

Mozambique HIV Drug Resistance (HIVDR) Country Plan 2007/9



July 2007

(Updated)



Background Information

- Country population 19,686,505 (2006)
- Estimated Number of PLWHAs 210,000 -230,000 (2005)
- Estimated Number of persons eligible for ART 270,317(2006)
- Number of persons currently on ART 44,100
- Number of persons who will be on ART by end 2007: 97 000
- Number of persons who will be on ART by end 2008: 112 000
- Major in-country and international partners
 - UN, CDC, USG, Columbia University, MSF-S; MSF-L, HAI, CSE, etc.
- The HAART has been scaling-up in Mozambique to all Districts (urban and rural).



HIVDR Strategy

- The National HIVDR Working Group (MOH, UN, CDC and other partners) was established in 2006.
- Identify and agree on HIVDR Early Warning Indicators (EWI) that are feasible to the Mozambique context. (done)
- Surveillance of transmitted HIVDR using the threshold survey method (performed in two Provinces, Maputo and Sofala-Beira).
- The Working group ensures that the HIVDR strategy focus on Monitoring of HIVDR arising in populations starting and continuing ART.
- Designation of an in-country or regional WHO-accredited HIVDR genotyping laboratory
- Database development for HIVDR Surveillance and Monitoring: At the National Immunology Laboratory (HCM) – **“National HIV Reference Laboratory”**.



HIVDR Strategy – Cont.

- The Working Group ensures that HIVDR prevention activities are occurring in Mozambique.
- Regular assessment of HIVDR "early warning" indicators from all ART clinics (or representative sentinel clinics)
- Sentinel monitoring of HIVDR emerging during treatment and related ART program factors
- Preparation of annual HIVDR report and recommendations; use of data for ART and prevention planning.



HIVDR Monitoring in Mozambique and ART program using sentinel sites

- Sites that are recruiting new patients at sufficient rate to set up a monitoring cohort.
 - 3 Central Hospitals (Maputo, Beira e Nampula)
 - Provincial Hospitals
 - The clinical records are probably sufficient and specimens can be collected for timely transport to national lab for VL and storage
- Proposed persons responsible for developing this HIVDR Monitoring nationally/ locally
 - Dr. Rui Bastos/ Dra. Rolanda Manuel– Adults Day Hospital
 - Dr. Paula Vaz – Children’s Day Hospital
 - Each Provincial Site – Provincial Coordinators??!!



HIVDR Key activities proposed for Mozambique 2007

- HIVDR Prevention (already part of ART scale up plans)
 - National first/second line drug supply, all ART according to guidelines, National ART number for all on ART, adherence measures in place
- HIVDR early warning indicators from all ART sites
 - will be done from EPIINFO system
- HIVDR Transmission Threshold Survey (TS)
 - 2007 done with available data and specimens from current round of HIV Surveillance with WHO assistance for testing
- HIVDR Annual situation report
 - will be prepared from available data and TS
- HIVDR Monitoring of ART program at sentinel sites
 - Planned for 2007



HIV Drug Resistance Subgroup

- Subgroup of the ARV Committee
- Terms of reference:
 - Implement the HIV Drug Resistance (HIVDR) Plan 2007-2009
 - Revise and implement protocol for monitoring HIVDR in sentinel treatment sites -- resistance patterns
 - Regularly perform HIVDR threshold surveys to evaluate transmitted resistance
 - Collect and analyze HIVDR Early Warning Indicators
 - To build capacity for genotyping to support HIV drug resistance surveillance and monitoring within the country including quality control
 - Analyze and report on the situation with regard to HIVDR in the country
 - To coordinate the country strategy with the WHO HIVResNet
 - To ensure all activities follow international ethical standards.



