Promoting the Prevention of Antimicrobial Resistance in Ohangwena Region, Namibia

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Promoting the Prevention of Antimicrobial Resistance in Ohangwena Region, Namibia

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November 2014

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The goal of the Systems for Improved Access to Pharmaceuticals and Services (SIAPS) Program is to assure the availability of quality pharmaceutical products and effective pharmaceutical services to achieve desired health outcomes. Toward this end, the SIAPS result areas include improving governance, building capacity for pharmaceutical management and services, addressing information needed for decision-making in the pharmaceutical sector, strengthening financing strategies and mechanisms to improve access to medicines, and increasing quality pharmaceutical services.

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Key Words

Continuing professional development, antimicrobial resistance, rational medicines use, HIV and AIDS, Ministry of Health and Social Services, University of Namibia

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ACKNOWLEDGMENTS

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The authors extend their gratitude to the Ministry of Health and Social Services (MoHSS) and stakeholders for their commitment in implementing interventions to promote rational use of medicines, and to prevent the development of resistance especially to antiretroviral and antibiotic medicines used for management of HIV and opportunistic infections. SIAPS also acknowledges Dr. Steven Hong of Tufts University, one of the MoHSS partners, for his collaboration on data abstraction, validation, and analysis; and report compilation for early warning indicators of HIV drug resistance, the content of which was used as evidence for the CPD presentation.

ACRONYMS AND ABBREVIATIONS

AIDS	Acquired Immunodeficiency Syndrome
AMR	antimicrobial resistance
ART	antiretroviral therapy
ARV	antiretroviral
CPD	Continuing Professional Development
EWI	Early Warning Indicators
HIV	Human Immunodeficiency Virus
HIV-DR	HIV drug resistance
MoHSS	Ministry of Health and Social Services
NAAR	Namibians Against Antimicrobial Resistance
RMU	rational use of medicines
SIAPS	Systems for Improved Access to Pharmaceutical Services
STGs	(Namibia) Standard Treatment Guidelines
TB	tuberculosis
TC	Therapeutic Committee
UNAM	University of Namibia
UNAM-SOM	University of Namibia School of Medicine
UNAM-SOP	University of Namibia School of Pharmacy
WHO	World Health Organization

EXECUTIVE SUMMARY

Namibia has attained high coverage of antiretroviral therapy (ART) services for the country's HIV-positive population. Decentralization efforts, coupled with revisions to the standard treatment guidelines relaxing the criteria for initiating ART, have contributed to the scale up of ART services and have brought these services closer to the people. However, the challenge lies in sustaining the quality of HIV treatment services and outcomes, including adherence to ART to avoid HIV drug resistance (HIV-DR).

Although the Division of Pharmaceutical Services and the Directorate of Special Programs regularly distribute reports on ART pharmaceutical management information systems, including ART patient retention rates and early warning indicators (EWIs) of HIV-DR, these data have not been adequately presented to health practitioners and regional managers to encourage behavior change and follow-up of patients in ART care. The Ministry of Health and Social Services (MoHSS) has conducted surveys on HIV-DR in Namibia, the findings of which have been shared with the countries policy makers and all health practitioners in the public sector through technical reports. The Division of Pharmaceutical Services regularly produces reports on EWIs and ART retention rate with various recommendations for improving performance. One of the recommendations emphasizes that one way to monitor EWIs of HIV-DR is to identify and follow-up with ART patients. These reports need to be disseminated to health care practitioners in Namibia to sensitize them on the dangers of poor retention in care and the development of resistance to antiretrovirals (ARVs) and antibiotics used for treatment of opportunistic infections, which are common among people living with HIV and AIDS.

In this regard, SIAPS supported the University of Namibia School of Medicine (UNAM-SOM) to facilitate a continuing professional development (CPD) activity with health practitioners and regional management teams in Namibia's Ohangwena region on strategies to combat antimicrobial resistance (AMR), including HIV drug resistance (HIV-DR), and the use of early warning indicators (EWI) for early detection and action. The UNAM facilitator at the CPD activity was a participant of the AMR/rational medicines use (RMU) workshop in 2013. A total of 25 participants including nurses, doctors, and pharmacy personnel were trained in AMR, HIV-DR, and EWIs. At the end of the one-day workshop, the participants designed an action plan to promote activities for reducing the development of AMR in their respective districts and health facilities.

BACKGROUND

In Namibia, about 13.1% of the adult population was living with HIV in 2013, which is one of the highest prevalence rates in the world. Drug resistance to antiretrovirals (ARVs) is inevitable in populations taking antiretroviral therapy (ART) because it is a life-long treatment. Namibia has adopted a public health approach to scaling up ART services which involves the use of standardized and simplified treatment regimens. The country is one of three countries in Africa that has reached 80% ART coverage (Joint United Nations Programme on HIV and AIDS, UNAIDS, 2011). The Ministry of Health and Social Services (MoHSS) continues to increase access to ART through decentralized services and adoption of the 2013 World Health Organization (WHO) guidelines on managing and treating people living with HIV. Like other countries, Namibia experiences challenges such as insufficient capacity to coordinate and support rational medicine use (RMU) activities. In particular, a lack of operational research to generate evidence on the burden and risk of antimicrobial resistance (AMR); limited evidence on evaluations of practices and interventions to increase AMR awareness, advocacy, and prevention; and limited advocacy and coalitions that provide platforms to discuss RMU and AMR, opportunities to enhance awareness, and training on AMR/RMU.

In 2013, SIAPS supported the UNAM School of Pharmacy (SOP), UNAM School of Medicine (SOM), and MoHSS Division of Pharmaceutical Services to conduct a workshop and stakeholder call-to-action forum on AMR and promoting the rational use of ARVs, anti-tuberculosis (TB), and other medicines. Participants included academicians (lecturers) from UNAM, administrators from MoHSS, and health care workers from public and private facilities. Participants developed action plans aimed at promoting RMU and preventing AMR. Various activities that were enlisted for 2013-2014 included conducting medicine use evaluations, carrying out operational research to increase evidence of AMR in Namibia, implementing educational interventions through continuing professional development (CPD) programs for health care workers and Therapeutic Committees (TCs), and implementing patient or community education. Different stakeholders were named in an AMR intervention model that was proposed for Namibia (figure 1).

In the model, University of Namibia (UNAM) and MoHSS, under which the Regional Directorates fall, are listed as key stakeholders for interventions against AMR. SIAPS was enlisted as a key partner to support UNAM, and the newly established Namibians Against Antimicrobial Resistance was named to implement the planned actions. SIAPS support was to include adapting UNAM's existing AMR/RMU in-service training materials for use for in-service training interventions, generating evidence (through operational research) on the burden and risk of AMR, enhancing awareness of AMR, and providing training on how to combat AMR and implement measures to reduce HIV-DR.

