have completed at least four years of schooling**
(MOV: population-based survey)

Key Indicator Definition: Numerator: #of women ages 15–49 who completed four years of schooling; *Denominator:* Total # of women ages 15–49

This indicator measures the percent of women ages 15–49 who have completed at least a primary level of education. For different countries, primary education may vary from four years to eight to ten years.

Antenatal:

ACHH I-3. Percent of mothers of children aged 0–23 months in catchment area that saw a skilled provider three or more times during last pregnancy*
(MOV: population-based survey; HF records)

Key Indicator Definition: Numerator: number of mothers of children aged 0–23 months in catchment area that saw a skilled provider three or more times during last pregnancy. *Denominator:* number of mothers of children aged 0–23 months.

ACFL I-4. Percent of mothers with children age 0–23 months who received at least two tetanus toxoid injections before the birth of their youngest child*
(MOV: population-based survey)

Key Indicator Definition: Numerator: number of mothers with children age 0–23 months who received at least two tetanus toxoid injections before the birth of her youngest child (confirmed by maternal health card). *Denominator:* Number of mothers with children age 0–23 months.

ACSL I-7. Percent of health facilities with skilled attendant (doctor, nurse or midwife) available 24 hours per day, seven days per week
(MOV: HFA)

Key Indicator Definition: Numerator: number of health facilities with skilled attendant (doctor, nurse or midwife) available 24 hours per day, seven days per week. *Denominator:* number of health facilities.

Labor and Delivery:

LDHH I-15. Percent of children aged 0–23 months whose delivery was attended by a skilled health personnel^{1*}

(MOV: population-based survey)

Key Indicator Definition: Numerator: Number of women who delivered with a doctor, nurse, midwife, or auxiliary midwife; *Denominator:* Total number of children aged 0–23 months.

LDCL I-1. Percent of communities with an emergency transport plan in place

(MOV: HF records; community assessment)

Key Indicator Definition: Numerator: Number of communities that have an emergency transport system; *Denominator:* Number of communities

Postpartum:

PPHH I-16. Percent of mothers and newborns who received postpartum care at each recommended interval from skilled personnel^{**}

(MOV: population-based survey; HF records; client or exit interviews)

Key Indicator Definition: Numerator: number of women attended at each postpartum interval by skilled personnel; *Denominator:* number of live births

PPCL I-1. Percent of communities that have an emergency transport system

(MOV: HF records; community assessment)

Key Indicator Definition: Numerator: Number of communities that have an emergency transport system; *Denominator:* Number of communities

PPSL I-1. Percent of health facilities with skilled attendant (doctor, nurse or midwife) available 24 hours per day, seven days per week

(MOV: HFA)

Key Indicator Definition: Numerator: number of health facilities with skilled attendant (doctor, nurse or midwife) available 24 hours per day, seven days per week; *Denominator:* number of health facilities

Newborn Care:

NCHH I-3. Percent of children aged 0–23 months who were immediately breastfed at birth^{*}


(MOV: population-based survey)

Key Indicator Definition: Numerator: Number of children breastfed within the first hour after birth; *Denominator:* Number of children aged 0–23 months

NCHH I-5. Percent of children aged 0–23 months whose delivery involved use of a clean birth kit or whose cord was cut with a new razor^{*}

(MOV: population-based survey; HF or TBA/CHW records)

Key Indicator Definition: Numerator: Number of children aged 0–23 months whose delivery involved use of a clean birth kit or whose cord was cut with a new razor; *Denominator:* Number of children aged 0–23 months



NCHH I-7. Percent of newborns who receive postnatal care from a skilled provider at each recommended interval**

(MOV: population-based survey; HF records)

Key Indicator Definition: *Numerator:* Number of newborns who receive postnatal care from a skilled provider at each recommended interval; *Denominator:* Number of live births

Appendix II

Programming for Maternal and Newborn Health

Appendix II presents an overview of designing programs for maternal and newborn health. Topics include using frameworks in program design, program planning, status analysis/needs assessments, and selecting indicators. Basic information about the causes of maternal and newborn mortality and the evidence-based interventions that address these causes is provided. There is also a brief discussion about skilled birth attendants and HIV/AIDS. Additional resources are listed at the end of the Appendix in the *Essential References*.

I. Using Frameworks in Program Design

Well-designed programs are developed using a **framework** of some kind, and are typically ordered by an overarching goal (which cannot be measured), main objective(s), and lower-level objectives. For each objective, related activities and indicators are selected to address and measure the progress toward achieving the objective. While NGOs may use different terminologies and frameworks to design programs, most approaches share the common elements just described.