HIVDR Subgroup Current Members, institutions, and external affiliates

- Chair of HIVDR Working Group: **Dr. Rui Bastos** *(TARV Head)
- DNAM representative- **Dr. Americo Assan**
- HIV/AIDS Director- **Dr. Macarthur Junior**
- HIV Laboratory Director (INS) - **Dr. Ilesh Jani**
- Adult Hospital Representative- **Dr. Rolanda Emanuel**
- Children's Day Hospital Director – **Dr. Paula Vaz**
- Medicines Department and Monitoring - **Tatiana Fonseca**
- PMTCT representative - **Dr. Lilia Jamisse.**
- WHO - **Dr. Sandra A. Muchanga**
- CDC - **Peter Young**
- TARV representative – **Dr. Florindo Mudender**
- Monitoring and evaluation – **Dr. Clara Santos/ Dr. Olimpio**
- External affiliates (NGOs and Private Sector)
MSF-Lux – **Fernando Maldonado**; MSF-Swiss – **Caitlin Shanan**; HAI: Sara Gimbel, Dream, Columbia University, Elizabeth; Glazer, Vanderbilt University and CARE



Institutions and individuals with expertise/ interest in HIV surveillance, ART issues, virology, and HIVDR

- MOH-coordinates whole HIV/AIDS within the "Health Sector Response"
 - M and E
 - HAART Program
 - Health Facilities involved in Sentinel Surveillance and ART/PMTCT sites
- Children's Day Hospital (HCM)- HIVDR Piloting Study
- UN partners
 - WHO, UNAIDS, UNICEF - National, Regional and International technical assistance to the government.
- Other partners: TA, funding
 - USAID, NGOs, GFATM, Italian Cooperation, etc
- Specific technical partners/expertise:
 - CDC



HIVDR Prevention Activities

- Standardized regimens and guidelines; monitoring to see that they are implemented
- Monitoring of ARV drug supplies
- Standardized ART patient information system developed for public sector
- Development of a national adherence strategy
- Initial drug supply quality assurance is in place -- other aspects to be developed eventually
- HIV-Qual to assess systems at health facility level



Mozambique HIVDR Early Warning Indicators (EWIs)

- Define "standard or appropriate regimen"
 - Standard = meeting current national guidelines
- Develop list of feasible EWI; define denominators and numerators for each
- Work out methods of data abstraction from different current systems
- Work out methods of data abstraction from new government system
- Define initial sites for report to AFRO conference, 9/2007 (test of concept)
- Define initial sites for end of year report 2007
- Plan scale-up for 2008, 2009



Proposed pilot EWI sites

- Principles: Ensure each province has at least two sites to ensure representativeness?
- Plan expansion for 2008/2009



Selected Mozambique EWI's (1)

1. Prescribing practices at each ART Site

- % of patients starting ART who are prescribed a standard or appropriate first-line regimen

Target: 100%

Time period: April – June 2007

2. % lost to follow-up

– % lost to follow-up 12 months after starting ART

Suggested Target: $\leq 20\%$?

Denominator time period: patients starting ART April-June 2006

3. Patient retention on first-line ART

– % of patients starting first-line ART who are still on first-line ART 12 months later

Suggested Target: $\geq 70\%$?

Denominator period: patients starting ART April-June 2006



Selected Mozambique EWI's (2)

4. On-time ARV Drug pick up

- % of ART patients picking up all prescribed drugs on time during twelve months after ART start

Suggested Target: 90%?

Denominator: patients starting ART April to June 2006

7. Drug Supply Continuity

- % of quarters during a year in which there were no drug stock outages

Suggested target: 100%


Denominator period: August 2006-July 2007

?Budget for data abstraction supervisory team?

Budget for validation exercise?



Example: HIVDR EWI at ART sites (2006, mock)

| Site | Drug stockouts | Prescribing practices | Continuation 1st line | Appointment keeping | Drug pick-up |
|---|----------------|-----------------------|-------------------------|---------------------|--------------|
| 1 | 0% | 100% standard | 90% at 12 months | 90% | 95% |
| 2 | 5% | 100% standard | 88% at 12 months | 85% | 80% |
| 3 | 8% | <u>70% standard</u> | <u>68% at 12 months</u> | 50% | <u>70%</u> |
| 4 | 0% | 100% standard | 90% at 12 months | 90% | 95% |
| 5 | 0% | 100% standard | 88% at 12 months | 85% | 90% |
| 6 | 0% | 100% standard | 98% at 12 months | 95% | <u>70%</u> |
| 7 | 0% | 100% standard | 90% at 12 months | 90% | 95% |
| 8 | 5% | 100% standard | 88% at 12 months | 82% | <u>80%</u> |
| 9 | 0% | 99% standard | <u>55% at 12 months</u> | 50% | <u>70%</u> |
| 10 | 0% | 100% standard | 90% at 12 months | 90% | 95% |
| 11 | 0% | 100% standard | 88% at 12 months | 85% | 90% |
| 12 | 0% | <u>80% standard</u> | <u>70% at 12 months</u> | 66% | <u>70%</u> |
| 13 | 0% | 100% standard | 90% at 12 months | 90% | 95% |
| 14 | 0% | 100% standard | 88% at 12 months | 82% | 80% |
| 15 | 0% | 100% standard | 88% at 12 months | 85% | <u>70%</u> |
| 16 | 0% | 100% standard | 90% at 12 months | 66% | <u>60%</u> |
| 17 | 5% | 98% standard | 88% at 12 months | 85% | 90% |
|  | 0% | 100% standard | 68% at 12 months | 95% | 99% |
| | 0% | 100% standard | 98% at 12 months | 95% | 98% |
| National | | | | | |

