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# Prevention of Mother-to-Child Transmission (PMTCT) of HIV

A HIGH SCHOOL EDUCATOR'S GUIDE (GRADES 9–12)

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Unless stated otherwise, the source for all charts, figures, maps, and statistics used in this unit is: United Nations Children's Fund, (UNICEF), New York. Additional sources are noted when they are required. Website addresses (URLs) are provided throughout this unit for reference and additional research. The authors have made every effort to ensure these sites and information are up-to-date at the time of publication, but availability in the future cannot be guaranteed.

### Unit Overview

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*Prevention of Mother-to-Child Transmission (PMTCT) of HIV* is a unit of four lessons and a final assessment designed:

1. To raise awareness about what PMTCT is and how it can help achieve an AIDS-free generation.
2. To shed light on the challenges in providing PMTCT services and how those challenges are being overcome.
3. To encourage students to take their own steps in addressing the local and global issues of PMTCT.

**Lesson 1:** Students tap into their knowledge of HIV and AIDS and expand into its global and social dimensions. They learn what PMTCT is and how it is a major strategy used by UNICEF in eliminating AIDS among the world's youth. Finally, they learn about the social challenges in promoting PMTCT through a young person's voice.

**Lesson 2:** Students continue to explore the social dimension of HIV and AIDS, and PMTCT in particular, by learning about efforts to overcome the stigma of the disease. They then discover the association between geography and impact of HIV and AIDS, through both map and data table analysis, and discuss possible actions resulting from that knowledge.

**Lesson 3:** Students work in groups to examine UNICEF fact sheets and discover the particular PMTCT landscape in four highly impacted countries. In presenting this information to each other, they discern trends in successful strategies and ongoing challenges for making their own policy recommendations.

**Lesson 4:** Students collect information and think critically about a UNICEF photo essay related to about PMTCT in Zambia. Through a teacher-facilitated discussion, they construct the best understandings possible of the people and the experiences depicted and discuss ways to take meaningful action.

**Final Assessment:** Students collaborate on a tool that advocates to the general population support for PMTCT efforts all around the world. Using UNICEF and other resources, and ideally using technology that allows for real-time sharing and authentic feedback, students will be assessed on their knowledge of HIV and AIDS and PMTCT, their evidence-based call to action, and the quality of their communication.

## Background Information

### Introduction

This standards-based unit helps educators facilitate thought-provoking and meaningful dialogue and provides activities for students to use their understanding of HIV and AIDS to discuss one means by which HIV is transmitted: from mother to child. One of the ways UNICEF and its partners have significantly reduced HIV infection in many developing nations is by focusing efforts on prevention of mother-to-child transmission (PMTCT) of the virus, which includes diagnosing women and providing them with the education and treatment necessary to dramatically reduce the chance of transmitting the virus to their child during pregnancy, childbirth, and breastfeeding.

Through an interdisciplinary approach that potentially incorporates skills in science, health, language arts, mathematics, social studies, and art education, students will achieve an understanding of the gravity of the pandemic and what necessary steps UNICEF and its partners are taking to reduce new infections and treat those who are already infected, particularly women and children.

Please consult the Additional Resources section for more information on educating young people about HIV and AIDS.

**A basic understanding of HIV and AIDS is a prerequisite to this unit. Ideally, the unit should be used in conjunction with an existing HIV and AIDS curriculum.**

## Background Information on PMTCT

For over three decades, HIV and AIDS have been affecting the lives and welfare of individuals and families around the globe. The scale of the epidemic has reached every corner of the world, with over 2.2 million new infections occurring each year.<sup>1</sup> While much of the global response has been focused on adults, it is estimated that 5 million children and young people are currently living with HIV. An estimated 80 percent of those children and youth live in only 20 countries, the majority located in Eastern and Southern Africa.<sup>2</sup>

UNICEF has taken a leading role for children, placing their needs and treatment front and center in the global AIDS response. Renewing its global commitment to prioritize the equitable treatment and provision for all children, UNICEF and its partners have introduced a global strategy to promote an AIDS-Free Generation. The strategy is based on the implementation of the “4 P’s”:

- Prevent** mother-to-child transmission of HIV.
- Provide** pediatric HIV care and treatment.
- Prevent** infection among adolescents and young people.
- Protect** and support children affected by HIV and AIDS.

<sup>1</sup> UNICEF, *Thematic Report 2010: HIV/AIDS and Children*; 2010.

<sup>2</sup> UNICEF, *Thematic Report 2010: HIV/AIDS and Children*; 2010.

This strategy outlines two major goals to be achieved by 2015:

1. Eliminate new HIV infections in children.
2. Reduce new infections among young people by 30 percent.

In 2011, the international community endorsed the elimination of mother-to-child HIV transmission by 2015 as a global goal. AIDS remains the leading cause of death among women of reproductive age (15–44), especially during pregnancy and the post-partum period.<sup>3</sup> The impact of the HIV epidemic on maternal mortality has been most serious in sub-Saharan Africa, where an estimated nine percent of all maternal deaths are directly due to AIDS, particularly in countries where HIV prevalence rates are high.<sup>4</sup>

The elimination of mother-to-child transmission of HIV is key to helping reach Millennium Development Goals 4 (Reduce Child Mortality), 5 (Improve Maternal Health), and 6 (Combat HIV/AIDS). The vertical transmission of HIV from mother to child has been effectively eliminated in affluent countries; however, in 2009 in low- and middle-income countries, 370,000 children were newly infected with HIV during pregnancy, labor and delivery, and breastfeeding.<sup>5</sup> To prevent the transmission of HIV from mother to child during these stages of birth and development, PMTCT interventions provide antiretroviral drugs (ARVs), counseling, and psychosocial support to mothers.

PMTCT is an important platform for bridging and integrating responses for health care, maternal and child health, and HIV. This can include monitoring the health of women before, during, and following childbirth; strengthening HIV testing and counseling of pregnant women; generalizing access to early infant diagnosis; continuing provision of HIV treatment and care from mother to child; and decentralizing care services for the most isolated and vulnerable communities and groups. PMTCT programs are slowly becoming integrated into routine antenatal and child health care around the world, helping to underscore the importance of maternal health and welfare in ensuring the health and survival of the baby.

**To learn more about the Millennium Development Goals, visit [http://www.unicef.org/statistics/index\\_24304.html](http://www.unicef.org/statistics/index_24304.html) or additional lesson plans from TeachUNICEF at <http://teachunicef.org/explore/topic/millennium-development-goals-0>.**

Through the joint efforts of UNICEF, governments, partners, and local communities, many countries in Eastern and Southern Africa, Latin America, East Asia, and Central and Eastern Europe are close to meeting the universal target for PMTCT coverage. According to global reporting, by 2009 ARV treatment for PMTCT reached more than half of pregnant women living with HIV in low- and middle-income countries, up from 15 percent in 2005. While progress is being made on many fronts with decreasing the overall global numbers of children being infected with HIV through vertical transmission, rates remain high in countries such as the Democratic Republic of the Congo, India, Nigeria, and Uganda.

3 WHO, *Women's Health: Today's Evidence, Tomorrow's Agenda*, 2009; WHO, UNICEF, UNFPA, and World Bank, *Trends in Maternal Mortality: 1990-2008*, 2010.

4 Wilmoth, J. et al., WHO Bulletin, 88: 718-718A, 2010; WHO, UNICEF, UNFPA, and World Bank, *Trends in Maternal Mortality: 1990-2008*, 2010.

5 UNAIDS, UNICEF, WHO, *Towards Universal Access: Scaling up priority interventions in the health sector*, 2010.

UNICEF has found that the elimination of new HIV infections and AIDS-related deaths in children is possible, but to become a reality requires vision, leadership, and improvements in health care systems. Reaching the goal of elimination requires closing gaps in geographic coverage, improving quality of services, and creating a demand for such services. Building on the wealth of program and scientific evidence that now exists, UNICEF is working with its partners to ensure meeting the needs of the millions of children, women, and families still facing the burden of the epidemic.

## Common Core State Standards

The lesson plans are designed in line with Common Core State Standards and National Content Standards.

Common Core State Standards <sup>6</sup>	Lesson				
	1	2	3	4	5
<b>Reading 6–12: College and Career Readiness Anchor Standards</b>					
2. Determine central ideas or themes of a text and analyze their development; summarize their key supporting details and ideas.	✓				✓
7. Integrate and evaluate content presented in diverse formats and media, including visually and quantitatively, as well as in words.	✓	✓	✓	✓	✓
8. Delineate and evaluate the argument and specific claims in a text, including the validity of the reasoning as well as the relevance and sufficiency of the evidence.					✓
10. Read and comprehend complex literary and informational texts independently and proficiently.	✓				✓
<b>Writing 6-12: College and Career Readiness Anchor Standards</b>					
1. Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.	✓	✓	✓		✓
2. Write informative/explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective selection, organization, and analysis of content.					✓
4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.			✓		✓
6. Use technology, including the Internet, to produce and publish writing and to interact and collaborate with others.					✓
7. Conduct short as well as more sustained research projects based on focused questions, demonstrating understanding of the subject under investigation.			✓		✓

<sup>6</sup> © Copyright 2010. National Governors Association Center for Best Practices and Council of Chief State School Officers. All rights reserved.

