Introduction to Prevention of Mother to Child Transmission (PMTCT)

January 2009
To start…….

• needs an INTEGRATED service
• pro-active Provider Initiated Testing (P.I.T.)
• consider every pregnancy as HIGH exposure
• South Africa is a hyper-endemic country ( > 15 % )
• follow-on required for every patient
• start ARVs at ANY stage of pregnancy
ARK (Absolute Return for Kids)

- ARK’s ARV programme in South Africa seeks to deliver rapid and sustainable rollout of AIDS treatment to primary care givers, their partners and children less than 18 years of age.
- Started in December 2003 till 2010, target 32,682.
- By the end of December 2007.
- (48 months) initiated 24,870 (76%).
ARK Programmes

- Clinical ARV programme
- 101 sites
- 177 fulltime staff
- 37 235 patients on ARVs of total
- ± 400 000
- > 900 000 still in need = treatment gap
Training organogram

Master trainer

Districts in Province

Site personnel from PHC, CHC
- doctor
- nurse
- pharmacist etc

Select one staff member from each Department

become a mentor and disseminate information

Department: Health
Republic of South Africa

USAID
PMTCT Training Course

• healthcare worker = healthcare provider
• Staff:
  – doctors, nurses, midwives, counsellors, programme managers, social workers
  – maternal and child health = maternal and newborn health services, reproductive and child health services incl. adolescents & families
• designed to provide healthcare workers with information and introductory skills necessary to deliver core PMTCT services in an integrated manner
Training

P = Planning – the *start* of any programme

O = organising – *who* is going to do what

L = leading - management way *forward*, encouraged to dissipate the information

C = control – revisit sites at regular intervals to obtain feedback about what is happening (*“quality control”*)
PMTCT Programme

1. Introduction – Global, SA, history
2. Basics – challenges, choices
3. Primary prevention
4. Ante-natal care
5. Labour and delivery
6. Post-natal follow up
7. Feeding choices, other and M & E
8. Summary

(9. DBS sample collection for infant PCR test)
International

- Interagency Task Team (IATT) 1998
- Declaration of commitment on HIV/AIDS in 2001 by United Nations General Assembly Special Session on HIV/AIDS (UNGASS)\# 189 countries, ↓ infected infants 20% by 2005 and 50% by 2010
- Milleneum Development Goals (MDG) – 4, 5 & 6 to reduce child mortality, improve maternal health and combat HIV/AIDS by 2015
- World Health Organisation (WHO) in 2004, CDC
- PEPFAR (Presidents Emergency Plan for AIDS Relief), Global Fund to Fight AIDS/TB/malaria
- Joint United Nations Programme on HIV/AIDS (UNAIDS)
- United Nations Children’s Fund (UNICEF)
A Nation’s Health

“...The easiest way to get a snapshot of a nation’s health is to look at key indicators: life expectancy at birth, maternal mortality and infant mortality. “

Belinda Beresford, Mail and Guardian, 21 November 2008
Millennium Development Goals

• MDG no. 4 - reduction of child mortality
  – adopted by 189 countries in Sept 2000
  – to be achieved by 2015
  – 8 goals
  – reduction in under 5 mortality rate by two-thirds between 1990 and 2015
  – MDG no. 1 to eradicate extreme poverty and hunger – proportion of children under 5 who are underweight
Children and HIV / AIDS

• 2.1 million children globally younger than 15 years are HIV infected
• 90% of whom live in SSA
• in 2007 alone, 420 000 were newly infected (mainly through MTCT) of whom half will die without interventions
• many of the 290 000 children who died* in 2007 never received an HIV diagnosis or HIV care

* 30% die by 1 year and 50% by age 2 years without HIV drugs

WHO & UNICEF
June 2008
“Almost all of these infections in infants could be avoided by timely delivery of known interventions to prevent mother-to-child transmission.”

Scale up of HIV-related prevention, diagnosis, care and treatment for infants and children – A programming framework WHO UNICEF June 2008
Median HIV prevalence among women (15-49 years) attending antenatal clinics in consistent sites in southern African countries, 1998–2006

% HIV prevalence

Sources: Various antenatal clinic surveys.