EWI 2: prescription practices (first-line regimen, 1st Q 2007)

| site | N patient/ regimens | N initiators | N “other” regimens | % standard |
|-------------------------|---------------------|--------------|--------------------|------------|
| Adults Day Hospital | Hipoteses (250) | 205 | 0 | 100% |
| Children’s Day Hospital | 383 | 350 | 37 | 90.3% |
| Hospital/ Site Beira | 151 | 160 | 0 | 100% |
| Hospital/ Site Nampula | 74 | 68 | 0 | 100% |
| Provincial Hospital-1 | 98 | 114 | 0 | 100% |
| Provincial Hospital-2 | 106 | 97 | 2 | 98.1% |
| Provincial Hospital-3 | 11 | 13 | 0 | 100% |

Cohort monitoring of HIVDR emerging during treatment, and related ART programme factors in sentinel sites

2007

- Children's Day Hospital
- Adult Day Hospital

WHO is likely to be able to fund these surveys up to \$60,000 through the grant from the William and Melinda Gates Foundation.

2008: 3-10 additional sites. CDC funding? Other potential partners?

2009: 5-10 additional sites?

2010: the 2007 sites plus 3-8 additional sites

2011: 2008 sites (plus other sites if needed)

Note: Columbia planning a different protocol for two ART sites – possible to integrate WHO protocol into this protocol– discussions urgently needed



Surveillance of transmitted HIVDR: threshold surveys background

- Focus on geographic areas with sufficient specimens available for a Threshold Survey to be done in 2007 2008 -Geographic areas where HIVDR is most likely to be seen first is- Beira Corridor
- HIVDR Surveillance –routine as part of HIV surveillance that is done every 2 years
- Potential site types –ANC Sites
 - Available routinely-collected data
 - Available routinely-collected specimens plasma
 - Numbers of eligible specimens 60+



HIVDR threshold surveys for assessment of transmitted HIV drug resistance

- Current specimen collection in Maputo and Beira as part of HIV serosurvey
- Sites: Antenatal clinic HIV serosurvey sites
- Eligibility: primagravidas < 25 years of age
- Expand to additional areas within two years or within four years? *Or*
- Assess results from two original areas, expand to other areas when transmission prevalence is > 5% in one original area.
- Consider additional site types? Sexually transmitted infection clinics?



Designation of a WHO-accredited genotyping lab for HIVDR surveillance and monitoring

- Plan to develop genotyping lab in-country and apply for accreditation in 2009
 - Training and technical assistance from partner organizations
 - Consider whether to concentrate in 2008/2009 on being accredited for genotyping plasma, then dried blood spots later, or both
- CDC lab, not yet accredited, will perform 2007 threshold survey genotyping after accreditation (no cost to Mozambique)
- 2007 monitoring surveys' genotyping likely to be performed by Health Canada (no cost to Mozambique)
- Additional monitoring surveys –
 - 2008/2009: Budget for genotyping unless sponsored by an institution that will perform genotyping at no cost (before in-country lab has been accredited)
 - 2009/2010 onwards: Budget for genotyping. Kits? In-house method?