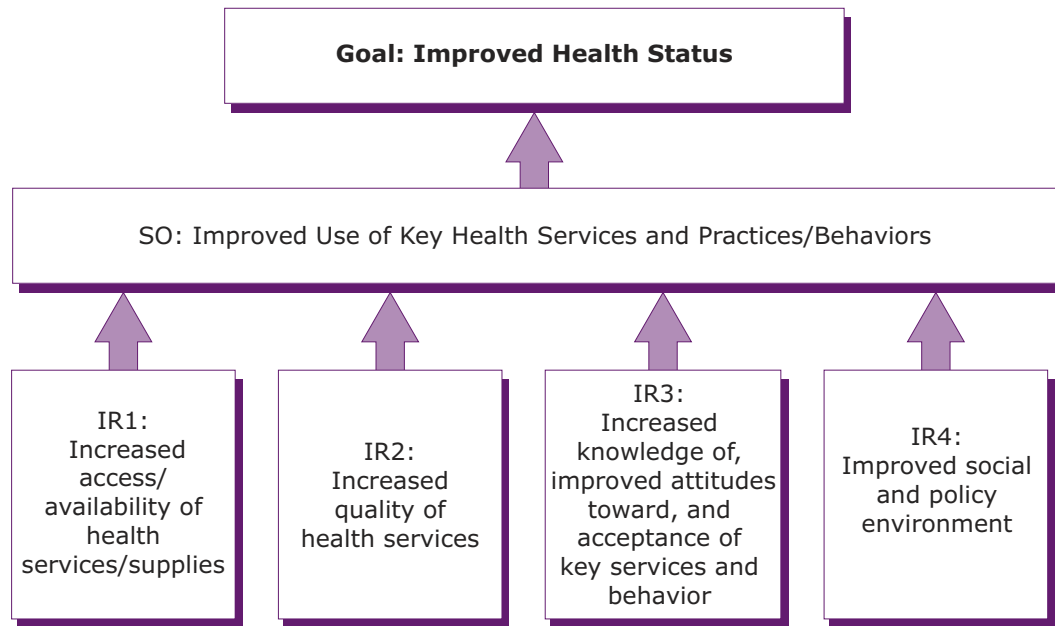
A. Results Framework

USAID, many of its CAs, and USAID-supported NGOs are familiar with, and use, the **Results Framework**. In Results Framework terminology, the objectives are stated as desired results. The main objective is referred to as a **Strategic Objective (SO)**, and the lower-level or dependent objectives are referred to as **Intermediate Results (IRs)**. The causal relationship between the IRs and SO is direct and clear: the lower level results must be achieved in order for the SO to be realized.

An excellent explanation of the Results Framework and examples are found in *Health and Family Planning Indicators: A Tool for Results Frameworks, Vol. 1* prepared by the Office of Sustainable Development for the Africa Bureau at USAID on the following website: http://www.dec.org/pdf_docs/PNACM806.pdf. Save the Children/USA, an international NGO, has adopted the generic framework in *A Tool for Results Frameworks* as the basis for designing its reproductive health programs (see *Figure 1*).

According to a Senior Reproductive Health Advisor at Save the Children, most successful health programs can be shown to be a result of improving/increasing access, quality, interest and knowledge for services (formerly referred to as ‘demand’), and improving the social and policy environment. The SO and IRs are typically refined for specific programs.

Figure 1: Generic Results Framework



B. Designing Programs by Objective (Desired Outcome)

Another international NGO, CARE, has developed a strategic approach to designing programs based on the desired outcome(s) (or objective) to be achieved. For example, if a program focuses on “reducing maternal and newborn mortality”, a program designer would select a set of interventions that are more directly linked to reducing mortality. If a program focuses on “health promotion” a program designer may select a larger set of interventions that may not directly reduce mortality (although their health promotion effects may indirectly reduce maternal and neonatal illness and deaths).

Table 1 illustrates what interventions contribute to desired program outcomes (objectives).

Reducing mortality and promoting health do not have to be mutually exclusive, but it needs to be understood that the selection of interventions may differ depending on the overall objective. Program planners need to have clear goals, so that appropriate interventions can be selected to achieve their objectives.

Figure 2 on page 80 presents a *Program Design for the Prevention of Maternal Mortality at the Community and Facility Levels* in a logframe format that CARE developed. Note that the terminology in Figure 2 differs somewhat from the “Results Framework” terminology presented earlier. However, if you turn Figure 2 sideways so that the impact goal is at the top, you can compare and contrast the relationship between the two approaches.

Table 1: Selecting Interventions by Desired Outcome (Objective)

Interventions	Objective: Maternal Health	Objective: Maternal Mortality	Objective: Newborn
Family Planning	X		X
Antenatal Care	X		X
Safe Delivery	X	X	X
Emergency Obstetric Care	X	X	X
Post-Partum Care	X	X	
Post-Abortion Care	X		
Newborn Care	X		X

Source: CARE's *Guide for the Use of Maternal and Newborn Health Planning Tools* prepared by Susan Rae Ross.

The point is that no matter what framework or system an NGO or program planner uses to design a program, what matters is that the program is designed with 1) clear goals and objectives, 2) the 'causal' pathway linking activities and objectives is carefully considered and the linkages between them are clearly laid out in the project plan.