2007 AIDS epidemic update
Figure 6
- 2000 – **Millennium Development Goal** to reverse the HIV/AIDS epidemic
- 2001 – **The UNGASS Declaration of Commitment** covering various targets
- 2003 – **The “3 by 5” strategy** to scale up antiretroviral drug therapy by 2005 (target to treat 3 million people in developing countries by the end of 2005)
THE TARGETS

UNGASS DECLARATION OF COMMITMENT (selected 2005 targets)

- Reduce HIV prevalence by **25%** among young people in the most affected countries
- Reduce the number of babies infected through mother-to-child transmission by **20%**
- Ensure at least **90%** of young people (aged 15-24 years) have the information, education, services and life-skills that enable them to reduce their vulnerability to HIV infection

MILLENNIUM DEVELOPMENT GOAL

- To have halted by **2015**, and begun to reverse, the spread of AIDS

WHO/UNAIDS “3 BY 5” STRATEGY

- To provide access to antiretroviral treatment to **3 million** people living with HIV in developing countries by the end of **2005**

only reached in 2007; now 3 million on ARVs
in 2007, 2.1 million children worldwide were infected with HIV and 290,000 died.
in 2005, 15 million children under 18 years had lost one or both parents to AIDS (UN figures).
in 2005, UNICEF set out goals for 2010 to ↓ MTCT of HIV and supply drugs to infected children.
• target of 80% coverage by 2010

Children = defined as 0 to 14 years age
For the first time in recorded history, the number of children dying before age five has fallen below 10 million per year, to 9.7 million.

But this is only the beginning. UNICEF urges everyone to act now and together to reduce child mortality by two-thirds, from 93 children out of every 1,000 dying before age five in 1990 to 31 out of every 1,000 in 2015. UNICEF’s priority actions include community health services that cover every child with breastfeeding, immunization, prevention of HIV transmission, and protection against malaria.

To help achieve UNICEF’s goal, it is important that all people in their own communities are empowered to limit child mortality.
Percentage of pregnant women living with HIV attending at least one antenatal care visit who received any antiretroviral drug regimen for PMTCT in Fiscal Year 2004 and Fiscal Year 2006 with United States Government support (both upstream and downstream) by country.

90% uptake
< 2% transmission

Early ARV rollout and PMTCT in 2001

Report - Global scale-up of PMTCT of HIV, WHO 2007
Ten low- and middle-income countries with the highest estimated numbers of HIV-infected pregnant women and corresponding percentages of HIV-infected pregnant women who received ARVs for PMTCT, 2005

**Estimates for 2005**

- **South Africa**: 250,000
- **Nigeria**: 350,000
- **Mozambique**: 200,000
- **India**: 150,000
- **United Republic of Tanzania**: 100,000
- **Uganda**: 75,000
- **Democratic Republic of the Congo**: 50,000
- **Kenya**: 40,000
- **Zimbabwe**: 30,000
- **Zambia**: 30,000

**Coverage**

- **20%**

**Notes**

- Estimates are based on data from WHO, April 2007, p. 31.

**Graphical Representation**

- **Blue bars** represent the estimated number of HIV-infected pregnant women.
- **Gray circles** indicate the percentage of HIV-infected pregnant women who received ARVs for PMTCT.
PMTCT coverage 30% of South Africa

SAMJ April 2008 p.254-6

“Towards Universal Access” – WHO April 2007 p. 31
In 2005, ± 220 000 pregnant women received ARV prophylaxis for PMTCT (WHO, April 2007)
Young people account for 45% of all new infections.
FIGURE 8  
Children living with HIV globally, 1990–2007

This bar indicates the range around the estimate.
MTCT - Plus

- The MTCT-Plus initiative was established in 2002 by Columbia University School of Public Health.
- It aims to move beyond interventions focused solely on preventing infant HIV infection.
- It supports the provision of specialized care to HIV-infected women, their partners, and their children identified in MTCT programmes (12 sites in SSA).
25 years of AIDS – in the 3rd decade of the Epidemic

- Acquired Immune Deficiency Syndrome (AIDS) is defined for the first time (1981)
- The Human Immune Deficiency Virus (HIV) is identified as the cause of AIDS (1983)
- In Africa, a heterosexual AIDS epidemic is revealed (1984)
- The first HIV antibody test becomes available (1985)
- Global Network of People living with HIV/AIDS (GNP+) (then International Steering Committee of People Living with HIV/AIDS) founded (1986)
- The first therapy for AIDS – zidovudine, or AZT – is approved for use in the USA (1987)
- Highly Active Antiretroviral Treatment launched (1996)
- Scientists develop the first treatment regimen to reduce mother-to-child transmission of HIV (1997)
- UNAIDS is created (1999)
- Brazil becomes the first developing country to provide antiretroviral therapy through its public health system (2002)
- The UN General Assembly Special Session on HIV/AIDS. Global Fund to fight AIDS, Tuberculosis and Malaria launched (2002)
- WHO and UNAIDS launch the “3 x 5” initiative with the goal of reaching 3 million people in developing world with ART by 2005 (2003)