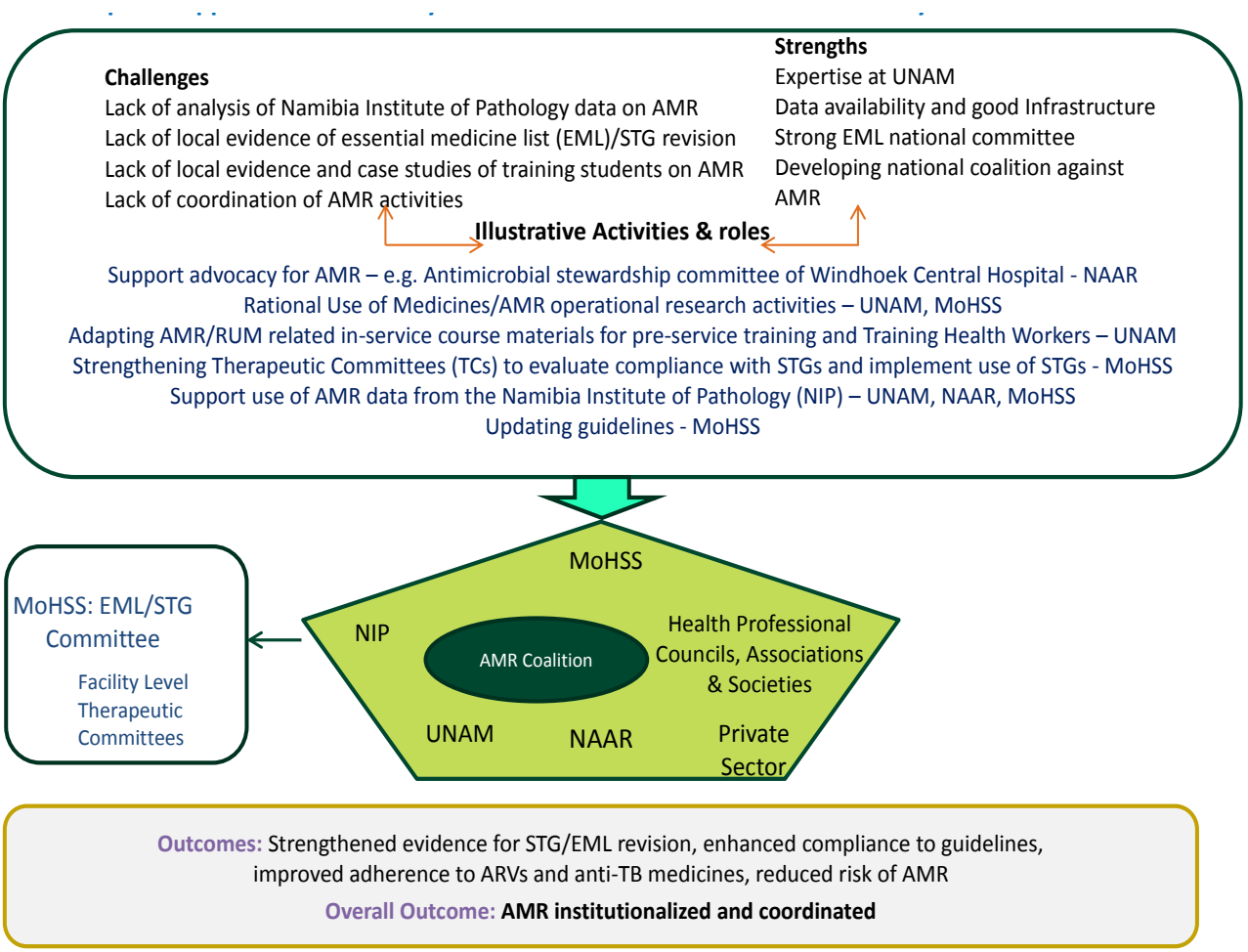

Figure 1. Proposed AMR intervention model for Namibia, July 2013

It is against this background that SIAPS supported one UNAM-SOM lecturer who participated in the AMR/RMU workshop in 2013 to facilitate a CPD activity on AMR/RMU in Ohangwena, one of Namibia's 14 regions. Ohangwena region has a total population of 245,446 people, which is about 12% of Namibia's total population (Namibia census report, 2011). The CPD exercise supported two of SIAPS project year 3 activities: "Support UNAM to conduct adherence, AMR/RMU-related operations research following the training in FY13 to enhance evidence for RMU, including ARVs and anti-TB medicines" and "Support UNAM-SOP to organize CPD and continuing medical education based on identified priority pharmaceutical management issues, e.g., rational use of ARVs and tuberculosis (TB) medicines and adherence to the medications." The activity was to create awareness for action on RMU and related future operational research.

ACTIVITIES AND PRINCIPLE FINDINGS

A team of three technical advisers led by a representative from UNAM-SOM delivered a presentation at a Regional Health Seminar held at Engela District in Ohangwena region. Twenty-five health care practitioners including medical doctors, pharmacist assistants, nurses, and members of regional and district management teams from Ohangwena and surrounding regions attended the CPD event which was accredited by the Namibian Health Professions Council (annex A). The objectives of the event were to—

- Provide an overview of the extent and nature of inappropriate use of medicines
- Raise awareness on practices leading to the development of AMR
- Describe and discuss irrationalities of the use of antimicrobials, including those used in the treatment of HIV and AIDS and TB
- Understand the adverse impacts of inappropriate use of medicines
- Identify factors underlying the irrational use of medicines
- Introduce early warning indicators (EWIs) to the participants and discuss the performance of facilities in Ohangwena on reported EWIs for HIV-DR
- Design an action plan for Ohangwena region with activities to combat the development of AMR and improve use of EWI in each district

The one-day workshop was divided into three sessions—

1. Antimicrobial resistance: no action today, no cure tomorrow– Dr. Julius Ojulong, UNAM

2. Namibia 2012 Early Warning Indicators of HIV Drug Resistance–Bayobuya Phulu, SIAPS

3. Development of post training/activity action plan for Ohangwena region to combat development of AMR and improve EWIs— Nasser Mbaziira, SIAPS

The first presentation by Dr. Ojulong was based on presentations made by WHO on World Health Day 2011. The objectives of this session were to:

- Describe how resistance to medicines develops
- Provide an overview of the extent and nature of inappropriate use of medicines
- Discuss irrationalities pertaining to the use of antimicrobials, including those used in the treatment of HIV and AIDS and TB
- Understand the adverse impacts of inappropriate use of medicines

- Identify factors underlying the irrational use of medicines
- Describe how RMU reduces the development of antimicrobial resistance

The second presentation was based on select EWI data that was abstracted and analyzed in Namibia in 2013. The analysis included measurement of the following indicators in the 2012 calendar year—

- On-time pill pick up
- Retention in care
- Pharmacy stock-outs of ARV medicines
- Dispensing practices
- Viral load suppression at 12 months

The WHO uses color codes to performance with regards to EWI performance. Table 1 below shows how performance in EWIs is classified.