II. Overview of Program Planning

For programs to be successful, they are best designed with the participation of stakeholders from the beginning stages of a project. For a summary of a good approach to overall program planning, see Table 2.

III. Situational Analysis/Needs Assessment

As part of the **situational analysis/ needs assessment**, data from both primary and secondary sources can be analyzed to determine what strategies and interventions should be selected to improve maternal and newborn health. Table 3 summarizes the key indicators to consider when conducting a needs assessment, and the limits for areas of high, moderate, and low need for intervention.

Figure 2: Illustrative Program Design for Prevention of Maternal Mortality at the Community and Facility Levels

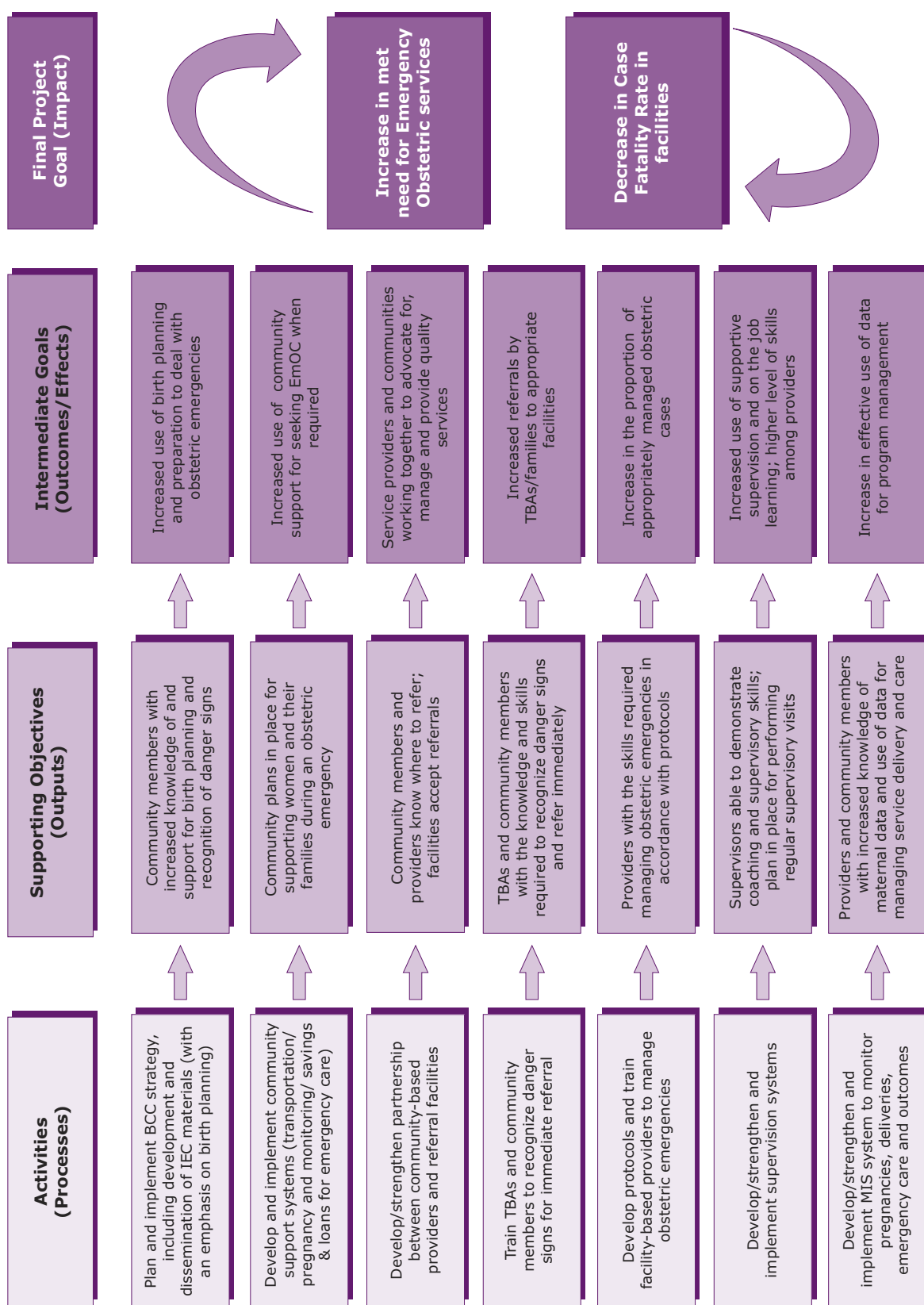


Table 2: CARE's Programming Approach

Situational Analysis

- Review the context of maternal/neonatal health in regards to the overall development conditions in the local situation
- Design and collect primary data, in consultation with communities and providers, both qualitative (for example, verbal autopsies, Participatory Learning Appraisal (PLA)) and quantitative (i.e., Knowledge, Attitudes, Practices (KAP))
- Review secondary data, both qualitative and quantitative
- Conduct an environmental assessment (assess what other organizations are doing, donor priorities and NGO's strengths)
- Select potential project areas based on objective criteria
- Begin discussions regarding potential partnerships