Common Core State Standards	Lesson				
	1	2	3	4	5
8. Gather relevant information from multiple print and digital sources, assess the credibility and accuracy of each source, and integrate the information while avoiding plagiarism.					✓
<b>Speaking and Listening 6-12: College and Career Readiness Anchor Standards</b>					
1. Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.	✓	✓	✓	✓	✓
2. Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively, and orally.	✓	✓	✓	✓	✓
4. Present information, findings, and supporting evidence such that listeners can follow the line of reasoning and the organization, development, and style are appropriate to task, purpose, and audience.			✓		✓
5. Make strategic use of digital media and visual displays of data to express information and enhance understanding of presentations.					✓

## National Content Standards

National Content Standards	Lesson				
	1	2	3	4	5
<b>National Curriculum Standards for Social Studies (K-12)</b> <sup>7</sup>					
<b>CULTURE:</b> Social studies programs should include experiences that provide for the study of culture and cultural diversity.	✓	✓		✓	✓
<b>INDIVIDUALS, GROUPS, AND INSTITUTIONS:</b> Social studies programs should include experiences that provide for the study of interactions among individuals, groups, and institutions.	✓	✓	✓	✓	✓
<b>POWER, AUTHORITY, AND GOVERNANCE:</b> Social studies programs should include experiences that provide for the study of how people create, interact with, and change structures of power, authority, and governance.			✓		✓
<b>SCIENCE, TECHNOLOGY, AND SOCIETY:</b> Social studies programs should include experiences that provide for the study of relationships among science, technology, and society.	✓	✓		✓	✓
<b>GLOBAL CONNECTIONS:</b> Social studies programs should include experiences that provide for the study of global connections and interdependence.	✓	✓	✓	✓	✓
<b>CIVIC IDEALS AND PRACTICES:</b> Social studies programs should include experiences that provide for the study of the ideals, principles, and practices of citizenship in a democratic republic.					✓
<b>National Geography Standards</b> <sup>8</sup>					
<b>Essential Element I. THE WORLD IN SPATIAL TERMS:</b> <i>The geographically informed person knows and understands...</i>					
1. How to use maps and other geographic representations, tools, and technologies to acquire, process, and report information from a spatial perspective.	✓	✓	✓	✓	✓

7 National Council for the Social Studies, *National Curriculum Standards for Social Studies: A Framework for Teaching, Learning, and Assessment* (Silver Spring, Maryland: NCSS, 1994), 14-23.

8 National Geography Standards, Geography Education Standards Project, *Geography for Life: The National Geography Standards* (Washington D.C.: National Geographic Society Committee on Research and Exploration, 1994), 34-35.

National Content Standards	Lesson				
	1	2	3	4	5
<b>Essential Element II. PLACES AND REGIONS:</b> <i>The geographically informed person knows and understands...</i>					
5. That people create regions to interpret Earth's complexity.			✓		
6. How culture and experience influence people's perceptions of places and regions.			✓		
<b>Essential Element IV. HUMAN SYSTEMS:</b> <i>The geographically informed person knows and understands...</i>					
9. The characteristics, distribution, and migration of human populations on Earth's surface.			✓		
<b>Essential Element VI. THE USES OF GEOGRAPHY:</b> <i>The geographically informed person knows and understands...</i>					
17. How to apply geography to interpret the past.			✓		
18. How to apply geography to interpret the present and plan for the future.			✓		
<b>National Council of Teachers of English &amp; International Reading Association (K-12)<sup>9</sup></b>					
<b>Standard 1:</b> Students read a wide range of print and nonprint texts to build an understanding of texts, of themselves, and of the cultures of the United States and the world; to acquire new information; to respond to the needs and demands of society and the workplace.	✓				✓
<b>Standard 7:</b> Students conduct research on issues and interests by generating ideas and questions, and by posing problems. They gather, evaluate, and synthesize data from a variety of sources (e.g., print and nonprint texts, artifacts, people) to communicate their discoveries in ways that suit their purpose and audience.					✓

<sup>9</sup> National Council of Teachers of English and International Reading Association, *Standards for the English Language Arts* (Urbana, IL, and Newark, DE: National Council of Teachers of English and International Reading Association, 1996), 25. For a full list of standards, see <http://www.ncte.org/standards>.

National Content Standards	Lesson				
	1	2	3	4	5
<b>Standard 8:</b> Students use a variety of technological and information resources (e.g., libraries, databases, computer networks, video) to gather and synthesize information and to create and communicate knowledge.					✓
<b>Standard 12:</b> Students use spoken, written, and visual language to accomplish their own purposes (e.g., for learning, enjoyment, persuasion, and the exchange of information).	✓	✓	✓	✓	✓
<b>Principles and Standards for School Mathematics)<sup>10</sup></b>					
<b>Number and Operations</b>					
<ul style="list-style-type: none"> <li>Understand numbers, ways of representing numbers, relationships among numbers, and number systems.</li> </ul>		✓			✓
<b>Data Analysis and Probability</b>					
<ul style="list-style-type: none"> <li>Formulate questions that can be addressed with data and collect, organize, and display relevant data to answer them.</li> <li>Develop and evaluate inferences and predictions that are based on data.</li> </ul>		✓			✓

<sup>10</sup> National Council of Teachers of Mathematics, *Principles and Standards for School Mathematics* (Reston, VA: NCTM, 2000), 214, 248, 290, 324. While we cannot assume that any of the secondary-level Common Core State Standards in Mathematics will be achieved in this unit, we believe the unit does touch on these NCTM standards.

# LESSON ONE

## Prevention of Mother-to-Child Transmission (PMTCT) of HIV

A High School Educator's Guide (Grades 9–12)

## WHAT IS PMTCT?

TOTAL TIME: 45 MINUTES

### Enduring Understandings

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- Around the world, HIV/AIDS adversely affects the lives of millions of people, particularly children.
- HIV/AIDS is preventable, and no child should be born HIV-positive.

### Essential Questions

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- How can prevention of mother-to-child transmission (PMTCT) change the impact HIV/AIDS has had on the world?
- What can be done to ensure PMTCT service is provided to all women worldwide?

### Objectives

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Students will:

- Differentiate between scientific or medical dimensions and social dimensions of the study of disease.
- Explain what PMTCT is and how it can help achieve an AIDS-free generation.

### Vocabulary

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The following words may not be used daily in a student's vocabulary. Feel free to use this list as a resource for students to expand their working vocabulary as they encounter these words in the lesson.

- advocacy
- antiretroviral (drugs)
- mortality
- prevalence
- vertical transmission
- antenatal
- (medical) intervention
- pediatric
- stigma

**NOTE:** Vertical transmission is increasingly used to refer to mother-to-child transmission (MTCT), as it is a more inclusive term that takes into consideration causal factors such as the role of the father or male sexual partner in transmitting HIV to the woman.

## Materials Needed and Setup

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- World atlases
- Computer with Internet access
- Projector
- Video: Preventing Mother-to-Child Transmission of HIV in Guatemala, [http://www.unicef.org/videoaudio/ramfiles/8159h\\_guatemalahiv aids.ram](http://www.unicef.org/videoaudio/ramfiles/8159h_guatemalahiv aids.ram)
- Handouts 1 and 2

## Directions

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1. Explain to the students that they are going to begin a series of lessons that extend their studies of the spread and prevention of disease in a global direction. Have them create a two-column chart titled “My Knowledge of the Spread and Prevention of Disease” in their notes; the left column should be headed “Science/Medicine” and the right column should be headed “Society.” Instruct the students to spend five minutes writing down entries to the chart by themselves. After the time is up, have students work in pairs and share with a partner. Then sample the results together as a class.
2. Point out that disease is often spread within families. In particular, HIV can be transmitted from a mother to a child during pregnancy, delivery, and breastfeeding. Explain that the purpose of this lesson is to learn how that process can be prevented and millions of lives can be saved.
3. Tell students that this lesson will tap into their previous learning about HIV and AIDS. If you taught this to them yourself, you may want to take this time to review the key learnings that will be necessary to continue with the lesson. If the students learned about HIV and AIDS from someone else, consider doing a K-W-L (know, want to know, learned) activity<sup>11</sup> or something similar to assess background knowledge and student interests. Consult the background section of this lesson for information to refresh the students’ understanding of HIV and AIDS.
4. Distribute Handout 1 (What Is PMTCT?) and have the students read it. Then consider the following questions together:
  1. What is essential to know about the global AIDS epidemic?
  2. Who are among those most affected? In what ways are they vulnerable?
  3. What are the “4 P’s?” What are the two goals UNICEF and partners hope to achieve by 2015?
  4. What is one of the most common ways for children to acquire HIV? What can be done to prevent mother-to-child transmission (MTCT) of HIV?
  5. How easy or hard is it to provide successful PMTCT interventions?
  6. How successful has the PMTCT effort been so far? What main challenges remain?

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11 Donna M. Ogle, “K-W-L: A Teaching Model That Develops Active Reading of Expository Text,” *Reading Teacher* 39, no. 6 (February 1986): 564-570.

5. Emphasize that HIV/AIDS is an issue that affects people worldwide, many of whom are roughly the same age as your students. Distribute the map on Handout 2 (Estimated Number of Adolescent Females Aged 10–19 Living With HIV, 2009), and display a color version of the map for the class to see. Help the students use a world atlas to locate Guatemala, where the video they are about to see takes place. Have them label it on their maps. Then ask the students to consider the social perspective of PMTCT, especially the concept of *stigma*, as they view the video “Preventing Mother-to-Child Transmission of HIV in Guatemala” at [http://www.unicef.org/videoaudio/ramfiles/8159h\\_guatemalahiv aids.ram](http://www.unicef.org/videoaudio/ramfiles/8159h_guatemalahiv aids.ram). Show the video and follow up with discussion, journaling, or another way to capture the students’ thinking on the issue. Close the lesson by validating their thoughts and previewing the rest of the unit.