Table 1. World Health Organization EWI Target Score Card

Early warning indicator	Target
1. On-time pill pick-up	Red[a] : <80% Amber[b]: 80%– 90% Green[c]: >90%
2. Retention in care[d]	Red: <75% retained after 12 months of ART Amber: 75%–85% retained after 12 months of ART Green: >85% retained after 12 months of ART
3. Pharmacy stock-outs	Red: <100% of a 12-month period with no stock-outs Green: 100% of a 12-month period with no stock-outs
4. Dispensing practices	Red: >0% dispensing of mono- or dual therapy Green: 0% dispensing of mono- or dual therapy
5. Viral load suppression at 12 months[e]	Red: <70% viral load suppression after 12 months of ART Amber: 70%-85% viral load suppression after 12 months of ART Green: 85% viral load suppression after 12 months of ART

a. Red (poor performance, below desired level)
b. Amber (fair performance, not yet at desired level but progressing towards desired level)
c. Green (excellent performance, achieving desired level).
d. Retention in care definition equal to UNGASS 24 and PEPFAR T1.3.D.
e. Targets for virological suppression for children under 2 years of age—red: <60%, amber: 60%-70%, green: >70%

Tables 2 and 3 below show national results from the data abstraction and analysis of selected EWIs for the period between January 1 and December 31, 2012.[1]

[1] Namibia 2012 Early Warning Indicators of HIV drug resistance, Dr. Steven Hong 2012

Table 2. National Summary of EWIs of HIV-DR in Namibian Pediatrics in 2012

EWI	EWI Target for all sites (time period)	Number of sites meeting EWI target (% of sites meeting target) N = X ART sites
EWI 1. On-time ARV drug pick up	Green: >90% Amber: 80–90% Red: <80% (Jan. 1, 2012–)	Green: 23/47 (49%) Amber: 15/47 (32%) Red: 9/47 (19%)
EWI 2. Retention in care	Green: >85% Amber: 75–85% Red: <75% (Jan. 1, 2010–Dec. 31, 2010)	Green: 28/49 (57%) Amber: 10/49 (20%) Red: 11/49 (22%)
EWI 3. Pharmacy stock-outs	Green: 100% Red: <100% (April 1, 2012–March 31, 2013)	Green: 37/49 (76%) Red: 12/49 (24%)
EWI 4. ARV dispensing practices	Green: 0% Red: >0% (Jan. 1, 2012–)	Green: 43/47 (91%) Red: 4/47 (9%)
EWI 5. Virological suppression at six months	Targets to be determined by WHO (Jan. 1, 2010–Dec. 31, 2010)	NA

Table 3. National Summary of EWIs of HIV-DR in Namibian Adults in 2012

EWI	EWI Target for all sites (time period)	Number of sites meeting EWI target (Percentage of sites meeting target) N = X ART sites
EWI 1: On-time ARV drug pick up	Green: >90% Amber: 80–90% Red: <80% (1 Jan. 1, 2012–)	Green: 23/47 (49%) Amber: 15/47 (32%) Red: 9/47 (19%)
EWI 2: Retention in care	Green: >85% Amber: 75–85% Red: <75% (Jan. 1, 2010–Dec. 31, 2010)	Green: 28/49 (57%) Amber: 10/49 (20%) Red: 11/49 (22%)
EWI 3: Pharmacy stock-outs	Green: 100% Red: <100% (1 April 1, 2012—March 31, 2013)	Green: 37/49 (76%) Red: 12/49 (24%)
EWI 4: ARV dispensing practices	Green: 0% Red: >0% (1 Jan 2012 -)	Green: 43/47 (91%) Red: 4/47 (9%)
EWI 5: Virological suppression at six months	Targets to be determined by WHO (Jan. 1, 2010–Dec. 31, 2010)	NA

After the presentation, participants discussed the results of the EWI abstraction as well as recommendations from the 2012 EWI report[2] on strategies to improve early warning indicators. The plenary also discussed specific results for Ohangwena districts (annex B).

Session three was interactive and focused on developing action plans to promote RMU, slow the development of AMR, and improve performance on EWIs. Participants discussed the challenges faced by the region in ART services provision. These include inventory management, patient management, and pediatric adherence to ARV medicines.

[2] Namibia 2012 Early Warning Indicators of HIV drug resistance, Dr Steven Hong

DISCUSSION OF FINDINGS

The third session of the CPD event was designed to identify areas of interventions to reduce AMR, including HIV-DR. The following challenges came up during the discussion—

1. Ohangwena region shares a border with neighboring Angola, and a lot of patients migrate between the two countries. This has led to patients who are lost to follow up, as logistics for tracing patients are limited. This challenge has a negative impact on patient retention in care and adherence to ART.

2. Ohangwena region has many orphans on ART. Orphans receive little support from caregivers, which has a negative effect on patient retention and pediatric ART adherence. Health care practitioners in the region were advised to engage the local government and community support groups to come up with solutions to care for orphans, especially those living with HIV.

3. The supply of medicines from the Central Medical Stores for the new first-line medicine that contains tenofovir regimens has been erratic, which negatively affects on-time pill pick up. To ration the low stock of medicines, patients are given shorter intervals between appointments. This matter was referred to Division of Pharmaceutical Services to address the stock out of medicines, as this was a nationwide crisis.

4. The participants discussed challenges of implementing the 2011 Namibian Standard Treatment Guidelines (STGs) due to non-availability in consultation rooms and also largely due to lack of training or education on their use. Participants collectively agreed on including activities in the action plan to encourage proper use of the STGs and the new ART guidelines.

CONCLUSIONS AND RECOMMENDATIONS

Following discussion, the meeting participants developed an action plan (table 4) to promote RMU and reduce the development of AMR in Ohangwena region. The post-training action plan is to apply the knowledge gained on antimicrobials to minimize the development of resistance to medicines, including costly ARV medicines.

Table 4. Regional Action Plan to Reduce Development of AMR, including HIV-DR

Activity description	Location	Person responsible	Timeline	Method of verification of completion	Potential barriers
Reference to the STG when prescribing medication for all patients	Engela Ongha Okongo Eanhana	Health workers	Through-out the year	Level of compliance to STGs	Availability of STG copies in all consultation rooms. Workload and patients preferences for non STG treatments
Active use of Therapeutic Committees (TCs) to promote rational medicine use through updates of the STG and NEML				# of submissions/ recommendations from the TCs to the NEMLIST committee # of presentations conducted through TCs	None
TCs to organize presentations on selected case management topics in line with the STDs		TC secretaries		# of presentations made by TCs	

The regional team also agreed to implement applicable recommendations of the Namibia 2012 EWIs of HIV-DR survey which included:

- Attempt to disaggregate data from Integrated Management of Adult and Adolescent Illnesses and outreach sites from main ART sites
- Analyze and discuss EWI data during the quarterly HIV/TB data review meetings held in the region
- Conduct routine regional supervisory visits to ART sites
- Incorporate the EWIs results in existing health facility forums for ART quality of care improvement

The team of SIAPS and UNAM staff who conducted this CPD activity recommends that MoHSS support and follow up with the Ohangwena regional management team on the implementation and monitoring of progress and continued support for RMU.