SA National rollout 2004

People living with HIV

Children orphaned by AIDS in sub-Saharan Africa

Million
Maternal survival

• a strong predictor of child survival \textit{AIDS, 2003; Journal of Tropical Medicine and Hygiene, 2003, 11\textsuperscript{th} Conference on Retroviruses, 2004}

• disease progression or deaths among mothers may undermine an improvement in child survival due to ARV prophylaxis for preventing MTCT \textit{Journal of Tropical Medicine and Hygiene, 2003}

• a study in rural Uganda found that the death or terminal illness of a mother was an independent predictor of mortality among children \textit{AIDS, 2003}
History of HIV / AIDS in South Africa

- 1982 – first case of AIDS diagnosed in SA
- 1985 – ELISA test (formal venesection)
- 1987 – AZT (GSK) available
- 1996 – NVP (B-I) available
- 2000 – 2005 DoH plan to care for HIV+ patients
- 2001 – TAC vs. sdNVP → registered by MCC
- 2001 – National PMTCT programme
- 2004 – revision of PMTCT programme in WC to include testing at 14 weeks and addition of AZT (dual therapy)

Exponential growth 1992 to 1999
Figure 18: Number and percentage of HIV-positive pregnant women receiving antiretroviral prophylaxis, 2004–2007

UNICEF & WHO, 2008; data provided by countries.
Table I. Historical development of the Western Cape provincial PMTCT programme

<table>
<thead>
<tr>
<th>Date</th>
<th>District</th>
<th>Testing method on mothers</th>
<th>Drug</th>
<th>Infant feeding</th>
<th>Infant-testing method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan 1999</td>
<td>Khayelitsha</td>
<td>ELISA</td>
<td>AZT</td>
<td>Formula</td>
<td>ELISA at 9 months</td>
</tr>
<tr>
<td>June 2000</td>
<td>5 priority sites</td>
<td>Rapid test</td>
<td>NVP</td>
<td>Formula/Exclusive breast</td>
<td>Rapid test at 9 months</td>
</tr>
<tr>
<td>May 2003</td>
<td>Entire province</td>
<td>Rapid test</td>
<td>NVP (AZT in Khayelitsha*)</td>
<td>Formula/Exclusive breast</td>
<td>Rapid test at 9 months</td>
</tr>
<tr>
<td>May 2004</td>
<td>Entire province</td>
<td>Rapid test</td>
<td>NVP+AZT</td>
<td>Formula more than breast</td>
<td>PCR test at 14 weeks</td>
</tr>
</tbody>
</table>

2008 WC Rapid test NVP + AZT PCR at 6 weeks

*AZT (azidothymidine was administered at Khayelitsha, which was the initial pilot site in 1999 before nevirapine was available on the medicines code).
MTCT Protocol in Western Cape in March 2002: mom had 200mg NVP at labour, NVP to newborn within 72 hours, Rapid ELISA at 9 months to infant.

Revised PMTCT Protocol in 2004: AZT added antenatally from 34 weeks (if < 34 weeks and CD4 < 200, refer for HAART). Newborn baby to receive AZT syrup 12 hourly for 7 days, PCR done at 14 weeks (with 3rd immunisation visit) – if negative it means newborn UNINFECTED.

Revised again – now at SIX weeks.
Figure 5: Percentage of HIV positive pregnant women who received antiretrovirals to reduce the risk of mother-to-child transmission.
Achieving an AIDS free generation - National

- National Strategic Plan (NSP) 2007 to 2011
- Department of Health (DoH) → Provincial, South African National Aids Council (SANAC)
- Statistics from Acturial Society of South Africa (ASSA), Medicine Research Council (MRC)
- Medicines Control Council (MCC)
- NGOs, CBOs, Charity organisations
Ensuring that people who are dying are able to do so with dignity, and are buried with dignity.
Making sure that everyone who has another sexually transmitted disease is also tested for HIV.