Project Design

- Analysis of data for the development of major program strategies
- Project design including an analytical framework (e.g., results framework, logframe, etc.) selection of evidenced based interventions, a monitoring and evaluation plan
- Donor approval/ Government endorsement/ Community commitment

Project Implementation

- Implementation and monitoring, in partnership, of selected interventions and their relevant output and effect indicators, with a feedback mechanism to provide refinement throughout implementation
- Mid-term Evaluation, focusing on process indicators, and development of a plan to adjust implementation, as required
- Ongoing documentation and dissemination of lessons learned, both successes and failures
- Final Evaluation, focusing on effect level (outcome) indicators, and development of a plan to adjust implementation, as required
- Post-Project Evaluation, focusing on impact level

Source: *CARE's Guide for the Use of Maternal and Newborn Health Planning Tools* prepared by Susan Rae Ross.

Table 3: Needs Assessment for Maternal and Newborn Health

Data	High Need	Moderate Need	Low Need
Women's Status			
Literacy (% female literacy)	<35%	35–60%	>50%
Economic Status— Access to income	No access	Limited access	Access
Decision Making— Involvement level	None	Limited	Participation
Health Status/ Infrastructure			
Maternal Mortality Ratio (MMR)	>500	350–499	<350
Infant Mortality Rate (IMR)	>80	65–79	<65
Total Fertility Rate (TFR)	>5.0	4.0–4.9	<4.0
Low Birth Weight (LBW) (<2,500 gms)	>35%	20%–34%	<20%
Syphilis prevalence in pregnancy	>15%	5–15%	<5%
HIV prevalence in pregnant women	>10%	2–10%	<2%
Malaria Prevalence			
Any season	>10%	2–10%	<2%
Rainy season	>20%	20%	–
Health Service Availability			
Number of Skilled Providers/per 10,000 population	<15	15–30	>30
Basic Emergency Obstetric Care: percent of population within 5 miles of health center	<50%	50–80%	>80%
Comprehensive Emergency Obstetric Care: travel time to facility	None	>4 hours travel	<4 hours travel
Outreach services (FP, ANC, EPI): percent of population within 3 miles	<50%	50–80%	>80%
If Available, Are Services Used? – Service Utilization			
Antenatal care (ANC): >3 visits	<35%	35–50%	>50%
Pregnant women who are anemic	>45%	30–45%	<30%
Contraceptive prevalence rate (CPR)	<25%	25–35%	>35%
Unmet Need for family planning	>25%	20–25%	<20%
Deliveries w/skilled provider	<35%	35–50%	>50%
Postpartum care/Vitamin A	<35%	35–50%	<50%
If Services Are Not Used, Why Not? – Knowledge			
Knowledge of family planning: source and methods	<35%	35–50%	>50%
Knowledge of danger signs of pregnancy and childbirth	<35%	35–50%	>50%
Knowledge of the importance of ANC, clean delivery, and PPC	<35%	35–50%	>50%

Source: CARE's *Guide for the Use of Maternal and Newborn Health Planning Tools* prepared by Susan Rae Ross.

IV. Selecting Indicators to Measuring Program Effectiveness

Selecting the right indicators is key to good program design. The following passages are taken from the document, *A Quick Guide to Assessing the Effectiveness of PVO Safe Motherhood, Family Planning, and Reproductive Health Interventions* prepared by Donna Espeut of the Child Survival Technical Support (CSTS+) Project. This document is available on the CSTS+ web site at www.childsurvival.com.

There are two main reasons to assess **program effectiveness**:

1. To determine progress toward results (program monitoring)
2. To evaluate whether program objectives have been achieved (program evaluation).

The following steps are important in defining program effectiveness:

1. Determine the **desired end result(s)** that the project is trying to achieve (for example, more women having birth intervals of an adequate length) and the corresponding **intermediate results** (for example, no stockouts of family planning methods and essential supplies at health facilities; access to birth spacing services; demand for birth spacing methods; and provision of family planning services to post-abortion women).
2. **“Operationalize”** the results through the program objectives and indicators. The *indicators should match your program activities and objectives*. For example, if your project is trying to promote longer birth intervals, this result may be operationalized through the following indicator: the percentage of women whose youngest two children were born at least 36 months apart.

The following are some guiding questions to ask when selecting indicators:

- Is the indicator state-of-the-art?
- Does it reflect the latest national and international standards?
- Is it valid? Does it measure what it’s supposed to measure?
- Is it reliable? Can it be measured consistently across enumerators and/or across time?
- Is it operational? Is it clearly defined in terms of what you are trying to achieve, and in which target group?
- Is it feasible? Are the data required to calculate the indicator available and of good quality?
- Does it match your program activities and targets?
- Does it sufficiently reflect the relationship between your intervention and the desired end result?