ANNEX A. KEY PERSONS MET DURING THE CPD ACTIVITY

Name	Title	Organization/Affiliation
Dr. N Kongolo	Chief Medical Officer	MoHSS Ohangwena District
Souma Elago	Ongha Therapeutics Committee	MoHSS Ongha District
Kuwilileni Namolo	Okalongo Therapeutics Committee	MoHSS Okalongo District
Jacobina Ndishishi	Eenhana Therapeutics Committee	MoHSS Eenhana District
Eino Hainana	Okalongo Therapeutics Committee	MoHSS Okalongo District
Ismael Mwafangayo		
Libby Ipinge	Engela Therapeutics Committee	MoHSS Engela District
Sylvia Kakolo		
Un Mupakeleni		
Evelyn Maumbe		
T.A Shukwanyame		
Lucina Shiduiue		
Josephine Nghitwikwa		
Laura Mashina		
Ndamona Lungameni		
Ervildia Namukwambi		
Neshuku Sartimt		
Dr. John Olenga	Medical Officer	
Josephine Hango	Engela Therapeutics Committee	
Dr. Celestinos Murairwa	Principal Medical Officer	
Jacques Kamangu	Engela Therapeutics Committee	
Lawrence Chimarizani		
Wendy Mwanga		
Ester Sebashei		
Kakoro Emiliana		

ANNEX B. OHANGWENA REGIONAL CPD SEMINAR PRESENTATIONS

9/15/2014

The Global Challenge of Irrational Use of Medicines

David Mabirizi, Mohan P. Joshi, Malaika Schiller

Workshop on antimicrobial resistance and promoting the rational use of ARVs, anti-TB and other medicines in Namibia
UNAM School of Pharmacy, Windhoek
22-24 July 2013

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Rational medicine use

Rational medicine use - requires that patients receive appropriate medications for their clinical needs, in doses meeting individual requirements, for an adequate period, and at the lowest cost to them and their community.

RIGHT DRUG
RIGHT DOSE
RIGHT DURATION
AFFORDABLE

Irrational medicine use occurs when one or more of these conditions are not met

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Acknowledgements

This presentation is based on:

- Management Sciences for Health. 2011. *MDS-3: Managing Access to Medicines and Health Technologies (Chapter 27).* Sterling, Va.: Kumarian Press.

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The global challenge of irrational use of medicines

- Globally, more than 50% of medicines are prescribed, dispensed, or sold inappropriately and 50% of all patients do not take their medicines correctly*
- In primary care in developing and transitional countries** –
  - <50% of the patients are treated according to clinical guidelines for common diseases
  - >50% of all cases of upper respiratory tract infections are treated with antibiotics
  - <60% of pneumonia cases are treated with an appropriate antibiotic
  - <60% of children with diarrhea are given oral rehydration therapy, >40% receive antibiotics, mostly unnecessarily
  - Only 50% of malaria cases receive an appropriate antimalarial agent

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Session objectives

- Provide an overview of the extent and nature of inappropriate use of medicines
- Discuss irrationalities pertaining to the use of antimicrobials, including those used in the treatment of HIV/AIDS and TB
- Understand the adverse impacts of inappropriate use of medicines
- Identify factors underlying the irrational use of medicines

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The global challenge of irrational use of medicines (2)

- Higher levels of medicine use problems occur in the private sector than in the public sector
  - e.g. treatment of acute childhood diarrhea was according to clinical guidelines in the public sector in about 40% of the cases, but less than 20% in the private-for-profit sector
- Patient care indicators are suboptimal
  - Consultation time – only 4 minutes (average of studies in 10 countries)
  - Dispensing time – only 105 seconds (7 countries)
  - % of drugs dispensed – only 89% (12 countries)
  - % adequately labeled – only 54% (8 countries)
  - % patients with correct knowledge of dosage – only 71.4% (16 countries)

WHO World Medicine Situation Report
http://apps.who.int/medicinedocs/en/m/abstract/Js18064en/

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9/15/2014

The global challenge of irrational use of medicines (3)

- About 2/3 of global antibiotic sales occur without any prescription*
- 15 billion injections are given per year, and ⅓ of them are with unsterile needles or syringes.** Up to 90% of the injections given are estimated to be unnecessary.[1]
- 1.3 to 2.1 billion people in the world do not have access to essential medicines*
- 2 in every 6 WHO member states have no or very little drug regulatory capacity*
- 20 to 50% of antimicrobial use in *humans* is unnecessary, and 40 to 80% of their use in *animals* is highly questionable***
- Approximately 10% of all patients admitted to hospitals acquire an infection during their stay (nosocomial infection)****

*The World Medicines Situation, WHO, 2004.
** Holloway, K. 2006. Preparation for promoting rational use of medicines in developing countries, WHO, 2007.
*** Van Boeckel et al. *Lancet Infect Dis* 2014; 14(742): 909–10.
**** Brown N. Know your enemy: the hospital acquired infection. 2008. *Emerging Infectious Diseases*. Accessed July 21, 2009.

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The challenge and risks to irrational use in Namibia

- Adherence survey 2012
- Early warning indicators (EWI) study
- Pharmaceutical Management Information System (PMIS) reports
- Therapeutics Committees' activity reports
- Limited research into rational use of medicines in Namibia

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Evidence of continuing gaps in RUM solutions

- Less than half of countries have an up-to-date policy framework that actively encourages appropriate use of medicines such as –
  - regular monitoring of medicine use
  - regular updates to clinical guidelines
  - regular medicine updates for prescribers (medicines information center)
  - effective drug and therapeutics committees in hospitals (health facilities) or regions
- In some countries, the policy exists but is inadequately implemented

RUM = Rational use of medicines

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Examples of irrational use of medicines

- Polypharmacy
- Medicine used when not needed
- Wrong medicines
- Ineffective medicines and medicines with doubtful efficacy
- Unsafe medicines
- Underuse of available effective medicines
- Incorrect use of medicines

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Evidence of continuing gaps in RUM solutions (2)

- <40% of countries updated STGs in the last 2 years and
- Only about 50% of countries updated EMLs in the last 2 years
- Only about 40% of countries have a drug information center for prescribers
- Only about 50% of countries have DTCs in most referral hospitals
- Only about 40% of countries have conducted a drug use audit in the last 2 years
- <50% of countries enforce obligatory CME for doctors and nurses
- <50% of countries promote public education on antibiotic use
- In only less then 40% of countries are antibiotics not available OTC
- Only about 20% of countries have a national strategy to contain AMR

OTC = over the counter

Source: Holloway, K. 2006. Preparation for promoting rational use of medicines in developing countries, WHO, 2007.