**There is an article to support the video on PMTCT in Guatemala at [http://www.unicef.org/infobycountry/guatemala\\_47808.html](http://www.unicef.org/infobycountry/guatemala_47808.html).**

# LESSON TWO

## Prevention of Mother-to-Child Transmission (PMTCT) of HIV A High School Educator's Guide (Grades 9–12)

## PEOPLE AND STATISTICS: PMTCT

TOTAL TIME: 45 MINUTES

### Objectives

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Students will:

- Explain why social and emotional support is necessary for effective PMTCT.
- Associate differences in the impact of HIV with differences in geography.
- Analyze statistics describing PMTCT efforts and derive evidence-based conclusions from the data.

### Materials Needed and Setup

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- World atlases
- Computer with Internet access (computer lab if the students are to watch the video in small groups)
- Projector
- Video: Preventing Mother-to-Child Transmission of HIV/AIDS  
<http://teachunicef.org/explore/media/watch/prevention-mother-child-transmission-hivaids>
- Handouts 1–3

### Directions

---

1. Ask the students to take out Handouts 1 and 2. Review the learning that was achieved previously, especially the social dimension of the spread and prevention of disease. Tell the students they will be continuing this exploration today, as well as uncovering and analyzing the data that sheds light on the problem.
2. To transition to the UNICEF video “Prevention of Mother-to-Child Transmission of HIV/AIDS,” help the students use a world atlas to locate Mozambique, where the video they are about to see takes place. Have them label it on their maps.

3. View the video at <http://teachunicef.org/explore/media/watch/prevention-mother-child-transmission-hiv-aids>, instructing the students to watch it with the following question in mind: *Besides providing medical intervention (e.g., drugs), what do health care workers need to do to ensure that PMTCT is successful?* Review together these possible answers: provide social and emotional support, combat stigma, travel to hard-to-reach populations, and consider financial implications.
- OPTIONAL:** Have the students watch the video in a computer lab in small groups, and have them discuss the guiding question together before engaging them in whole-class discussion.
4. Connect PMTCT to the HIV status of reproductive-age females, and mention that HIV and AIDS is a global pandemic. Refer to the map on Handout 2. Using world atlases, work through the following tasks together:
- Which two African countries seem to have the highest number of adolescent females living with HIV? Label these countries on the map. (*Nigeria and South Africa*)
  - Which Asian country seems to have the highest number of adolescent females living with HIV? Label this country on the map. (*India*)
  - Which North American country seems to have the highest number of adolescent females living with HIV? Label this country on the map. (*United States*)
  - One of the regions of the world that has the highest number of adolescent females living with HIV is sub-Saharan Africa. Locate this region on the map and use a light-colored highlighter to shade it in, then label it on the map.
5. Ask whether the trends in the map should also be seen in the data for PMTCT. Distribute Handout 3 and assign the students to complete the data table analysis. (This may be an appropriate homework activity.) Review and discuss; prompt students to think about ways governments and organizations like UNICEF should act on this data.

*Answers to Questions on Handout 3:*

- Yes; Eastern and Southern Africa have a larger number of pregnant women with HIV as well as a significantly larger percentage of those women receiving ARVs than in West and Central Africa. Possible explanations: The number of HIV-positive pregnant women could be affected by the geographic scale and population rates of the regions. These statistics could also be impacted by the individual national responses related to prevention and transmission. The reported number of HIV-positive pregnant women who receive ARVs for PMTCT could differ significantly between the two areas depending on scale of PMTCT services, government and community support, and general access to social services of those most at-risk.*
- Highest – Central and Eastern Europe/Commonwealth of Independent States (CEE/CIS); Lowest – Middle East and North Africa; Possible explanations: The high rate of coverage in CEE/CIS could be explained by advanced government support of programming, at both financial and policy levels; a smaller, more concentrated epidemic exists in this region, with highest rates of HIV among injection drug users; many of the countries in this region are middle-income nations. The lowest rate of coverage that exists in the Middle East and North Africa could be explained by low incidence rate of HIV/AIDS among pregnant women*

*leading to fewer available services for those that are infected; stigma associated with treatment; ongoing conflict could affect service delivery.*

- 3. Sub-Saharan Africa as a whole (43 points), Eastern and South Africa (42 points), and Latin America and the Caribbean (44 points). Possible answers: The first column estimate is an average, taking into consideration the high and low estimates and the uneven delivery of services; the actual percentage of women who received ARVs could be much higher or much lower than the given estimate; there are so many places to reach within the region that measuring service delivery in all of them is difficult with a poor monitoring and evaluation system; more resources need to be devoted to measuring service delivery, especially in order to make the best decisions about where to allocate future resources.*

**OPTIONAL:** Have the students work in groups to identify a statistic they think is useful for highlighting a success or ongoing challenge of PMTCT, and design a message around that statistic for an advocacy advertisement in a magazine or on a website.

# LESSON THREE

## NATIONAL SUCCESSES AND CHALLENGES

TOTAL TIME: 45 MINUTES

### Objectives

---

Students will:

- Analyze a UNICEF document to identify the leading successes and challenges in PMTCT in a highly affected country.
- Derive a general strategy for PMTCT based on the trends in the country studied.

### Vocabulary

---

The following words may not be used daily in a student's vocabulary. Feel free to use this list as a resource for students to expand their working vocabulary as they encounter these words in the lesson.

- antenatal care (ANC)
- equitable
- highly active antiretroviral therapy (HAART)
- marginalization
- neonatal
- prophylactic/prophylaxis
- regimen
- surveillance
- tuberculosis

### Materials Needed and Setup

---

- World atlases
- Projector
- Handouts 1–8

## Directions

---

1. Ask the students to take out their three handouts and review the different regions examined and the impact of HIV there. Guide them to think about how the nature of HIV and PMTCT is different not only depending on geographic region, but also within each region, and even within the same country.
2. Introduce the four countries being studied (Botswana, India, Mozambique, and Zambia) by using a world atlas to locate them. Have the students label them on their maps as you do so on a color version of the map for the class to see.
3. Divide the class into groups and assign each a PMTCT fact sheet on Handouts 4–7. Tell them that these fact sheets summarize the status of national PMTCT responses in four of the world’s 22 most affected countries. Each sheet contains information on the state of PMTCT service delivery and policy development, and highlights challenges that must be addressed to reach national targets. Ask them to examine their sheet and collaboratively identify and explain (a) three areas of success and (b) three remaining challenges.
4. Circulate around the room to help students interpret the fact sheets and focus the groups’ attention toward the most relevant content. Some of the specialized language has been noted in the vocabulary section of this lesson; other terms are so specialized (e.g., WHO Option A) that the students need not be concerned if they do not know their precise meaning.

**NOTE:** Sufficient preparation on the teacher’s part is essential to making this work. Besides preparing based on the fact sheets, it is advisable to read pages 5–10 of Children and AIDS: Fifth Stocktaking Report, 2010 (2011) ([http://www.unicef.org/aids/files/ChildrenAndAIDS\\_Fifth\\_Stocktaking\\_Report\\_2010\\_EN.pdf](http://www.unicef.org/aids/files/ChildrenAndAIDS_Fifth_Stocktaking_Report_2010_EN.pdf)) to gain a sense of the overall successes and challenges in PMTCT.

5. Have groups present their findings to the class, collecting the information for all to see on the board or screen. Add clarification and prompt for elaboration as necessary.
6. Help the class in identifying trends and areas of particular achievement or concern. Ensure the students are taking notes, as they will be used in a subsequent activity.
7. Have the students write answers to the following question: “What can be done to ensure PMTCT is provided to all at-risk individuals worldwide?” Discuss the answers as a group to promote further group discussion and exploration of answers.

The fact sheets related to PMTCT can be found in the Handout section of this unit and at [http://www.unicef.org/aids/index\\_preventionyoung.html](http://www.unicef.org/aids/index_preventionyoung.html). There are additional fact sheets at this link, as well.

# LESSON FOUR

## Prevention of Mother-to-Child Transmission (PMTCT) of HIV A High School Educator's Guide (Grades 9–12)

# FACES OF MOTHER-TO-CHILD TRANSMISSION (MTCT)

TOTAL TIME: 45 MINUTES

## Objectives

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Students will:

- Analyze a photo essay of people experiencing mother-to-child transmission of HIV/AIDS (MTCT) in Zambia.
- Construct understandings of successes and challenges of people experiencing MTCT.

## Materials Needed and Setup

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- World atlases
- Computer with Internet access
- Projector
- Photo Essay: UNICEF Photo Essay on Pediatric HIV/AIDS in Zambia, Part III of VI [http://www.unicef.org/photography/photo\\_essays\\_hiv aids.php?pid=2AM408EF84G](http://www.unicef.org/photography/photo_essays_hiv aids.php?pid=2AM408EF84G)
- Teacher-created viewing guide for the photo essay
- Handouts 1–8

## Directions

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1. Based on the assessment of the students' answers to the final question from the previous class, review what was learned about how PMTCT can be provided to all at-risk individuals worldwide.
2. Prepare the class for today's photograph-analysis activity by telling them that they will be seeing the human face of the ongoing challenges in providing PMTCT. The UNICEF Photo Essay on Pediatric HIV/AIDS in Zambia, Part III of VI is located at: [http://www.unicef.org/photography/photo\\_essays\\_hiv aids.php?pid=2AM408EF84G](http://www.unicef.org/photography/photo_essays_hiv aids.php?pid=2AM408EF84G). Tell students that it takes place in the country of Zambia and have them locate the country on Handout 2.