V. Select Background Information for Maternal and Newborn Programming

A. Maternal and Newborn Care Are Linked

Table 4 illustrates the direct relation between maternal conditions and maternal and neonatal outcomes (without intervention). Midwives and other clinicians frequently refer to the mother and newborn as the “mother-baby dyad”, a phrase that suggests that the care of the mother and newborn cannot be readily compartmentalized or separated if optimal care is to be provided.

Table 4: Maternal Conditions and Potential Maternal and Perinatal Outcomes

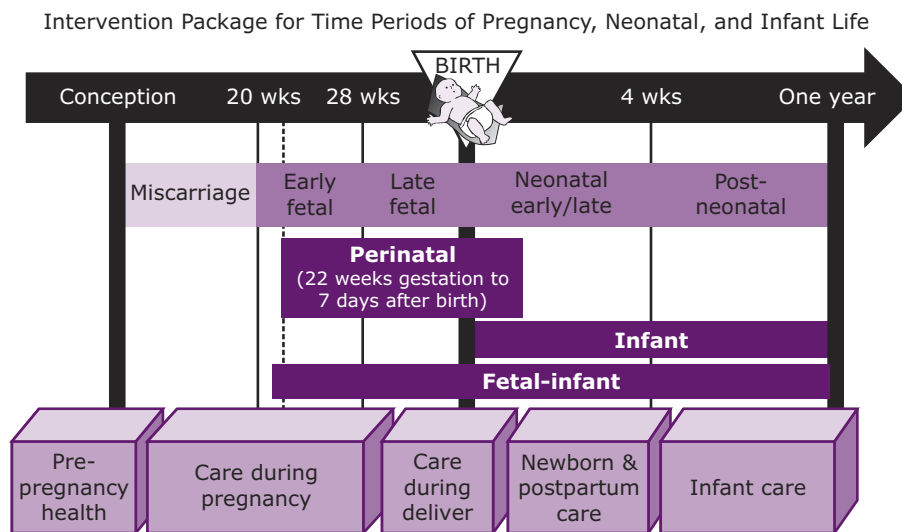
Potential Maternal Outcome without Intervention	Maternal Condition	Potential Perinatal/ Neonatal Outcome Without intervention
During Pregnancy		
Contributing to anemia	← Folic Acid Deficiency →	Stillbirths, neural tube defects
Night blindness	← Vitamin A Deficiency →	LBW, neonatal sepsis
Anemia, ↑ likelihood hemorrhage	← Iron Deficiency →	LBW, anemia
Anemia	← Hookworm →	LBW
Potential Infertility	← Gonorrhea →	Preterm delivery,
	← Chlamydia →	neonatal eye infection, blindness, pneumonia, stillbirth
	← CMV →	Preterm delivery, stillbirth
	← Bacterial Vaginosis →	
HIV/AIDS	← HIV/AIDS →	MCTC
Infertility, heart abnormalities, blindness, neurological problems, death	← Syphilis →	Preterm delivery, neonatal eye infection, blindness, stillbirth, congenital syphilis,
Hepatitis, ↑ likelihood of hemorrhage	← Hepatitis/Jaundice →	Sever jaundice, hepatitis
Anemia	← Malaria →	Prematurity, intrauterine growth retardation, stillbirth
Convulsions, death	← Pre-Eclampsia →	Stillbirth, asphyxia
Unsafe abortion	← Unwanted Pregnancy Pregnancy →	Increased risk of morbidity from abuse, neglect
During Labor		
Maternal Infection, sepsis leading to death	← Unclean Delivery: Environment →	Neonatal infection, sepsis leading to death
	← Unclean delivery: Cord Care →	Neonatal tetanus, neonatal sepsis leading to death
Maternal Infection leading to sepsis	← Premature Rupture of Membranes (PROM) →	Neonatal infection leading to sepsis
Prolonged labor, vaginal tears, C-Section, potential death	← Malpresentation →	Meconium, asphyxia, birth traumas
Convulsions, death	← Pre-Eclampsia →	Stillbirth, asphyxia
Uterine rupture	← Obstructed Labor →	Asphyxia, stillbirth, sepsis, birth trauma handicap
During Postpartum		
Slowed uterine atonement; engorged breasts → reduction in lactation	← No Colostrum Feed →	Delayed suck reflex; loss of nutrients, potential for hypothermia
PPH leading to death	← Retained Placenta →	
Convulsions leading to death	← Pre-Eclampsia/ Eclampsia →	
Sepsis leading to death	← Infection →	

Source: CARE, *The Healthy Newborn: A Reference for Managers*, 2002

B. The Timing of Interventions for Maternal and Newborn Care

Figure 3 shows the timing of stages of pregnancy and infant life, as well as the timing of maternal and newborn care interventions.