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Polypharmacy

- Occurs when patients use more medicines than are necessary
  - e.g., a patient with an upper respiratory infection receives prescriptions for antibiotics, cough remedies, analgesics, and multivitamins
- May be associated with –
  - inadequate in- or pre-service training
  - inadequately skilled prescriber, especially in this era of task shifting
  - prescriber not knowing when to refer
  - financial incentives

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No medicine needed

- Many times, medications may be used unnecessarily
- Use of medicines when none is needed involves many non-therapeutic uses
- In many countries, the majority of children suffering from minor upper respiratory infections are treated with antibiotics, which are not needed

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Unsafe medicines

- The likelihood of adverse reactions outweighs the therapeutic effects when unsafe medicines are prescribed
- A common example is the use of anabolic steroids for growth or appetite stimulation in children or athletes

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Wrong medicines prescribed

- For various reasons, the wrong medicine may be prescribed and dispensed
- In some countries, many children with acute diarrhea are indiscriminately prescribed and dispensed unnecessary and ineffective antimicrobials or antidiarrheal medicines, instead of the recommended oral rehydration therapy
- As a result of the emergence of AMR, a medicine that was once efficacious may now be the wrong treatment choice

Source: WHO 2011 The World Medicines Situation Report

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Underuse of available effective medicines

- Several studies show that underuse of effective oral rehydration therapy for acute diarrhea in children still occurs in many countries
- A large WHO multi-country survey found that many people with serious mental disorders were not receiving any treatment, despite the availability of effective medicines*
  - 35.5% to 50.3% of serious cases in developed countries and 76.3% to 85.4% in less-developed countries received no treatment

A mentally ill man shackled in Ivory Coast **

* Demyttenaere et al., "Prevalence, severity, and unmet need for treatment of mental disorders in the World Health Organization World Mental Health Surveys, 2004 Jun 2; 291(21):2581-90
http://www.ncbi.nlm.nih.gov/pubmed/15172162
** http://allafrica.com/stories/201204160111.html

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Ineffective medicines and medicines with doubtful efficacy

- Medicines that are ineffective are sometimes given to patients because of common practice or because the patient thinks that the more medicines prescribed, the better
- Excessive and unnecessary use of multivitamin preparations or tonics is an example of this prescribing pattern

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Incorrect use of medicines

- Giving a patient only one or two days' supply of antibiotics rather than the full course of therapy
- A patient taking only as much medicine as needed to feel better, and saving the rest for a future illness
- Self-medicating using antibiotics or other prescription-only medicines bought from untrained drug sellers in retail drug outlets
- Overusing injectable preparations when in fact using oral preparations would be easier and safer (stems from belief among prescribers and patients that injections are more efficacious than pills)

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Irrational use of antiretroviral agents

- Insufficient compliance to ART guidelines, drug shortages in health facilities, poor patient adherence, drug quality assurance issues, and inadequate laboratory support all contribute to irrational use of ARVs
- Based on an autopsy study in Uganda, at least 8 of the 10 patients on ART died of HIV-related conditions, 50% died of disseminated TB, 20% of disseminated *Cryptococcus neoformans* infection, and 10% of disseminated KS*

ART = antiretroviral therapy
ARV = antiretroviral medicine

*Orem J, Legoretta P, Nelson AM, Wesselbaka A • Osterholzer R, et al. (2012) An Autopsy Study Describing Causes of Death and Co-occurring Clinico-Pathological Findings among Hospitalized Patients in Kampala, Uganda. PLoS ONE 7(8): e38865. doi:10.1371/journal.pone.0038865 http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0038865

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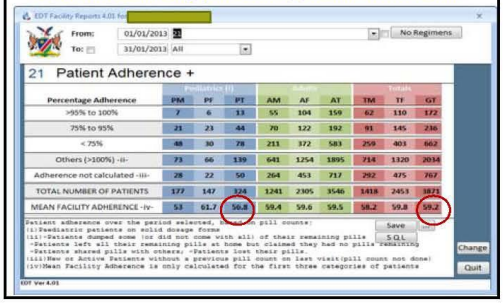
Namibia example 2: *Patients with more than 75% adherence by pill count/patient adherence*



Early warning indicators of HIV drug resistance

Indicator	Proportion of clinics reaching target
100% prescription of WHO first-line recommended regimens	86%
< 20% loss to follow-up	43%
>70% retention on appropriate first-line regimen	42%
>90% of patients picking up prescribed ARVs on time	17%
>80% of clinic appointments attended as scheduled	55%
100% of drugs available at pharmacy at all times	42%

Source: Early warning indicator survey of 120 clinics in 9 countries, 2009 (Kiem R, 2011).

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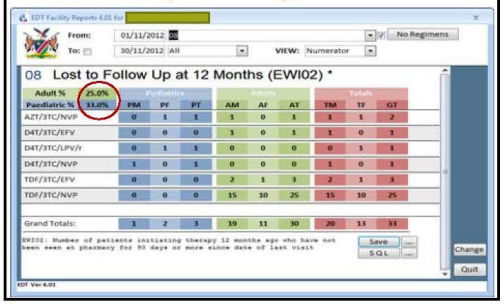
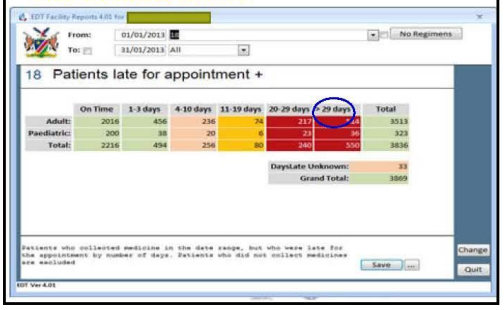
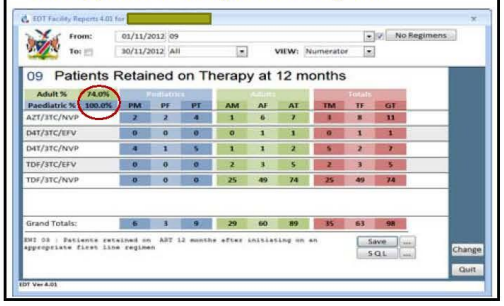
Namibia example 3: *Patients lost to follow up at 12 months after initiating ART*



Namibia example 1: *Patients who picked up their medicines on time*



Namibia example 4: *Patients retained on therapy 12 months after initiating ART*



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Irrational use of anti-TB treatment

- Every year, nearly 3 million people affected by TB are neither diagnosed nor treated according to international guidelines*
- Nearly 450,000 new cases of MDR-TB emerge every year due to inadequate treatment and subsequent transmission**
- Inappropriate TB treatment regimen increases 27-fold the risk of developing MDR-TB compared with patients who received an appropriate treatment regimen***
- Insufficient knowledge of TB guidelines, unregulated availability of TB drugs, drug shortages in health facilities, poor patient adherence, drug quality assurance issues, inadequate laboratory support, and poor infection control practices also contribute to irrational use

Adverse impacts of irrational medicine use: *AMR*

- AMR is rapidly growing worldwide, causing significant morbidity and mortality
- Overuse of antibiotics increases AMR, as well as the number of medicines that are no longer effective against diseases
- Up to 70 to 90% AMR to original first line antibiotics for dysentery, pneumonia, gonorrhea, and hospital-acquired infections has been noted*
- Compared to susceptible infections, resistant infections lead to a 1.3- to 2-fold increase in morbidity, mortality, and cost**

Irrational use of anti-TB treatment (2)

"... India is spending about 45% of its TB budget on 3 to 4% of the patients and this is just not sustainable. That is driven by cost of second line drugs, because of a more expensive product and a broken market. ..."