3. Distribute Handout 4 (Discussion Questions for the Photo Essay) and have students view the photo essay. Depending on the amount of time, please have students answer a few or all of the questions.
4. Lead the students in a discussion of the impact these photographs had on them. Besides using notes from their viewing guides, you may want to consider these additional prompts:
  - What, if any, specific actions might someone be inspired to take after viewing the photographs?
  - What new knowledge did you gain from viewing these photographs?
  - Do you believe photographs in and of themselves can tell a story? If the students think so, challenge them to complete the following sentence: “This group of photographs tells the story of...”
5. Build up interest for the final assessment, an advocacy tool for promoting PMTCT locally and globally.

## PROMOTE PMTCT THROUGH ADVOCACY

TOTAL TIME: 90 MINUTES OR MORE

### Objectives

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Students will:

- Create an advocacy tool for promoting PMTCT locally and globally.

### Materials Needed and Setup

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- Computer lab with Internet access
- Teacher-created assignment worksheet
- Handouts 1–8

### Students' Task

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Create an advocacy tool for promoting PMTCT locally and globally.

Students should now understand how effective PMTCT services are and be able to describe some of the challenges in making them available to women and families in need. As a final assessment, have the students collaborate on a tool that advocates the general population supporting PMTCT efforts around the world. The tool could be in the medium of choice, though it is highly suggested that you use technology that allows for real-time sharing and authentic feedback (such as a blog, wiki, podcast, social network like Ning, asynchronous video conference like Voicethread, or webinar). Regardless, the tool should accomplish the following:

- Inform the viewer on the HIV and AIDS pandemic and the power of PMTCT to combat it.
- Include at least one actual personal account of the difference PMTCT can make (either when it is lacking or when it is provided).
- Focus on the successes some countries and communities have had in providing PMTCT.
- Highlight the challenges that persist in providing PMTCT services.
- Inform the viewer how he or she can support PMTCT efforts worldwide.

## Resources

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In addition to the resources provided by this unit, TeachUNICEF.org (<http://teachunicef.org>) offers a selection of readings, videos, and podcasts that can be useful for your students. UNICEF (<http://www.unicef.org>) also has more sources of information to complete this task. The photo essays and other assets at <http://www.unicef.org/photography/> are particularly useful for finding personal stories. Students may also download UNICEF documents, such as:

- Opportunity in Crisis: Preventing HIV from Early Adolescence to Young Adulthood (2011):  
[http://www.unicef.org/publications/files/Opportunity\\_in\\_Crisis-Report\\_EN\\_052711.pdf](http://www.unicef.org/publications/files/Opportunity_in_Crisis-Report_EN_052711.pdf)
- Children and AIDS: Fifth Stocktaking Report, 2010:  
[http://www.unicef.org/aids/files/ChildrenAndAIDS\\_Fifth\\_Stocktaking\\_Report\\_2010\\_EN.pdf](http://www.unicef.org/aids/files/ChildrenAndAIDS_Fifth_Stocktaking_Report_2010_EN.pdf)

See the Additional Resources section of this unit for other sources.

A rubric for the assessment may be based on the following:

	1 = Unacceptable	2 = Poor	3 = Acceptable	4 = Admirable	5 = Excellent
<p>Background information on HIV/AIDS and PMTCT</p> <p>*NOTE: Data from various sources (fact sheets, maps, text, etc.) should be used</p>	Conveys inadequate, imprecise, and inaccurate information about HIV/AIDS and PMTCT	Conveys inadequate or too imprecise or inaccurate information about HIV/AIDS and PMTCT	Conveys largely accurate information about HIV/AIDS and PMTCT	Paraphrases accurately an ample amount of information about HIV/AIDS and PMTCT	Presents in an original academic voice an ample amount of accurate information about HIV/AIDS and PMTCT
Content on PMTCT successes and challenges	<p>*Conveys inadequate, imprecise, and inaccurate information</p> <p>*Covers either successes or challenges</p> <p>*Does not have sufficient support from an actual personal account. May not be documented</p>	<p>*Conveys inadequate or too imprecise or inaccurate information</p> <p>*Only covers successes or challenges adequately</p> <p>*Contains actual personal account, but provides only basic support</p>	<p>*Conveys largely accurate information</p> <p>*Covers successes well but challenges only adequately, or vice versa</p> <p>*Supported adequately by an actual personal account</p>	<p>*Paraphrases accurately an ample amount of information</p> <p>*Covers successes and challenges adequately</p> <p>*Supported adequately by more than one actual personal account or superbly by one</p>	<p>*Presents in an original academic voice an ample amount of accurate information</p> <p>*Excellent coverage of both successes and challenges</p> <p>*Supported superbly by more than one actual personal account</p>
Presentation	<p>*Delivery is largely unclear and off-focus</p> <p>*No visual aid is used</p>	<p>*Delivery is largely unclear and/or off-focus</p> <p>*A visual aid is used, though not supporting the presentation well</p>	<p>*Delivery is well focused</p> <p>*A visual aid is used well</p>	<p>*Delivery is clear and well focused</p> <p>*Visual aids are used well</p>	<p>*Delivery is clear, well focused, and engages the audience</p> <p>*Visual aids are used well and are a seamless part of the presentation</p>

## Glossary

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**Antenatal:** prenatal

**Antibody:** any of a large number of proteins of high molecular weight that are produced normally by specialized B cells after stimulation by an antigen and act specifically against the antigen in an immune response, that are produced abnormally by some cancer cells, and that typically consist of four subunits including two heavy chains and two light chains—called also immunoglobulin.

**Antiretroviral Therapy (ART):** The use of different kinds of medications to keep HIV from growing and multiplying in an infected person's body. Most people on ART take a combination of several medications prescribed by their doctors to keep their HIV disease under control.<sup>12</sup>

**DNA:** any of various nucleic acids that are usually the molecular basis of heredity, are constructed of a double helix held together by hydrogen bonds between purine and pyrimidine bases which project inward from two chains containing alternate links of deoxyribose and phosphate, and that in eukaryotes are localized chiefly in cell nuclei.

**Epidemic:** affecting or tending to affect a disproportionately large number of individuals within a population, community, or region at the same time.

**Immune System:** the bodily system that protects the body from foreign substances, cells, and tissues by producing the immune response and that includes especially the thymus, spleen, lymph nodes, special deposits of lymphoid tissue (as in the gastrointestinal tract and bone marrow), macrophages, lymphocytes including the B cells and T cells, and antibodies.

**Maternal:** 1. of, relating to, belonging to, or characteristic of a mother; 2. a: related through a moth; b: inherited or derived from the female parent.

**Natal:** of, relating to, or present at birth; especially: associated with one's birth.

**Opportunistic:** being or caused by a usually harmless microorganism that can become pathogenic when the host's resistance is impaired.

**Pediatrics:** a branch of medicine dealing with the development, care, and diseases of children.

**Prenatal:** 1: occurring, existing, or performed before birth <*prenatal care*>; 2: providing or receiving prenatal medical care.

**Prophylaxis:** measures designed to preserve health (as of an individual or of society) and prevent the spread of disease.

**Retrovirus:** any of a family (*Retroviridae*) of single-stranded RNA viruses that produce reverse transcriptase by means of which DNA is produced using their RNA as a template and incorporated into the genome of infected cells, that are often tumorigenic, and that include the lentiviruses (as the HIVs) and the causative agent of Rous sarcoma.

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<sup>12</sup> Adapted from <http://aids.gov/hiv-aids-basics/hiv-aids-101/overview/treatment/>

**RNA:** any of various nucleic acids that contain ribose and uracil as structural components and are associated with the control of cellular chemical activities.

**T cell:** any of several lymphocytes (as a helper T cell) that differentiate in the thymus, possess highly specific cell-surface antigen receptors, and include some that control the initiation or suppression of cell-mediated and humoral immunity (as by the regulation of T and B cell maturation and proliferation) and others that lyse antigen-bearing cells —called also *T lymphocyte*.

**Transmit:** a: to send or convey from one person or place to another; b: to cause or allow to spread: as (1): to convey by or as if by inheritance or heredity (2): to convey (infection) abroad or to another.

**Vaccine:** a preparation of killed microorganisms, living attenuated organisms, or living fully virulent organisms that is administered to produce or artificially increase immunity to a particular disease.

**Vertical Transmission:** A term similar to “mother-to-child transmission.” “Some countries prefer to use the term “parent to-child transmission ‘or ‘vertical transmission” as more inclusive terms to avoid stigmatizing pregnant women, to acknowledge the role of the father/male sexual partner in transmitting HIV to the woman, and to encourage male involvement in HIV prevention.”<sup>13</sup>

**Virus:** a: the causative agent of an infectious disease b: any of a large group of submicroscopic infective agents that are regarded either as extremely simple microorganisms or as extremely complex molecules, that typically contain a protein coat surrounding an RNA or DNA core of genetic material but no semipermeable membrane, that are capable of growth and multiplication only in living cells, and that cause various important diseases in humans, lower animals, or plants.

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13 Joint United Nations Programme on HIV/AIDS, UNAIDS Terminology Guidelines, Revised Version, October 2011 (Geneva: UNAIDS, 2011), [http://www.unaids.org/en/media/unaids/contentassets/documents/unaidspublication/2011/JC2118\\_terminology-guidelines\\_en.pdf](http://www.unaids.org/en/media/unaids/contentassets/documents/unaidspublication/2011/JC2118_terminology-guidelines_en.pdf)

## What Is PMTCT?<sup>14</sup>

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**DIRECTIONS:** Read the following background document on the prevention of mother-to-child transmission (PMTCT) of HIV/AIDS. As you read, pay close attention to (1) the key characteristics of the AIDS epidemic, (2) the vulnerability of those who are most affected, and (3) the challenges in providing successful interventions. Record your notes on these considerations at the end.