Figure 3: Timing of Maternal and Newborn Care Interventions

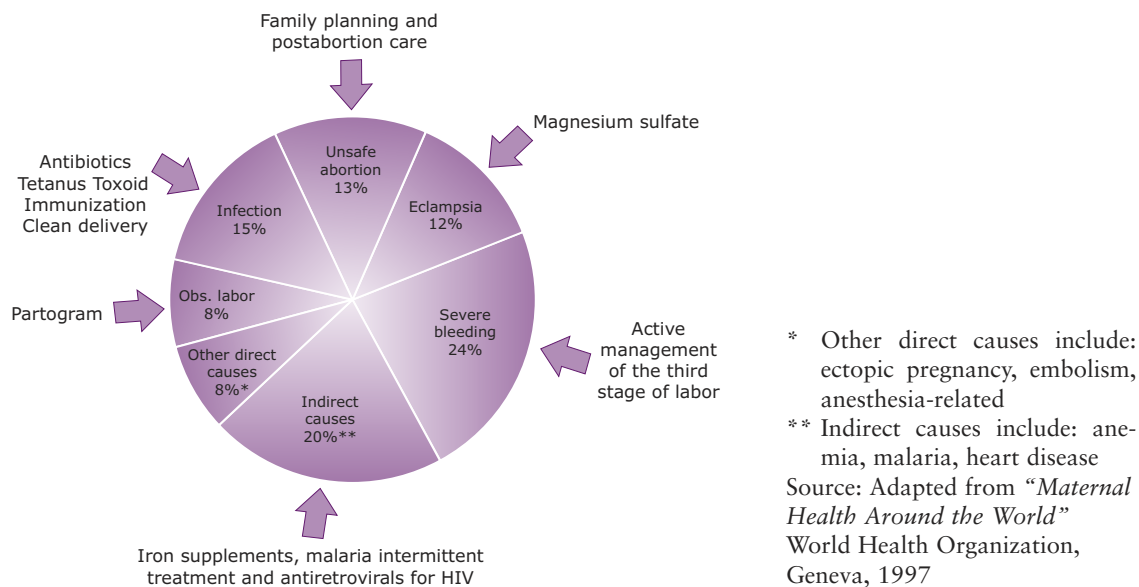


Stillbirths = babies born dead after 22 weeks of gestation (birth weight more than 500 g)
 (Note: WHO recommends international reporting of fetal deaths only for those more than 28 weeks/[1kg])

C. Evidence-based Interventions for Reducing Maternal Mortality

The major causes of maternal mortality and the key evidence-based interventions for addressing these causes are shown in Figure 4.

Figure 4: Evidence-based Interventions for Major Causes of Maternal Mortality



Postpartum hemorrhage (PPH) is the largest contributor to maternal mortality. There are evidence-based, feasible low-cost interventions that can reduce the morbidity and mortality due to PPH. These set of interventions are collectively referred to as the **active management of the third stage of labor**.

Active management of the third stage of labor includes the following interventions to be administered by a skilled birth attendant:

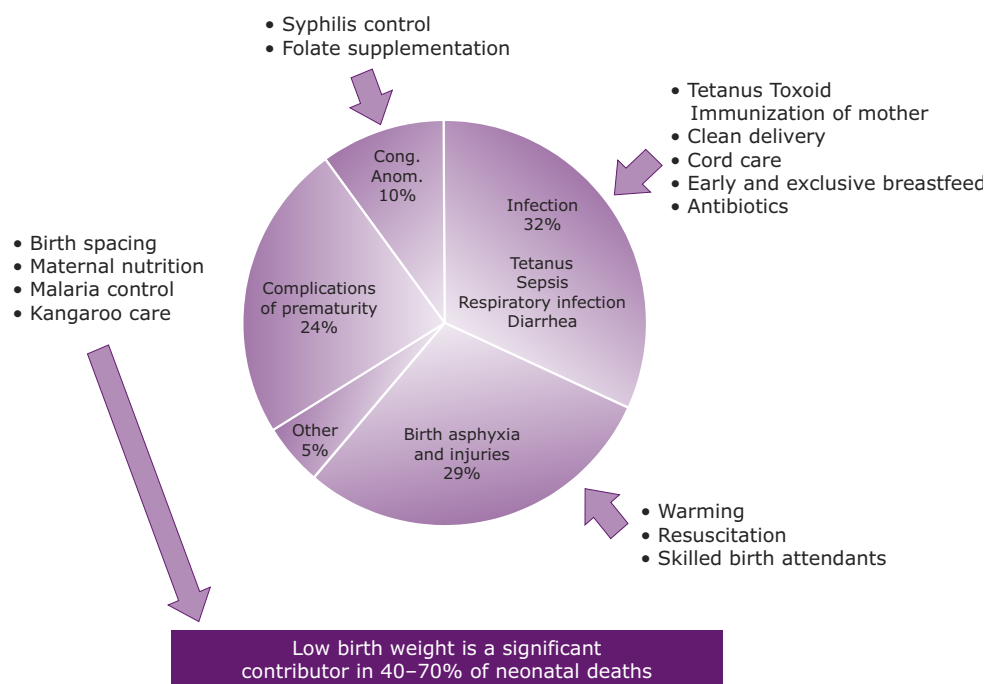
- Administering a uterus-contracting drug such as oxytocin, misoprostol within one minute of birth;
- Applying controlled cord traction and counter traction to the uterus;
- Massaging the fundus of the uterus through the abdomen; and
- Monitoring for further signs of bleeding.