Strategic Information for national HIVDR report

- Background information on HIV incidence and prevalence, prevention successes and challenges, ART coverage, regimens, and challenges
- Composition and roles of HIVDR working group organizations
- Overall view of HIVDR emergence and prevention in the country
- HIVDR prevention elements
- Reporting of HIVDR early warning indicators from ART clinics
- Monitoring of HIVDR arising in treated populations and related ART program factors
- Surveillance of transmitted HIVDR using the threshold survey method
- Summary of other HIVDR work in the country
- Recommendations
- Implementation of recommendations
- Plans for the future

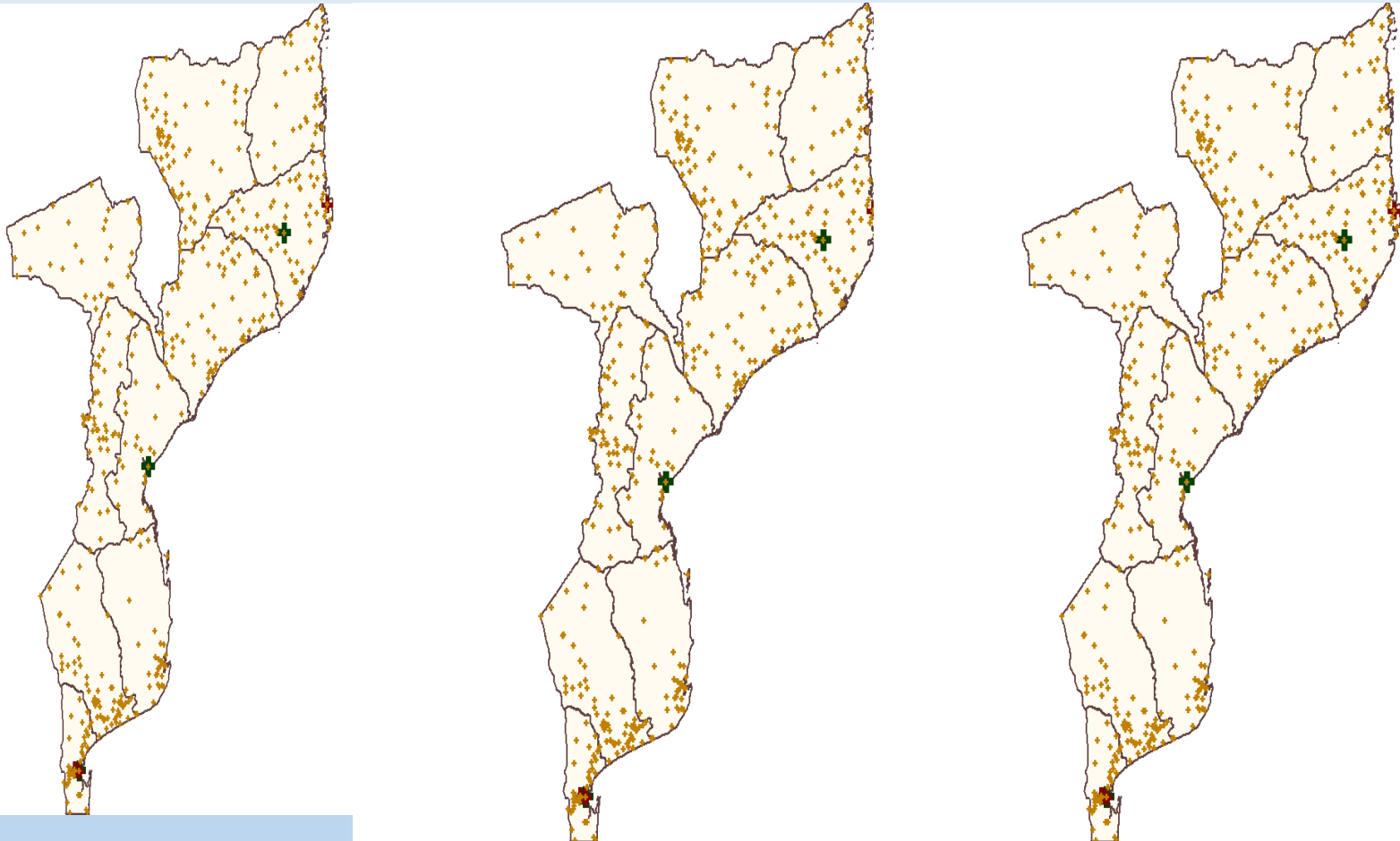


Writing of the Annual HIVDR report : as part of the national Annual Report on HIV/AIDS country level (UNGASS or MDG reports) and recommendations

- Any statement/publication regarding HIVDR in Mozambique must be reviewed and approved by W/G
- The annual HIVDR report will focus on :
 - HIVDR situation in Mozambique
 - contributing factors
 - recommendations for ART and HIV prevention program
 - The need for adjustments of plans
 - The need to adjust any implementation issues
 - Surveillance and monitoring planning for the following year
- The report can contribute to Southern Africa region annual report