In September 2000, 189 countries signed the United Nations Millennium Declaration, committing them to eradicating extreme poverty in all its forms by 2015. To help track progress toward these commitments, a set of time-bound and quantified goals and targets, called the Millennium Development Goals, were developed for combating poverty in its many dimensions—including reducing poverty, hunger, disease, environmental degradation, and gender discrimination.

The sixth of the eight Millennium Development Goals, or MDGs, is to combat HIV/AIDS, malaria, and other diseases. For over three decades, HIV and AIDS have been affecting the lives and welfare of individuals and families around the globe. The scale of the epidemic has reached every corner of the world, with over 2.2 million new infections occurring per year.<sup>15</sup> While much of the global response has been focused on adults, it is estimated that 5 million children and young people are currently living with HIV. An estimated 80 percent of those children and youth live in only 20 countries, the majority located in Eastern and Southern Africa.<sup>16</sup> Furthermore, AIDS remains the leading cause of death among women of reproductive age (15–44), especially during pregnancy and the post-partum period.<sup>17</sup> The impact of the HIV epidemic on maternal mortality has been most serious in sub-Saharan Africa, where an estimated nine percent of all maternal deaths are directly due to AIDS, particularly in countries where HIV prevalence rates are high.<sup>18</sup>

UNICEF has taken a leading role for children, placing their needs and treatment front and center in the global AIDS response. Renewing its global commitment to prioritize the equitable treatment and provision for all children, UNICEF and its partners have introduced a global strategy to promote an AIDS-Free Generation. The strategy is based on the implementation of the “4 P’s” of the “Unite for Children, Unite Against AIDS” campaign, launched in 2005:

**Prevent** mother-to-child transmission (MTCT) of HIV.

**Provide** pediatric HIV care and treatment.

**Prevent** infection among adolescents and young people.

**Protect** and support children affected by HIV and AIDS.

14 Includes parts adapted from “Prevention of Mother-to-Child Transmission of HIV (PMTCT),” in *Virtual Curriculum Binder* (New York: U.S. Fund for UNICEF, 2009), 1-3.

15 UNICEF, *Thematic Report 2010: HIV/AIDS and Children*; 2010.

16 UNICEF, *Thematic Report 2010: HIV/AIDS and Children*; 2010.

17 WHO, *Women’s Health: Today’s Evidence, Tomorrow’s Agenda, 2009*; WHO, UNICEF, UNFPA, and World Bank, *Trends in Maternal Mortality: 1990-2008, 2010*.

18 Wilmoth, J. et al., WHO Bulletin, 88: 718-718A, 2010; WHO, UNICEF, UNFPA, and World Bank, *Trends in Maternal Mortality: 1990-2008, 2010*.



Women attend an information session on Prevention of Parent-to-Child Transmission (PPTCT) led by HIV/AIDS counsellor Naveen at V.V. Hospital in Bangalore, capital of the state of Karnataka.

Following this strategy, UNICEF and its partners aim to achieve these two goals by 2015:

1. Eliminate new HIV infections in children.
2. Reduce new infections among young people by 30 percent.

The vast majority of children living with HIV acquire it through mother-to-child transmission, which can occur in the womb, during birth, or through breastfeeding. In 2011, the international community endorsed the elimination of mother-to-child HIV transmission by 2015 as a global goal. While this vertical transmission of HIV from mother to child has been effectively eliminated in affluent countries, in low- and middle-income countries, 370,000 children were newly infected with HIV during pregnancy, labor and delivery, and breastfeeding in 2009 alone.<sup>19</sup> Prevention of HIV transmission from mother to child (PMTCT) requires a comprehensive package of services that includes preventing primary HIV infection in women; preventing unintended pregnancies in women living with HIV; preventing transmission from pregnant women living with HIV to their infants; and providing care, treatment, and support for women living with HIV and their families.

The risk of mother-to-child transmission can be reduced by the following:

- Treatment with antiretroviral drugs (ARVs)
- Birth by cesarean section
- Avoidance of breastfeeding, but only when replacement feeding is acceptable, feasible, affordable, sustainable, and safe. If not, exclusive breastfeeding is recommended for the first six months.

<sup>19</sup> UNAIDS, UNICEF, WHO, *Towards Universal Access: Scaling up priority interventions in the health sector*, 2010.

The elimination of mother-to-child transmission of HIV is key not just to helping reach Millennium Development Goal 6 (Combat HIV/AIDS), but also Goal 4 (Reduce Child Mortality) and Goal 5 (Improve Maternal Health). PMTCT is an important platform for bridging and integrating responses for health care, maternal and child health, and HIV. This can include monitoring the health of women before, during, and following childbirth; strengthening HIV testing and counseling of pregnant women; generalizing access to early infant diagnosis; continuing provision of HIV treatment and care from mother to child; and decentralizing care services for the most isolated and vulnerable communities and groups. These programs are slowly becoming integrated into routine antenatal and child health care around the world, helping to underscore the importance of maternal health and welfare in ensuring the health and survival of the baby.

Through the joint efforts of UNICEF, governments, partner organizations, and local communities, many countries in Eastern and Southern Africa, Latin America, East Asia, and Central and Eastern Europe are close to meeting the universal target for PMTCT coverage. According to global reporting, ARV (antiretroviral) treatment for PMTCT reached more than half of pregnant women living with HIV in low- and middle-income countries by 2009, up from 15 percent in 2005. While progress is being made on many fronts with the overall global numbers decreasing for children being infected with HIV through vertical transmission, rates remain high in countries such as the Democratic Republic of the Congo, India, Nigeria, and Uganda.

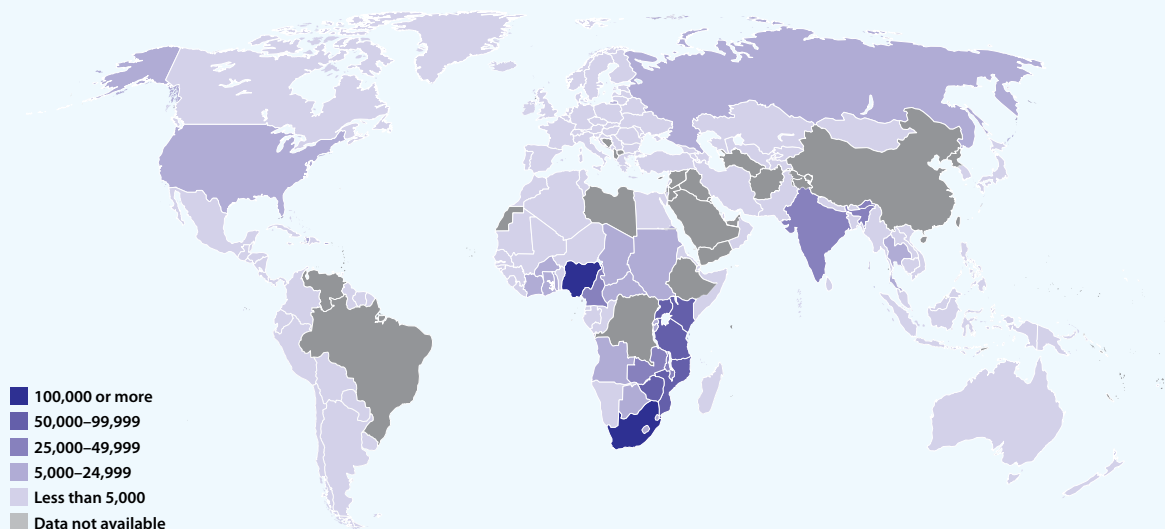
UNICEF has found that the elimination of new HIV infections and AIDS-related deaths in children is possible, but to become a reality requires vision, leadership, and improvements in health care systems. Reaching the goal of elimination requires closing gaps in geographic coverage, improving quality of services, and creating a demand for such services. Building on the wealth of program and scientific evidence that now exists, UNICEF is working with its partners to ensure that the needs of the millions of children, women, and families still facing the burden of the epidemic are met.

#### NOTES:

Key Characteristics of the AIDS Epidemic	Vulnerability of Those Who Are Most Affected	Challenges in Providing Successful Interventions

## MAP: Estimated Number of Adolescent Females Aged 10–19 Living With HIV, 2009<sup>20</sup>

FIGURE 9: Estimated number of adolescent females aged 10–19 living with HIV, 2009



Source: UNAIDS unpublished estimates, 2010.

Note: The map is stylized and not to scale. It does not reflect a position on the part of UNICEF on the legal status of any country or territory or the delimitation of any frontiers. The dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the Parties.

<sup>20</sup> United Nations Children's Fund (UNICEF), "Adolescents and Young People Living with HIV," in *Opportunity in Crisis: Preventing HIV from Early Adolescence to Young Adulthood* (United Nations publication, Sales No. E.11.XX.5, 2011), 25. Available from <http://www.unicef.org/publications>.