Adverse impacts of irrational use of medicine: *ADRs and medication errors*

- Harmful reactions to medicines caused by wrong use, or allergic reactions to medicines, can lead to increased illness, suffering, and death*
- In countries where data are available, it is estimated that ADRs are the 4th to 6th leading cause of death in hospitalized patients.** Over 70 percent of these ADRs are either possibly or definitely avoidable.***
- ADRs have been estimated to cost millions of dollars each year

Adverse impacts of irrational medicine use

AMR = Antimicrobial resistance
ADR = Adverse drug reaction

Adverse impacts of irrational medicine use: *Wasted resources*

- Between 10 to 40% of national health budgets are spent on medicines
- Out-of-pocket purchases of medicines can cause severe financial hardship to individuals and families

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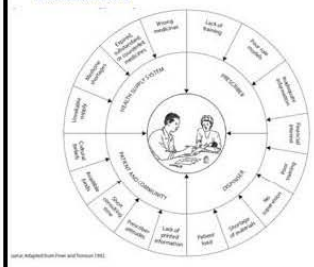
Factors underlying the irrational use of medicines



Many **interrelated** factors influence medicine use

The **health supply system, prescriber, dispenser, patient, and community** are all involved in the therapeutic process, and can all contribute to irrational use in a variety of ways

Factors underlying the irrational use of medicines: *Dispenser*

- Inadequate training, supervision and medicine information available
- Shortage of dispensing materials
- Short dispensing time due to heavy patient load
- Financial incentive, especially among private drug sellers
- Inadequate training and little to no structure for monitoring or supervision of drug sellers in retail outlets
- Low status of dispensers affects the quality of dispensing

Factors underlying the irrational use of medicines: *Health supply system*

- Unreliable supply
- Medicine shortages
- Expired medicines
- Availability of inappropriate medicines, including substandard and counterfeit products
- Systemic inefficiencies, which negatively affect prescriber and patient confidence in the system
- Health systems that fail to implement policies on STGs, EMLs, and medicine formularies are missing out on well-proven methods to increase the rational use of medicines

Factors underlying the irrational use of medicines: *The patient and community*

- Cultural beliefs
- Communication skills and attitudes of the prescriber and dispenser
- Limited time available for consulting
- Shortage of printed information
- Affordability of treatment
- Community beliefs about the efficacy of certain medicines or routes of administration

Factors underlying the irrational use of medicines: *Prescriber*

- Inadequate pre- or in-service training
- Poor supervisory system
- Imitating the behavior of prescribing role models who may not prescribe rationally
- Insufficient objective information on medicines
- Limited personal experience
- Heavy patient load and pressure to prescribe from peers, patients, and pharmaceutical company representatives
- Profit

Combating irrational medicine use

Major steps –

- Monitoring and measuring the use of medicines
- Identifying the determinants of inappropriate use
- Developing, implementing and evaluating the impact of interventions to improve the use of medicines, while taking into account the factors underlying inappropriate use
- Working towards an enabling policy framework that encourages appropriate use
- Developing a national strategy for containing AMR

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Combating irrational medicine use (2)

There is increasing global awareness of the need for –

- health systems strengthening
- national coordination to combat irrational medicine use
- coordination of international aid to developing countries to ensure it contributes to combating irrational use of medicines

The major challenge moving forward will be to institutionalize the fight against inappropriate medicine use

Source: Holloway, KA. Combating irrational use of medicines. Expert Rev Clin Pharmacol. 2011, 4(1):335-340

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Savings with Rational Use

About 8% of total healthcare expenditure, or about 500Bn USD per year globally, can be avoided through better responsible medicine use

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Republic of Namibia
Ministry of Health and Social Services

UNIVERSITY OF NAMIBIA

Thank you

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SIAPS Systems for Improved Access to Pharmaceuticals and Services

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REPUBLIC OF NAMIBIA

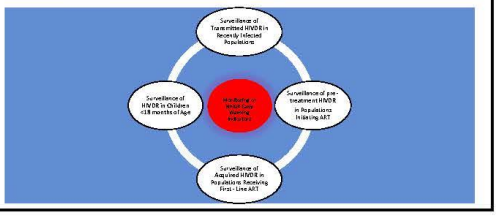
MINISTRY OF HEALTH AND SOCIAL SERVICES

Namibia 2012
Early Warning Indicators of
HIV drug resistance
Dr Steven Hong

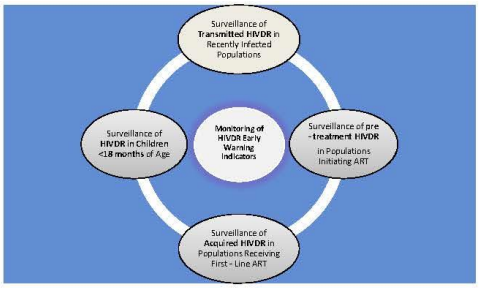
USAID Tufts World Health Organization SIAPS

How are ART clinics and the ART programme as a whole performing in minimizing population-level HIVDR?

1. Drug stock out
2. Retention in care
3. VL suppression
4. Adherence
5. Dispensing of triple drug regimens



WHO HIV Drug Resistance Surveillance and Monitoring Strategy



WHO HIVDR EWI 2012 Revisions

- EWIs without strong association with HIVDR were eliminated
- Each EWI retained evaluated
  - Minimize overlap of information
  - Maximize efficiency of data abstraction
  - Harmonize definitions with other reported indicators, whenever possible

http://www.who.int/hiv/topics/drugresistance/en/index.html

Early Warning Indicators (EWI) of HIV Drug Resistance

- WHO EWIs are site-specific quality of care indicators which assess factors associated with virological failure and emergence of HIV drug resistance (HIVDR)
  - First-line in preventing HIVDR
  - Offer an opportunity for corrective action
- EWIs provide necessary programme context for interpretation of surveys of HIVDR
- Routine monitoring of EWIs should be integrated into ART programme monitoring and evaluation and continuous quality improvement initiatives

2012 HIVDR EWI Updates

- Package of 4 indicators each with one standardized definition
  - Each clinic monitoring EWIs should report all 4 indicators
- 5th conditional EWI: Viral load suppression at 12 months
  - monitored only at clinics where viral load testing is performed routinely on all patients 12 months after ART initiation
- Data abstraction reporting responsibilities delegated to ART clinics to foster ownership and local use of data
- Simplified scorecard reporting: facilitate use of data

http://www.who.int/hiv/topics/drugresistance/en/index.html

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2012 Revised EWI Reporting: Scorecard

Red	Poor performance, below desired level
Amber	Fair performance, progressing toward desired level
Green	Excellent performance, achieving desired level
Grey	Data not available