HIVDR Assessment using HIVDR Early Warning Indicators from all ART sites and HIVDR sentinel Monitoring in Mozambique



Mozambique HIVDR Database development and management

- Mozambique can adopt the WHO/HIVResNet HIVDR Database.
- The INS- (Immunology Laboratory) would be responsible for keeping this database, data input, report production from database etc.
- Would Mozambique be willing to participate in a WHO regional Southern Africa HIVDR database? And WHO's Global HIVDR Database?
- WHO can provide HIVDR database and training



Budget sections for each item

- Administration
- Training
- Supplies
- Equipment (WHO cannot fund this item)
- Coordination, supervision
- Data abstraction, data entry, data analysis
- Meetings
- Report writing
- Report dissemination



Budgeting and use of other Resources

- Resources (human, financial, institutional, other) currently available from MOH and WHO and partners to support the national HIVDR strategy
 - HIV Surveillance round data and specimens
 - Viral load testing at national Reference Lab (TAP/after TAP)
 - HIVDR Protocol development and HIVDR report preparation
 - Use of EPI-INFO database personnel and data (EWI)
- Additional resources may be required for
 - piloting
 - other HIVDR work to take place in the next one to two years under the national plan
 - expansion of the strategy
 - Additional Laboratory activities
- Complete the specific technical assistance required for development and implementation of a comprehensive national HIVDR Surveillance and monitoring
- Donors who might be interested to assist: Italian Gov, USG, GFATM, UN, etc.?



Example Mock Budget HIV Drug Resistance Surveillance and Monitoring

Year 1; 2007

1. **Surveillance of HIVDR Transmission:** Total est. = \$25,000 per site if done with HIV surveillance – includes specimen shipping and genotyping costs)
2. **Monitoring of HIVDR in ART:** Total est. = \$50,000 setting up first protocol and site then \$100,000 per sentinel site (including VL 250 X \$25? Plus genotyping 150 X \$300, shipping \$\$? Etc.)
3. **Technical Assistance:** (Total: \$55,000 e.g. visiting consultants)
5. **Development of National HIVDR Database:** (Total: \$20,000)



Dedicated computer, Software and Training provided by WHO.

Example Mock Budget HIV Drug Resistance Surveillance and Monitoring

Year 2: 2008

Scenario 1: If NO or little evidence of HIVDR transmission (i.e. <5%)

1. Repeat HIVDR Transmission Surveillance (\$25,000)
2. Monitoring HIVDR (Continue site 1 cohort- \$75,000, Add second site – \$100,000)
3. Repeat Technical Assistance, HR, and National HIVDR Database as above

Scenario 2: If evidence of HIVDR transmission (>5%) or emergence on ART

1. Add Surveillance sites (2 total sites=1 from Year 1+1 additional sites) (\$50,000)
2. Monitoring and other items same as Scenario 1

Year 3,4,5 (details in GFATM Proposal)



Summary for budget: activities, costs

- EWI (monitoring team? Validation? Database manager?)
- Sentinel Site HIVDR Monitoring Surveys:
 - 2007: Children's Day Hospital & Adult Day Hospital (HCM)
 - 2008:
 - 2009:
 - 2010:
- HIVDR threshold surveys to assess transmitted HIVDR
 - 2007: Maputo and Beira
 - 2008:
 - 2010:
 - 2012:



Technical Assistance that might be requested from WHO region, CDC, WHO HQ, other organizations

- Working group development (TOR - Done)
- National strategy development (Done)
- Collection of HIVDR early warning indicators (partially done)
- Protocol development and planning: sentinel monitoring of HIVDR emerging in treated populations (partially done)
- Protocol development and planning: surveillance of transmitted HIVDR, Monitoring of HIVDR in ART sentinel sites (partially done)
- Standard operating procedures for specimen collection, processing, and shipment (partially done)
- Database development and training
- Preparation of budgets and requests for funds



Next steps

- Finalize HIVDR Transmission surveillance protocol
 - Designate IPs and other investigators – site coordinators
 - Designate lab specimen responsible person
- Designate surveillance site coordinator
- Nominate external WHO accredited lab for genotyping



Thank you!

Obrigada!