## Table: Preventing Mother-to-Child Transmission of HIV in Low- and Middle-Income Countries<sup>21</sup>

Mother-to-child transmission of HIV	Estimated number of HIV-positive pregnant women, 2009			Reported number of HIV-positive pregnant women who received ARVs for PMTCT, 2009	Estimated percentage of HIV-positive pregnant women who received ARVs for PMTCT, 2009		
	Estimate	Low estimate	High estimate		Estimate	Low estimate	High estimate
<b>Sub-Saharan Africa<sup>†</sup></b>	1,260,000	810,000	1,700,000	673,100	53	40	83
Eastern and Southern Africa	860,000	600,000	1,100,000	584,700	68	53	>95
West and Central Africa	380,000	200,000	560,000	88,100	23	16	44
<b>Middle East and North Africa</b>	16,400	9,600	23,000	530	3	2	5
<b>Asia</b>	73,200	45,000	110,000	23,800	33	22	52
East Asia and Pacific	26,200	18,000	40,000	12,400	47	31	68
South Asia	46,800	23,000	78,000	11,400	24	15	50
<b>Latin America and Caribbean</b>	29,900	19,000	41,000	16,200	54	39	83
<b>CEE/CIS<sup>††</sup></b>	15,100	7,600	22,000	14,100	94	63	>95
<b>Low- and middle-income countries</b>	<b>1,380,000</b>	<b>920,000</b>	<b>1,800,000</b>	<b>727,600</b>	<b>53</b>	<b>40</b>	<b>79</b>

<sup>†</sup> Including Djibouti and the Sudan

<sup>††</sup> Central and Eastern Europe and the Commonwealth of Independent States

### DEFINITIONS OF THE INDICATORS

**Estimated number of HIV-positive pregnant women:** Estimated number of pregnant women living with HIV as of 2009.

**Reported number of HIV-positive pregnant women who received ARVs for PMTCT:** Number of women testing HIV-positive during visits to antenatal clinics who were provided with antiretroviral therapy (ARVs) to prevent mother-to-child transmission.

**Estimated percentage of HIV-positive pregnant women who received ARVs for PMTCT:** Calculated by dividing the reported number of HIV-infected pregnant women who received ARVs for PMTCT by the estimated unrounded number of HIV-infected pregnant women in 2009 (based on UNAIDS/WHO methods). Ranges in coverage estimates are based on plausibility (uncertainty) bounds in the denominator, i.e., low and high estimated number of HIV-infected pregnant women. The point estimates and ranges are given for countries with a generalized epidemic, whereas only ranges are given for countries with a low or concentrated epidemic. For further information, see Annex 7 of *Towards Universal Access: Scaling up priority HIV/AIDS interventions in the health sector*, 2010 for the classification of low- and middle-income countries.

<sup>21</sup> Adapted from United Nations Children's Fund (UNICEF), *Children and AIDS: Fifth Stocktaking Report, 2010* (United Nations publication, Sales No. E.10.XX.9, 2010), 38. Available from <http://www.unicef.org/publications>.

1. Earlier, you learned that sub-Saharan Africa is one of the regions of the world that has the highest number of adolescent females living with HIV. Does it also lead the regions composed of mainly low- and middle-income countries in the estimated number of HIV-positive pregnant women? As you can see, two regions exist within sub-Saharan Africa (Eastern and Southern Africa, and West and Central Africa) that have very different statistical outlooks as related to HIV prevalence of pregnant women and the delivery of ARV therapies. Please describe how the situation differs in these two regions and what could account for those differences.

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2. Based on the statistics found in the Estimate columns, identify which region of the world has the highest percentage of HIV-pregnant women receiving ARVs; which has the lowest? Describe factors that might explain why these regions have such high or low levels of PMTCT coverage.

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3. The discrepancy between the highest and lowest estimated percentages of HIV-positive pregnant women who received ARVs for PMTCT may be a telling statistic. Which three regions have discrepancies of 42 percentage points or higher? What might this suggest about the delivery of ARVs in those regions?

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## Discussion Questions: Photo Essay

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**Directions:** Depending on the amount of time, please select a few or all of the following questions and provide written answers to share with the group.

Describe what is going on in the photo essay. What if any action is being shown?

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What events do you think took place just before this photo essay was taken? Is it possible to predict what will happen immediately following the events depicted in the essay?

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Has this photo essay helped you better understand PMTCT? Please explain.

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If the photographs tell a story, consider the events in the photographs they have selected in relation to the overall story. If a photograph was removed, would a vital part of the story be missing?

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Is it possible to know the photographer's point of view toward the events or the subject of the photo essay? If so, what do you think that point of view is, and how were you able to figure it out just by looking at the photographs?

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# Botswana: PMTCT

Statistics, 2010	
Estimated # of children (0-14) living with HIV	16,000 [9,900 - 20,000] (2009)[11]
Population	1,950,000 (2008)[13]
Annual births	48,000 (2009)[13]
Neonatal mortality rate	46/1,000 (2004)[3]
Infant mortality rate	43/1,000 (2009)[4]
Under 5 mortality rate	57/1,000 (2009)[4]
Maternal mortality ratio	190/100,000 (2008)[12]
Adult (15-49) HIV prevalence	24.8% [23.8% - 25.8%] (2009)[11]
HIV prevalence young people (15-24)	female: 11.8% [9.0% - 15.9%] male: 5.2% [3.7% - 7.3%] (2009)[11]
Estimated # of pregnant women living with HIV	13,000 [6,900 - 17,000] (2009)[2]
Exclusive breast-feeding for infants <6 months	20% (2007)[11]
Comprehensive knowledge about HIV (15-24 yrs)	female: -- male: --
Condom use at last higher-risk sex (15-24)	female: -- male: --
Unmet need for family planning:	--
% ANC facilities that provide testing and ARVs for PMTCT	100% (2008)[2]
Timing of first ANC visit (months)	No ANC: 5.5% 1-4 months: 53% >4 months: 41.3% (2007)[14]
% of women attending at least 4 ANC visits during pregnancy	73.3% (2007)[14]

### National targets by 2016 [6]

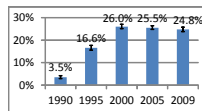
- 30% of voluntary counseling and testing clients access it as couples
- 90% of HIV positive pregnant women access highly active antiretroviral therapy

### Strategic Focus of National Plan [6]

- Scale up interventions to address prevention among young women and men
- Increase demand and provision of quality HIV testing and counselling services and post-exposure prophylaxis
- Increase resources to strengthen community and health infrastructure, equipment and systems
- Improve linkages and referrals between health and community structures and across sexual and reproductive health, HIV and tuberculosis services
- Improve coordination of technical assistance
- Address legal and ethical environment for HIV prevention and support
- Support use of strategic information to inform advocacy
- Build capacity to address HIV and AIDS stigma and discrimination

### HIV prevalence among adults appears to have stabilized, but remains high

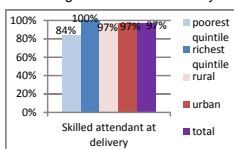
Adult HIV (15-49) prevalence (%) (1990-2009) [1]



Nationally, adult HIV prevalence is estimated at 24.8%, while prevalence among pregnant women is thought to be close to 33%. [9] Two times as many young women (15-24) are living with HIV than young men, with a prevalence of 11.8% and 5.2% respectively. [1] Among females, prevalence is highest among women who report they live with a partner, at 36.6%. [9]

### Nearly all pregnant women receive the support of a skilled attendant care at delivery, though some of the poorest miss out

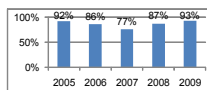
Percentage of births attended by skilled health personnel, (2007) [14]



Evidence indicates that virtually all women (97%) receive the support of a skilled attendant at delivery, though coverage among the poorest women (84%) does not match rates among the women occupying the highest wealth bracket (100%).

### Overall, HIV testing among pregnant women has remained high since 2005

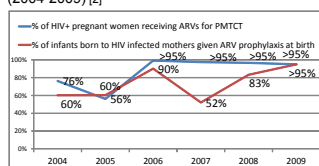
Trends in percentage of pregnant women tested for HIV during ANC visit (2005-2009) [2]



93% of women were tested for HIV during ANC in 2009. Near universal utilization of ANC services and provision of testing within ANC (100%) [2] could be partially credited for this high rate.

### Nearly all mothers & infants receive regimens to prevent HIV infections in children

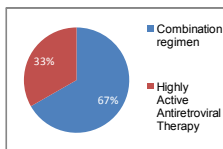
Trends in percentage of HIV+ pregnant women and HIV-exposed infants receiving ARVs for PMTCT, (2004-2009) [2]



It is likely that Botswana has achieved universal coverage of antiretrovirals (ARVs) for HIV-positive pregnant women and prophylactic ARVs for HIV-exposed infants. Trend data suggests that while coverage for women has been level since 2006, the rise in coverage for infants has taken place rapidly since 2007.

### There is remarkable progress toward the standard use of higher quality PMTCT regimens and treatment for HIV-positive pregnant women

Distribution of various ARV regimens provided to pregnant women, (2009) [2]



AZT prophylaxis has been phased out, and combination regimens constitute two thirds (67%) of PMTCT regimens for HIV-exposed women. Highly active antiretroviral therapy (HAART), or therapy for the woman's own health, makes up the other third. With sustained efforts to roll out HAART, Botswana may be on track to meet its target of 90% HAART coverage by 2016.

### POLICY ENVIRONMENT

- Multi-sectoral HIV and AIDS plan (2010-2015) in place
- No sub-national plans
- Policy on HAART being piloted [15]

### BUDGET ENVIRONMENT

- Global Funds recipient: R 2 [9];
- PEPFAR program country

### Domestic Health Financing [7]

- Govt expenditure on health, as per cent of total govt spending: 13%

### THE BOTTOM LINE

If Botswana is to meet its national targets for PMTCT by 2016:

- ✓ **primary prevention** among couples must continue to be a priority
- ✓ **provision of family planning services** to HIV-positive women must continue to be a priority
- ✓ **increasing access** of ANC and PMTCT services to the poorest women is critical. This will require innovations in service delivery.
- ✓ **improving the quality** of those services must continue to be a priority. If all women receive HAART, as envisioned in the national plan, the numbers of new infections among children will drop dramatically.