A "white" score is assigned only for the retention indicator and only in non - UNGASS reporting years

Sample Size Table for EWI 1 & 4

Number of 'eligible patients' at the site (numbers 'active' on ART 1 January 2012)	Number to be sampled at the site (sample size)	Number of 'eligible patients' at the site (numbers 'active' on ART 1 January 2012)	Number to be sampled at the site (sample size)
1 - 75	All	551 – 700	155
76 - 110	75	701 – 850	160
111 - 199	100	851 - 1,600	175
200 - 250	110	1,601 - 2,150	180
251 - 299	120	2,151 - 4,340	200
300 - 350	130	4,341 - 5,670	210
351 - 400	135	5,671 - 10,000	215
401 - 450	140	>10,000	Consult WHO
451 - 550	145		

2012 Revised WHO HIVDR EWI Package

Early Warning Indicator	Target
1. On - time pill pick-up	• Red: <80% • Amber: 80–90% • Green: >90%
2. Retention in care *	• Red: <75% retained after 12 months of ART • Amber: 75–85% retained after 12 months of ART • Green: >85% retained after 12 months of ART
3. Pharmacy stock-outs	• Red: <100% of a 12 - month period with no stock - outs • Green: 100% of a 12 - month period with no stock - outs
4. Dispensing practices	• Red: >0% dispensing of mono - or dual therapy • Green: 0% dispensing of mono - or dual therapy
5. Viral load suppression at 12 months #	• Red: <70% viral load suppression after 12 months of ART • Amber: 70–85% viral load suppression after 12 months of ART • Green: >85% viral load suppression after 12 months of ART

* Retention in care definition equal to UNGASS #24 and PEPFAR #T1.3.D; #Targets for virological suppression in children <2 years old; Red <60%; Amber 60–70%; Green >70%

EWI 1: On-time pill pick-up

- **Definition:** The proportion of patients (adult or paediatric) that pick up ART no more than two days late at the first pick-up after the baseline pick-up.
- **Numerator:** Number of patients picking up their ART "on time" at the first drug pick-up after a defined baseline pick-up date
- **Denominator:** Consecutive patients with baseline ART pick-up from sample start date (1 January, 2012)
- **Exclusions:** Patients who are "in-transit", PEP, PMTCT

2012 EWI abstraction

- In 2012, all main ART sites were chosen for EWI abstraction
- Outreach site data were captured within main ART sites
- Adult and Paediatric EWIs were abstracted separately

Indicators Selected

1. On-time pill pick-up
2. Retention in care
3. Pharmacy stock-out
4. Dispensing practices
5. Virological suppression at 6 months

Data Sources

Electronic Dispensing Tool (EDT), Electronic Patient Management System (EPMS), Patient Care Booklet

EWI 1: On-time pill pick-up (cont)

- **Definition of "late":** Patients who are >4d late from expected pill pick-up date or if patient has NO pick-up after the baseline pick-up
- **Censor:** If date of transfer out, death, or stop is on or before 4th day late from expected pick-up date
- **Sample size:** Based on numbers of patients "active" on ART at time of survey start date (1 January 2012)

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EWI 2: Retention on ART at 12 months

- **Definition:** Percentage of patients (adults or children) known to be alive and on treatment 12 months after initiation of ART
- **Numerator:** Number of patienets (adults or children) who are still alive and on ART 12 months after initiating treatment
- **Denominator:** Consecutive ART starters from 1 January 2010 until 31 December, 2010 ("transfer in" included if started within this time period)

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EWI 4: Pharmacy dispensing practices

- **Definition:** The percentage of patients (adults or children) being dispensed an "inappropriate regimen"
- **Numerator:** number of patients who pick up from the pharmacy, an "in appropriate regimen"
- **Denominator:** Consecutive patients with baseline ART pick-up from sample start date (1 January, 2012)
- **Exclusions:** Patients who are "in-transit", PEP, PMTCT
- **Sample size:** Based on numbers of patients "active" on ART at time of sample start date (1 January 2012)
- **Definition of Appropriate Regimen 1 (WHO definition):** Not mono- or dual-therapy
- **Definition of Appropriate Regimen 2:** According to accepted regimens in the Namibia National Guidelines 2010 (expert opinion)

EWI 2: Retention on ART at 12 months (cont.)

- **Exclusions:** Patients who are "in-transit", PEP, PMTCT, re-starters
- **Sample size:** Census of 12 month starters
- **Definition of "retained":** EDT status at 12 months of "active" or "lost"
- **Definition of "not retained":** EDT status at 12 months of "LTFU", "dead", "stop"
  - EDT definition of "LTFU"≥90 days after missed pick-up
  - EDT definition of "Lost" ≥30 days after missed pick-up
- **Censor:** EDT status at 12 months of "transfer out"

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Definition 2: Namibia appropriate regimens

Adults

TDF/3TC/NVP	DDI/3TC/NVP
TDF/3TC/EFV	D4T/3TC/EFV
AZT/3TC/NVP	TDF/3TC/AZT
AZT/3TC EFV	ABC/3TC/AZT
D4T/3TC/NVP	ABC/3TC/TDF
D4T/3TC/EFV	AZT/TDF/3TC/LPV/r
ABC/3TC/NVP	AZT/TDF/3TC/LPV/r/Rit
ABC/3TC/EFV	

Paediatrics

D4T/3TC/LPV/r	ABC/AZT/3TC/EFV
D4T/3TC/NVP	TDF/AZT/3TC/LPV/r
AZT/3TC/NVP	TDF/AZT/3TC/NVP
TDF/3TC/NVP	TDF/AZT/3TC/EFV
D4T/3TC/EFV	D4T/3TC/ABC
AZT/3TC/EFV	AZT/3TC/ABC
TDF/3TC/EFV	TDF/3TC/ABC
ABC/AZT/3TC/LPV/r	D4T/3TC/LPV/r/Rit
ABC/AZT/3TC/NVP	AZT/3TC/ABC/LPV/r/Rit
DDI- *not recommended*	D4T/3TC/LPV/r/Rit

EWI 3: Pharmacy stock-outs

- **Definition:** Percentage of months in a designated year in which there were no ARV drug stock-outs
- **Numerator:** number of months in the designated year in which there were no stock-out days of any ARV drug routinely used at the site
- **Denominator:** 12 months, April 2012 – March 2013
- **Definition of "stock - out":** any occurrence of zero stock of a routinely-used ARV drug at the site at which the patient routinely picks up ARVs

EWI 5: Viral load suppression at 6 months

- **Definition:** Percentage of patients receiving ART and a viral load at the site after the first 6 months of ART whose viral load is <1000 copies/mL
- **Numerator:** number of patients receiving ART and a viral load at the site after the first 6 months of ART whose viral load is<1000 copies/mL
- **Denominator:** Consecutive ART starters from 1 January, 2010 until 31 December 2010 and have 6-month VL available
- **Sample size:** Census of starters in 12 months (1 January 2010 until 31 December 2010) with 6-month VL available
- **Definition of suppressed:** VL <1000 copies/mL