C. Taking care of the special needs of pregnant women and children

We can do this by:
Making sure that all pregnant women are offered an HIV test, and that those who are HIV-positive receive proper treatment and counselling. Including ART for those mothers who need this.
Making sure that HIV-positive mothers are given a short course of ART to reduce the risk of transmitting HIV to babies.
Making sure that HIV-positive pregnant women and sisters are educated about safe infant feeding to reduce the risk of transmitting HIV to babies.
Making sure that babies are tested for HIV early so that they can get the treatment and medical support they need.
Making sure that there is a full package of services including wellness, immunisation, growth monitoring, care and ART for children and wellness for adolescents.
Objectives

- increase the proportion of public antenatal services providing PMTCT from 85% of all public antenatal facilities in 2007 to 100% by 2009

- increase the proportion of HIV+ pregnant women receiving PMTCT services from 60% of all HIV+ pregnant women in 2007 to 80% in 2009 (95% by 2011)

- implement P.I.T.C*. of children of HIV+ adults from 30% of health service facilities to 80% in 2009 (95% by 2011)

*make sure health workers actively offer HIV tests & counselling to patients
Causes of under-five deaths
Globally more than one third of child deaths are attributable to undernutrition

- **HIV/AIDS** 57%
- Malaria 0%
- Measles 0%
- Diarrhoea 1%
- Pneumonia 1%
- Injuries 5%
- Other 1%

Neonatal 35%
- Diarrhoea 1%
- Tetanus 1%
- Other 6%
- Congenital 10%
- Infection 19%
- Asphyxiation 23%
- Preterm 39%

Source: WHO, 2006

Source: Lawn JE, Cousens SN for CHERG (Nov 2006)
Prevention of mother to child transmission of HIV
Percent HIV+ pregnant women receiving ARVs for PMTCT

- 2004: 15%
- 2005: 34%
- 2006: 50%

UNICEF 2008 report
Under-five mortality rate
Deaths per 1000 live births

Source: UNICEF, 2006
MATERNAL AND NEWBORN HEALTH

Coverage along the continuum of care

- Contraceptive prevalence rate: 60%
- Antenatal visit (1 or more): 92%
- Skilled attendant at birth: 92%
- *Postnatal care: 7%
- Exclusive breastfeeding: 7%
- Measles: 85%

Source: DHS, MICS, Other NS

*See Annex for indicator definition
Conclusions HIV incidence and HIV prevalence

Current HIV-transmission dynamics in South Africa are best reflected by the HIV-incidence figures observed in the different sub-populations. Especially alarming are the incidence rates among young females at prime childbearing age. Females aged 15–24 years have an eight-times higher HIV incidence than males (6.5% compared to 0.8%) and account for 87% of the recent HIV infections in this age group. Our incidence analysis also confirmed recent findings from Uganda by Gray et al. (2005) that suggest an increased risk of HIV acquisition during pregnancy. African females aged 15–49 years who reported having been pregnant in the last 24 months (n = 630) were estimated to have an HIV incidence of 7.9%, the highest incidence rate of all analysed sub-populations in our survey.

SA National Survey, 2005
Integration of family planning and HIV/AIDS services is vital

In view of the high prevalence and incidence of HIV amongst pregnant women and women in the child-bearing age group, it is critical that the government targets this group and strengthens family planning programmes. This is important, given that one in five South African women of reproductive age are not using any contraceptive method. For those who use injectable contraceptives and contraceptive pills, it is important to emphasise consistent use of condoms with regular and non-regular partners as long as they are not certain of their own, or their sexual partner’s HIV status.
<table>
<thead>
<tr>
<th>Parameter</th>
<th>2006</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Adults age 15+ years</strong></td>
<td></td>
</tr>
<tr>
<td>HIV Prevalence (%)</td>
<td>15.83</td>
</tr>
<tr>
<td>Number living with HIV (Millions)</td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>2.29</td>
</tr>
<tr>
<td>Women</td>
<td>2.86</td>
</tr>
<tr>
<td><strong>Children age 0-14 years</strong></td>
<td></td>
</tr>
<tr>
<td>Number living with HIV (thousands)</td>
<td>257.90</td>
</tr>
<tr>
<td><strong>Total Population</strong></td>
<td></td>
</tr>
<tr>
<td>Number living with HIV (millions)</td>
<td>5.41</td>
</tr>
</tbody>
</table>
Child epidemic in South Africa

• over 300 000 children under the age of 15 years are HIV infected
• more than 60 000# babies* born in 2007
• (about 6% of all babies born) became HIV-positive before their first birthday
• about 38 000 HIV-positive babies were infected at birth; a further 25 000 contracted the virus through BF

* approx. 1 million deliveries per year
over 50 000 children need ARV now; approximately < 30 000 are on ARVs now
there are > 1.2 million children whose mothers have died of AIDS
a child born with HIV who does not access ARVs lives on average two years; a few can live much longer without treatment
children on ARVs can probably live almost normal lives
Statistics – November 2007