# India: PMTCT



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## Statistics, 2010

Estimated # of children (0-14) living with HIV	--
Population	1,198,003,000 (2009)[15]
Annual births	26,787,000 (2009)[16]
Neonatal mortality rate	39/1,000 (2004)[19]
Infant mortality rate	50/1,000 (2009)[16]
Under-5 mortality rate	66/1,000 (2009)[16]
Maternal mortality ratio	230/100,000 (2008)[17]
Adult (15-49) HIV prevalence	0.3% - 0.4% (2009)[7]
HIV prevalence young people (15-24)	female: 0.1% [0.1% - 0.2%] male: 0.1% [0.1% - 0.2%] (2009)[7]
Estimated # of pregnant women living with HIV	43,000 [23,000 - 65,000] (2009)[14]
Exclusive breast-feeding for infants <6 months	46% (2005-2006)[8]
Comprehensive knowledge about HIV (15-24 yrs)	females: 20% males: 36% (2005-2006) [8]
Condom use at last higher-risk sex (ages 15-24)	female: 22% male: 37% (2005-2006)[8]

Unmet need for family planning:	12.8% (2005-2006)[8]
% ANC facilities that provide testing and ARVs for PMTCT	3% (2009)[14]
Timing of first ANC visit (months)	No ANC: 23% <4 months: 44% 4-5 months: 22% 6-7 months: 8% 8+ months: 2% DK: 1% (2005-2006)[8]
% of women attending at least 4 ANC visits during pregnancy	overall: 37% urban: 62% rural: 28% (2005-2006)[8]

## National Programme Targets by 2012 [9]

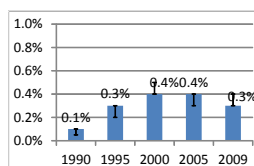
- 80% of HIV-positive pregnant women will be reached by PMTCT services
- 98% of pregnant women who deliver in the public sector will receive antiretrovirals (ARVs) for PMTCT
- 90% of HIV-exposed children will receive co-trimoxazole prophylaxis and have access to early diagnosis by Polymerase Chain Reaction (PCR).

## Strategic Focus of National Plan [1]

- Expand PMTCT services and ART for eligible pregnant women through decentralization; integrate with public health services for maternal and child health; & strengthen existing services;
- Phased roll out of more efficacious drug regimens for PMTCT;
- Improve patient data and coordination;
- Improve follow-up of the mother and baby through communities and NGOs
- Policy shift toward universal testing of all pregnant women with HIV, in collaboration with the National Rural Health Mission
- Improve private-public partnerships

## There may be an overall decline in prevalence of HIV among adults

Adult HIV (15-49) prevalence (%) (1995-2009) [11]

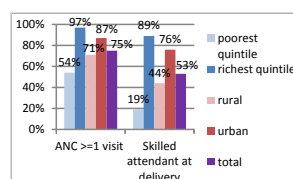


The data suggests a possible decline in adult prevalence in the past 2 years, likely due to declining trends in the 6 high prevalence states including Andhra Pradesh, Maharashtra, Karnataka and Tamil Nadu. In these states, HIV prevalence among 15-24 year old women attending ANC declined by 54% between 2000 and 2007. However, there is an increase in many of the low prevalence states. In 2009-2010, unprotected heterosexual intercourse accounted for roughly 87% of all reported cases of HIV infection, and 5.4% were due to mother-to-child transmission. [1]

## Rural and poor women are missing out on maternal health services

Percentage of pregnant women attended at least once during pregnancy &

% of births attended by skilled health personnel (2005-06 [8] & 2007-08 [18])

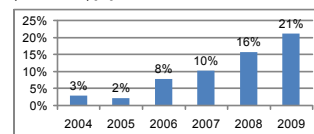


Note: Urban/Rural data from [18] & wealth quintile data from [8]

Overall, 75% of pregnant women received antenatal care in 2007-2008, while only an estimated 53% of them were assisted by a skilled attendant at delivery. Large disparities in antenatal and skilled birth attendance are associated with wealth status and place of residence. For instance, 32% more urban than rural and 70% more wealthy than poor women are assisted by a skilled birth attendant at delivery.

## Twice as many pregnant women were tested in 2009 than in 2007, though greater progress is needed.

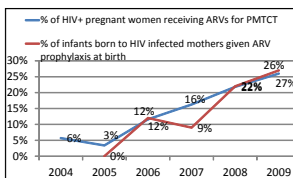
Trends in the percentage of pregnant women tested for HIV (2004-2009) [14]



Despite scale-up efforts, under a fourth of all pregnant women (21%) were tested for HIV in 2009. Only 3% of ANC sites offer HIV-testing services [14].

## Only about a quarter of mothers and infants that need ARVs for PMTCT are receiving them

Trends in percentage of HIV+ pregnant women and HIV-exposed infants receiving ARVs for PMTCT (2004-2009) [14]



Between 17 to 48% of pregnant women living with HIV received ARVs for PMTCT in 2009, and about 27% of HIV-exposed infants received ARV prophylaxis. Roughly all mother-infant pairs are provided single-dose nevirapine for PMTCT, [15] though piloting of more efficacious regimens is underway in select high prevalence districts. Robust efforts will be needed to bring services to scale, increase utilization, and improve quality of interventions if national PMTCT targets are to be met in 2012.

## POLICY ENVIRONMENT

- Costed PMTCT scale-up plan included within R10 Global Fund proposal
- WHO Option A adopted

## BUDGET ENVIRONMENT

- Global Funds recipient: R 2,3,4,6 & 7[5]
  - PEPFAR support recipient [12]
  - Gates Foundation support recipient
  - UNITAID support recipient
- Domestic Health Financing**
- Govt expenditure on health, as per cent of total govt spending: 3.7% [3]
  - Total health financing:  
Out of pocket: 66.3%;  
Public: 26.2%; Aid: 1.4% [3]

## THE BOTTOM LINE

If India is to meet its targets for PMTCT by 2011, the following actions are essential:

- ✓ **increasing government spending on health**
- ✓ **improving equitable access**

to and availability of timely and high quality ANC and delivery services. Health strategies should build on community structures to reach women, households & communities.

- ✓ **addressing barriers to access**, especially stigmatising attitudes toward socially marginalized groups.

- ✓ **increasing availability of PMTCT services** within ANC and delivery-care settings.



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# Mozambique: PMTCT

## Statistics, 2010

Estimated # of children (0-14) living with HIV	130,000 [70,000 - 180,000]	(2009)[1]
Population	22,894,000	(2009)[19]
Annual births	877,000	(2009)[19]
Neonatal mortality rate	35/1,000	(2004)[4]
Infant mortality rate	96/1,000	(2009)[5]
Under 5 mortality rate	142/1,000	(2009)[5]
Maternal mortality ratio	550/100,000	(2008)[15]
Adult (15-49) HIV prevalence	11.5% [10.6% - 12.2%]	(2009)[1]
HIV prevalence young people (15-24)	female: 8.6% [7.0% - 12.1%] male: 3.1% [2.4% - 4.4%]	(2009)[1]
Estimated # of pregnant women living with HIV	97,000 [53,000 - 130,000]	(2009)[3]
Exclusive breast-feeding for infants <6 months	37%	(2008)[2]
Comprehensive knowledge about HIV (15-24 yrs)	female: 14% male: --	(2008)[2]
Condom use at last higher-risk sex (15-24)	female: 44% male: --	(2008)[2]
Unmet need for family planning:	18%	(2003)[8]
% ANC facilities that provide testing and ARVs for PMTCT	78%	(2009)[20]
Timing of first ANC visit (months)	No ANC: 15% <4 months: 18% 4-5 months: 44% 6-7 months: 22% 8+ months: 2% DK: 1%	(2003)[8]
% of women attending at least 4 ANC visits during pregnancy	overall: 53% urban: 71% rural: 45%	(2003)[8]

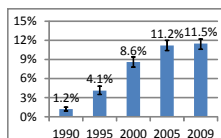
### National targets by 2014 [9]

- 85% of HIV-positive pregnant women receive ARV prophylaxis, of which 26.9% are put on HAART for their own health (CD < 350)
- 83% of HIV-exposed infants receive ARV prophylaxis
- 76% HIV-exposed infants are tested with Polymerase Chain Reaction (PCR)

### Strategic Focus of National Plan [9]

- PMTCT is integrated within maternal and child health-related activities as part of the Millennium Development Goals 4 & 5

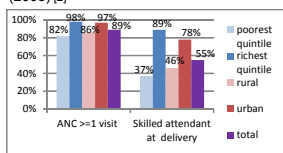
*Levels of HIV infection among adults appear to have stabilized, though still high*  
Adult HIV (15-49) prevalence (%) (1990-2009) [1]



Adult HIV prevalence was 11.5% in 2009. Nearly three times as many young women (8.6%) as young men (3.1%) between the ages of 15 and 24 are estimated to be living with HIV. 48% of new cases are estimated to occur among people in steady partnerships. [13]

*Most women have at least one contact point with maternal and child health centers during pregnancy*

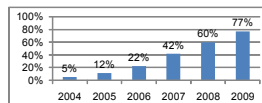
Percentage of pregnant women attended at least once during pregnancy & % of births attended by skilled health personnel (%) (2008) [2]



89% of pregnant women attended antenatal care at least once in 2008. However, only 55% of births were assisted by a skilled attendant. Disparities in care are evident for both these measures of maternal care, with proportionally fewer of the poorest and rural women utilizing these services. Evidence from 2003 suggests that most women receive their first ANC visit after the first trimester. [8]

*Progressively more pregnant women are tested for HIV, though there is potential for even greater coverage*

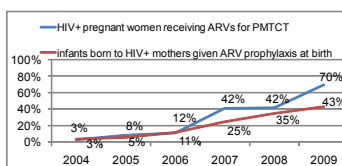
Trends in the percentage of pregnant women tested for HIV (2004-2009) [3]



There has been a steady increase in HIV testing rates since 2004, with 77% of all pregnant women tested for HIV in 2009. Evidence suggests that the introduction of testing services in Labour and Delivery for women with unknown status or testing negative in ANC can be partially credited for this rise. [2] A reported 78% of ANC sites offer testing services. [3]

*While there is good progress in reaching more women with PMTCT services, too many babies are still getting lost along the continuum of care*

Trends in percentage of HIV+ pregnant women and HIV-exposed infants receiving anti-retrovirals (ARVs) for PMTCT (2004-2009) [3]



In 2009, 70% of pregnant women living with HIV received ARVs to prevent transmission to their child; however, only 43% of HIV-exposed infants received ARVs to prevent HIV-infection. With sustained efforts to improve coverage for mothers and redoubled efforts to improve follow-up and coverage for infants, Mozambique may be on track to meet its national goals for PMTCT.