D. Evidence-based Interventions for Major Causes of Neonatal Mortality

One-third of deaths of children under five occur during the first 28 days of life (neonatal period). While some advances have been made in improving the survival of infants after the neonatal period up to 12 months, less improvement has been shown for infants younger than 28 days.

The major causes of neonatal mortality and the key evidence-based interventions for addressing these causes are shown in Figure 5.

Figure 5: Evidence-based Interventions for Major Causes of Neonatal Mortality



Source: Zupan, Jelka, WHO, 2001.

VI. Skilled Birth Attendants and Traditional Birth Attendants (TBAs)

According to WHO, the term ‘skilled attendant’ refers to “a health professional—such as midwife, doctor or nurse—who has been educated and trained to proficiency in the skills needed to manage normal (uncomplicated) pregnancies, childbirth and the immediate post-natal period, and in the identification, management or referral of complications in women and newborns.”ⁱ Although universal access to a skilled attendant at birth is a worthy goal, the reality is quite different in many countries. In fact, less than 60% of all births in developing countries are attended by a skilled health provider.ⁱⁱ

It is important to note that formal health care personnel, such as doctors, nurses, etc., are not automatically “skilled birth attendants.” Some doctors and nurses may not have had any obstetric training, or may not have mastered these skills. TBAs help to fill the gap, although some have concerns about the quality of care they are able to provide.

The term ‘traditional birth attendant’ refers to a lay health care provider who assists mothers during childbirth. They may have no formal training, or they may have been trained in basic obstetric care through a six-week course; regardless, most learn their skills through experience.ⁱⁱⁱ TBAs are generally valued in communities because of their knowledge of—and experience with—childbirth. Nevertheless, according to WHO, TBAs are not eligible to be classified as skilled birth attendants, regardless of whether or not they have received training.

Supportive roles for TBAs are being sought in some areas, including the avoidance of harmful practices, providing health education—including the recognition of danger signs—and referring women who are experiencing complications.^{iv} Many NGOs involve TBAs in health education and community mobilization efforts. Some NGOs also involve TBAs in the promotion of exclusive breastfeeding and the distribution of family planning methods. Lastly, a few NGOs are training TBAs in emergency obstetric first aid, including skills such as newborn resuscitation.

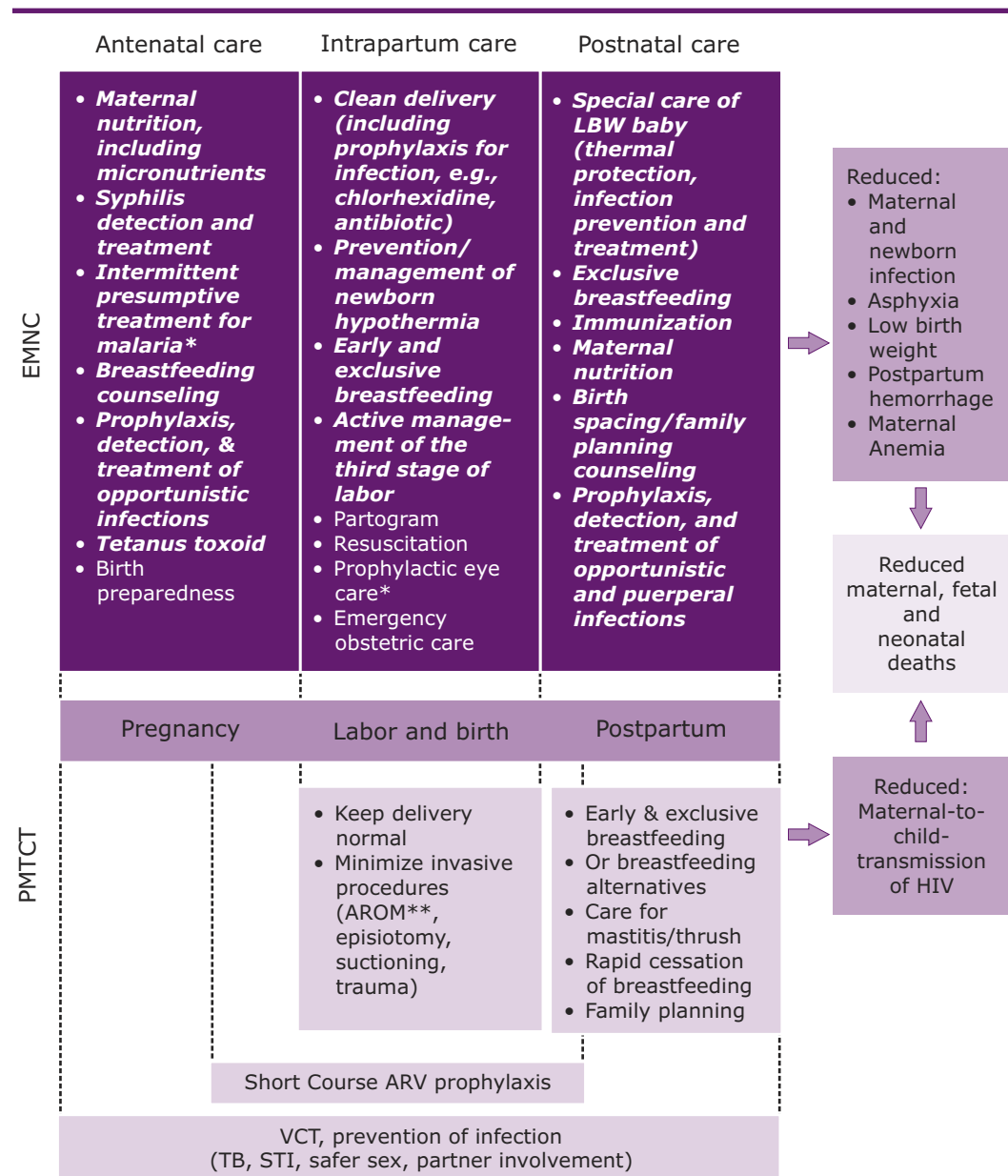
The American College of Nurse-Midwives (ACNM) promotes the use of emergency obstetric aid as part of its Home-based Life Saving Skills package. As part of this package, eligible TBAs and other selected community and family members receive training in groups—primarily through role play—to reinforce key actions to reduce maternal mortality.