- 550 000 patients receiving ARV, also more pts treated in private sector (76 217 in 2006) and by NGOs
- 143 434 adults in March 2006 → will rise to 600 000 in 2009/2010
- 55% are female
- 889 000 needed treatment last year
- 52 000 < 15 years needed ARVs in 2006, but 23 369 (45%) received

SA Government HIV / AIDS progress report to United Nations,
Sunday Independent, 9 March 2008
• figure grew to 65,000 in 2007 with 32,060 children (49%) receiving ARVs
The treatment gap: definition

The mismatch between HIV infected people receiving HAART and those who need it.
Fig. 1. Estimates of the number of HIV-infected people in South Africa who require HAART each year, and the number of adults started on HAART each year since 2000. This number is derived from the total number of South Africans that ASSA estimates to have been infected 6 years earlier, less the number of infants who were infected that year. Estimates of adults who require HAART before 2006 are not available since ASSA has not published estimates of people infected before 2000.

ASSA = Actuarial Society of South Africa
Fig. 2. Estimates of the number of infants infected with HIV each year through perinatal transmission and breastfeeding, and number of infants and children started on HAART each year since 2000. Data are derived from ASSA reports.²
Health Department finally clears the way for implementation of HIV dual therapy

The Department of Health yesterday referred to a revised policy and guidelines clearing the way for dual therapy in the prevention of mother-to-child transmission (PMTCT) of HIV.

Health Minister Manto Tshabalala-Msimang dismissed claims that her department was slow to implement the new guidelines.

"I was the first person to express concern about monotherapy... but we had to make sure that we had enough time to examine the implications of dual therapy," she said.

Up to now, most state clinics have offered only the officially sanctioned single drug, nevirapine, to infants.

Dual therapy will mean the addition of a second drug, AZT, which will increase the effectiveness of the intervention.

Speaking at Parliament yesterday morning, Tshabalala-Msimang said treatment guidelines and protocols had had to be drafted before the programme was implemented. Commenting on anecdotal evidence against nevirapine, she said: "We had to make sure that sites are properly accredited and that there were proper facilities." She said the department would meet the National Health Council at the end of February to finalise time frames for implementation.

"We have particular guidelines and protocols on dual therapy. Anything done outside these guidelines is incorrect," she said.

However, she would not be drawn into details of the case, saying it was an issue between Fasa and the KZN provincial department.

In a foreword to the policy document, which is dated February 11, Tshabalala-Msimang said the PMTCT programme was introduced in 2000.

At that time, the department had had concerns about monotherapy and the possibility of resistance to a single drug as well as the lack of clarity on infant feeding options.

She said evaluation of the programme in 2003 suggested that resistance to monotherapy had indeed become a major issue and that providing nevirapine alone was insufficient to improve outcomes for mothers and babies.

"Recent research and advice from experts now suggests that dual therapy is indicated. After consultation between the Department of Health and experts it has been decided that the PMTCT guidelines should be revised and that dual therapy using nevirapine and AZT should be used instead of nevirapine only." She said this had not been an easy decision, given the lack of unequivocal, scientific data and evidence on safety and effectiveness.

In the 2005/06 financial year 30% of all antenatal clinic attenders were tested for HIV, of whom 36% tested positive - Sapa
Long awaited delivery

• women will now have access to medication that will further reduce the risk of passing the virus onto their babies
• new guidelines adopted 25 January by SA National Health Council
• WHO guidelines advise using the combination to reduce transmission to 5%
• implementing the guidelines will require increasing the budget for PMTCT from R 85 million to 281 million, and the Health Dept will be asking the treasury for additional funds
New guidelines

• Policy Committee of the National Health Council adopted in January 25 2008
  – provide HIV + pregnant women with AZT from 28 weeks gestation till labour
  – infant receives a single dose of NVP during labour plus AZT bd for 7 days
In between......

- adhere to current National protocols and guidelines
- be aware that recommendations are being changed and updated
- need a flexible problem solving approach
Prevention of Mother - to - Child Transmission of HIV (PMTCT)

Site Manual

March 2008
PMTCT Policy document Feb 2008

• A) Introduction and background
• B) Guiding principles
• C) Aims and objectives
• D) PMTCT policy and guidelines
  – Enrollment of women
  – VCT
  – ANC
  – Infant feeding
  – Infant follow up
• E) M&E
• F) Team and organisation
Playing the numbers.....

10%

1400  50.08%

70%

2.3 million

85%