## POLICY ENVIRONMENT

- 2010-2014 PMTCT scale-up plan in place; plan is not costed
- PMTCT component incorporated in all provincial health plans
- WHO option A adopted

## BUDGET ENVIRONMENT

- Global Funds (GFATM) recipient: R 2 & 6 [11]
- GFATM re-programming of R2 funds approved for PMTCT [10]
- PEPFAR program country
- PEPFAR Plus Up funds recipient [17]

## Domestic Health Financing

- Govt expenditure on health, as per cent of total govt spending: 12.6% [7]
- Total health financing: [18]  
Out of pocket: 12%; Public: 13%; Aid: 57%; Private (pooled risk): 18%

## THE BOTTOM LINE

To meet national targets by 2014, the following actions are essential:

- ✓ **integrating PMTCT** within the child and maternal health responses at all levels
- ✓ **preventing new HIV infections** in adolescent girls and among couples and **improving access to family planning** among women living with HIV
- ✓ **improving equitable access** to and utilization of skilled attendants at delivery
- ✓ **increasing access to and utilization of PMTCT services** within ANC and delivery care settings. The high reach of ANC services is an opportunity to identify HIV-positive pregnant women for the provision of PMTCT services.
- ✓ **improving quality, timeliness and continuity of care** for both the mother and the child

# Zambia: PMTCT



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Statistics, 2010	
Estimated # of children (0-14) living with HIV	120,000 [64,000-160,000] (2009)[1]
Population	12,935,000 (2009)[3]
Annual births	549,000 (2009)[3]
Neonatal mortality rate	40/1,000 (2004)[14]
Infant mortality rate	86/1,000 (2009)[4]
Under 5 mortality rate	141/1,000 (2009)[4]
Maternal mortality ratio	470/100,000 (2008)[12]
Adult (15-49) HIV prevalence	13.5% [12.8% - 14.1%] (2009)[1]
HIV prevalence young people (15-24)	female: 8.9% [7.3% - 12.9%] male: 4.2% [3.2% - 5.5%] (2009)[1]
Estimated # of pregnant women living with HIV	68,000 [37,000 - 94,000] (2009)[2]
Exclusive breast-feeding for infants <6 months	61% (2007)[5]
Comprehensive knowledge about HIV (15-24 yrs)	female: 38% male: 41% (2009)[13]
Condom use at last higher-risk sex (15-24)	female: 39% male: 33% (2009)[5]
Unmet need for family planning:	27% (2007)[5]
% ANC facilities that provide testing and ARVs for PMTCT	64% (2008)[2]
Timing of first ANC visit (months)	No ANC: 2% <4 months: 19% 4-5 months: 53% 6-7 months: 23% 8+ months: 2% DK: <1% (2007)[5]
% of women attending at least 4 ANC visits during pregnancy	60.3% (2007)[5]

## National targets by 2010 [6]

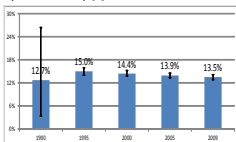
- At least 80% of pregnant women receive comprehensive PMTCT services
- At least 80% of HIV-positive children in need of ART receive it

## Strategic Focus of National Plan [6]

- Strengthen programme management and coordination of HIV prevention, care, treatment and support activities at all levels;
- Strengthen the provision of comprehensive PMTCT services at all levels;
- Increase service uptake;
- Strengthen the human resource capacity to deliver PMTCT and HIV prevention, care, support and treatment services;
- Enhance links between PMTCT, paediatric and adult antiretroviral therapy (ART), child survival, nutrition, and reproductive health services;
- Strengthen monitoring and evaluation systems, including surveillance and operations research for HIV care and ART services; and
- Increase primary prevention.

## HIV prevalence among adults appears to have stabilized, though it remains high

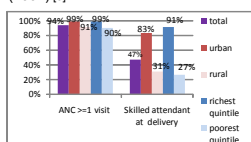
Adult HIV (15-49) prevalence (%) (1990-2009) [1]



Since 2000, adult HIV prevalence has stabilized. In 2009, it was estimated at 13.5%, and 19% among pregnant women. [6] At 8.9%, young women between the ages of 15 and 24 years are more than two times as likely to be living with HIV than young men (4.2%) in the same age range. [11]

## Most women receive skilled care during pregnancy, though very few poor and rural women do during delivery

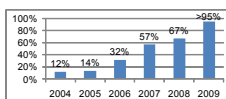
Percentage of pregnant women attended at least once during pregnancy & % of births attended by skilled health personnel (2007) [5]



In 2007, 94% of pregnant women accessed antenatal care (ANC) services at least once during pregnancy, though >75% did so after the 3rd month of pregnancy. [5] 47% had a skilled attendant during delivery; disparities were pronounced though, with utilization by 91% of the richest women and 83% of urban women, compared to 27% of the poorest women and 31% of rural women.

## Virtually all pregnant women are tested for HIV

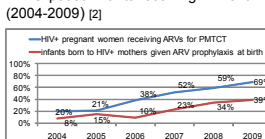
Trends in the percentage of pregnant women tested for HIV (2004-2009) [2]



>95% of pregnant women were tested for HIV in 2009.

## Steady progress is being made in the reach of PMTCT regimens, but the gap in coverage between moms and infants is vast

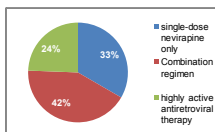
Trends in percentage of HIV+ pregnant women and HIV-exposed infants receiving ARVs for PMTCT (2004-2009) [2]



In 2009, 69% of HIV-positive pregnant women, but only 39% of HIV-exposed infants received antiretrovirals (ARVs) to prevent mother to child transmission of HIV. With continued efforts to reach women with PMTCT services, and renewed commitment to improve access to prophylactic ARVs for HIV-exposed infants, national targets for PMTCT can be met.

## Better drugs to improve the woman's own health and prevent transmission to the child are being provided to mothers

Distribution of ARV regimens received by pregnant women living with HIV (2009) [2]



In 2009, 42% of HIV-positive pregnant women who received ARVs for PMTCT received combination ARV regimens, and 24% received treatment for their own health, or highly active antiretroviral therapy (HAART). Single-dose nevirapine only is still being provided to a third of all women PMTCT ARV recipients.

## POLICY ENVIRONMENT

- Costed 2007-2010 PMTCT scale-up plan in place
- District plans include PMTCT scale-up component
- WHO option A adopted [7]

## BUDGET ENVIRONMENT

- Global Funds recipient: R1,4 & 8[9];
  - PEPFAR program country & PEPFAR Plus up funds recipient
- Domestic Health Financing**
- Govt expenditure on health, as per cent of total govt spending: 14.5% [9]
  - Total Health Financing: [8]
  - Out of pocket: 38%; Public: 10%; Aid: 37%; Private (pooled risk): 15%

## THE BOTTOM LINE

Zambia may be on track to meeting national PMTCT targets, though sustained efforts are needed to:

- ✓ **expand PMTCT services** to all ANC and delivery services
- ✓ **prevent new HIV infections** among young women and **increase access to family planning services** among women living with HIV
- ✓ **improve equitable access** to skilled attendants at delivery
- ✓ **increase access to and utilization of ARVs for PMTCT** within ANC. The high coverage of ANC services is an opportunity to reach HIV-positive pregnant women
- ✓ **improve quality, timeliness and continuity of care** for both the mother and the child.

## Additional Resources

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The Centers for Disease Control: <http://www.cdc.gov/hiv/> also <http://aids.gov/>

The National Institute of Allergy and Infectious Disease:  
<http://www.niaid.nih.gov/topics/hivaids/Pages/Default.aspx>

The United States Department of Health and Human Services: <http://hab.hrsa.gov/>

The American Foundation for AIDS Research: <http://www.amfar.org/>

The World Health Organization: <http://www.who.int/hiv/en/>

The Joint United Nations Program on AIDS: <http://www.unaids.org/en/>

### **Especially for Talking About HIV With Kids:**

American Academy of Pediatrics: <http://www.aap.org/visit/ParentsMatterBrochure.pdf>

Children Now (The Kaiser Family Foundation): [http://www.childrennow.org/index.php/learn/twk\\_aids](http://www.childrennow.org/index.php/learn/twk_aids)

The Well Project:  
[http://www.thewellproject.org/en\\_US/Womens\\_Center/Talking\\_with\\_Your\\_Children\\_About\\_HIV.jsp](http://www.thewellproject.org/en_US/Womens_Center/Talking_with_Your_Children_About_HIV.jsp)

National PTA: [http://www.pta.org/documents/hiv\\_eng.pdf](http://www.pta.org/documents/hiv_eng.pdf)