If a project plans to work with TBAs, it is important for program designers and managers to understand national and local policies concerning TBAs, as well as their relationships with the communities they serve.

VII. Maternal and Newborn Care in HIV/AIDS Affected Areas

Figure 6 shows the links between essential maternal and newborn care and the prevention of mother-to-child transmission (PMTCT) of HIV infection.

Figure 6: Integration of Essential Maternal and Newborn Care and PMTCT




* endemic areas.

** AROM: artificial rupture of membrane.

Bold, italicized sentences indicate evidence based basic care package for HIV infected women and HIV exposed newborns.

Source: Compiled by Lily Kak, USAID/GH.



While all the Standards and Indicators presented in the *Compendium* are applicable to HIV-affected areas, program designers should consult appropriate resources for the most recent updates in care and treatment and the recommended indicators to use. A comprehensive source of information for NGOs implementing programs is the *HIV/AIDS Virtual Resource Center* available on the CSTS + website: <http://www.childsurvival.com/vrc/>. The center has links to key web sites devoted to HIV/AIDS.

NGOs working in HIV/AIDS-affected areas should consider addressing the need for confidential, high-quality voluntary counseling and testing (VCT) for HIV—strengthening services where they exist and working with local health providers to establish them where they are not. VCT is a cornerstone of HIV/AIDS programming, and ensuring access to a confidential, high-quality VCT service is critical to making a positive impact on health.

VIII. Essential References

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Helpful web sites:

- American College of Nurse Midwives (www.acnm.org)
- Averting Maternal Death and Disability Project (<http://cpmcnet.columbia.edu/dept/sph/popfam/amdd/index.html>)
- CARE (www.care.org)
- Child Survival Technical Support (CSTS+) Project (www.childsurvival.com)
- CORE Group (www.coregroup.org)
- INFO (www.infoforhealth.org)
- JHPIEGO (www.jhpiego.org)
- Maximizing Access and Quality (MAQ) (www.maqweb.org)
- Oxfam (www.oxfam.org.uk)
- Partnership for Safe Motherhood and Newborn Health (www.safemotherhood.org)
- Population and Health Infoshare (<http://www.phishare.org/>)
- Reproductive Health Gateway (www.rhgateway.org)
- Save the Children (www.savethechildren.org)
- Saving Newborn Lives (<http://www.savethechildren.org/health/newborns/index.asp>)
- The Policy Project (www.policyproject.com)
- White Ribbon Alliance for Safe Motherhood (www.whiteribbonalliance.org)
- World Health Organization (www.who.int)

Endnotes

- i. Ibid.
- ii. This definition was adapted from “The critical role of the skilled attendant: a joint statement by WHO, ICM and FIGO”. World Health Organization, Geneva 2004 (draft).
- iii. *Skilled attendant at birth – 2004 global estimates*. WHO; http://www.who.int/reproductive-health/global_monitoring/skilled_attendant.html
- iv. Haws R, PJ Winch, J Castillo, *Innovative Community-based Interventions to Improve Newborn Health in Latin America and the Caribbean*. The CORE Group: 2004; www.coregroup.org
- v. Ibid.