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EWI Site - Specific Results: 2012 Adults (1)

Site Adults	EWI 1: On-Time Pill Pick-up	EWI 2: Retention	EWI 3: Pharmacy stock-outs	EWI 4: Dispensing practices	EWI 5: Virological Suppression
Andara	178/210 (85%)	217/265 (82%)	12/12 (100%)	0/210 (0%)	90/127 (71%)
Aranos	112/132 (85%)	61/70 (87%)	11/12 (92%)	0/132 (0%)	10/17 (59%)
Dorbabis	-	-	-	-	2/4 (50%)
Eenhana	171/236 (72%)	424/486 (87%)	12/12 (100%)	0/240 (0%)	7/14 (50%)
Engela	200/238 (84%)	628/788 (80%)	12/12 (100%)	0/240 (0%)	64/122 (52%)
Gobabis	176/210 (84%)	233/337 (69%)	12/12 (100%)	0/210 (0%)	25/28 (89%)
Grootfontein	176/210 (84%)	259/332 (78%)	12/12 (100%)	0/210 (0%)	-
Karasburg	160/189 (85%)	42/66 (64%)	12/12 (100%)	0/192 (0%)	1/1 (100%)
Katima Mulilo	144/252 (57%)	710/846 (84%)	12/12 (100%)	0/254 (0%)	7/7 (100%)
Keetmanshoop	180/208 (87%)	111/170 (65%)	12/12 (100%)	0/210 (0%)	6/13 (46%)

EWI Site - Specific Results: 2012 Adults (2)

Site Adults	EWI 1: On-time Pill Pick-up	EWI 2: Retention	EWI 3: Pharmacy stock-outs	EWI 4: Dispensing practices	EWI 5: Virological Suppression
Katutura HC	231/251 (92%)	1222/1517 (81%)	12/12 (100%)	0/252 (0%)	678/860 (79%)
Khomasdal	177/185 (96%)	176/217 (81%)	12/12 (100%)	0/186 (0%)	92/132 (70%)
Khorixas	155/160 (97%)	84/105 (80%)	12/12 (100%)	0/161 (0%)	34/59 (58%)
Katutura Hospital	225/252 (89%)	669/806 (83%)	12/12 (100%)	0/251 (0%)	95/142 (67%)
Luderitz	184/210 (88%)	180/209 (86%)	12/12 (100%)	0/210 (0%)	84/142 (59%)
Mariental	171/190 (90%)	183/231 (79%)	12/12 (100%)	11/191 (-51%)	54/85 (64%)
Nankudu	165/209 (79%)	145/190 (76%)	12/12 (100%)	0/210 (0%)	6/7 (86%)
Nkurenkuru	16/16 (100%)	78/78 (100%)	12/12 (100%)	0/16 (0%)	12/18 (67%)
Nyangana	179/209 (86%)	222/270 (82%)	12/12 (100%)	0/210 (0%)	37/55 (67%)
Odibo	199/209 (95%)	204/228 (89%)	11/12 (92%)	0/210 (0%)	77/148 (52%)

EWI Site - Specific Results: 2012 Adults (3)

Site Adults	EWI 1: On-time Pill Pick-up	EWI 2: Retention	EWI 3: Pharmacy stock-outs	EWI 4: Dispensing practices	EWI 5: Virological Suppression
Okahandja	184/210 (88%)	192/230 (83%)	12/12 (100%)	0/210 (0%)	99/127 (78%)
Okahao	236/240 (98%)	400/447 (89%)	12/12 (100%)	0/240 (0%)	88/107 (82%)
Okakarara	127/144 (88%)	60/65 (92%)	10/12 (83%)	0/144 (0%)	15/23 (65%)
Okalongo	162/213 (76%)	295/367 (80%)	12/12 (100%)	0/216 (0%)	128/143 (90%)
Okongo	190/209 (91%)	239/270 (89%)	12/12 (100%)	0/210 (0%)	93/125 (74%)
Okuryangava	230/246 (93%)	22/22 (100%)	12/12 (100%)	0/249 (0%)	1/1 (100%)
Omaruru	157/186 (84%)	129/152 (85%)	12/12 (100%)	0/186 (0%)	31/53 (58%)
Onandjokwe	244/257 (95%)	1146/1333 (86%)	12/12 (100%)	0/258 (0%)	916/1180 (77%)
Onesi	115/189 (61%)	112/113 (99%)	12/12 (100%)	0/186 (0%)	30/35 (86%)
Ongha	196/209 (94%)	181/189 (96%)	12/12 (100%)	0/210 (0%)	4/5 (80%)

EWI Site - Specific Results: 2012 Adults (4)

Site Adults	EWI 1: On-time Pill Pick-up	EWI 2: Retention	EWI 3: Pharmacy stock-outs	EWI 4: Dispensing practices	EWI 5: Virological Suppression
Ongwediva	174/210 (83%)	369/398 (93%)	12/12 (100%)	0/210 (0%)	85/85 (100%)
Opuwo	162/192 (84%)	119/161 (74%)	12/12 (100%)	0/192 (0%)	11/13 (85%)
Oshakati	245/258 (95%)	198/1235 (85%)	12/12 (100%)	0/258 (0%)	847/1001 (85%)
Oshikuku	222/240 (93%)	552/659 (84%)	12/12 (100%)	0/240 (0%)	219/255 (86%)
Oshivelo	-	86/93 (92%)	12/12 (100%)	-	28/46 (61%)
Osire	54/60 (90%)	13/18 (72%)	12/12 (100%)	0/59 (0%)	-
Otjiwarongo	192/216 (89%)	366/438 (84%)	12/12 (100%)	12/216 (-5%)	5/7 (71%)
Otjomuise	111/130 (85%)	63/69 (91%)	12/12 (100%)	0/132 (0%)	34/48 (71%)
Outapi	247/252 (98%)	753/856 (88%)	12/12 (100%)	0/252 (0%)	160/187 (71%)
Outjo	159/185 (86%)	136/196 (69%)	12/12 (100%)	0/18 (0%)	60/80 (75%)

EWI Site - Specific Results: 2012 Adults (5)

Site Adults	EWI 1: On-time Pill Pick-up	EWI 2: Retention	EWI 3: Pharmacy stock-outs	EWI 4: Dispensing practices	EWI 5: Virological Suppression
Rehoboth	174/192 (91%)	144/218 (66%)	12/12 (100%)	0/192 (0%)	73/93 (78%)
Robert Mugabe	163/185 (88%)	151/163 (93%)	12/12 (100%)	0/186 (0%)	54/72 (75%)
Rosh Pinah	47/52 (90%)	51/62 (82%)	12/12 (100%)	0/53 (0%)	15/28 (54%)
Rundu	204/252 (81%)	783/1023 (77%)	12/12 (100%)	0/252 (0%)	91/129 (71%)
Swakopmund	207/240 (86%)	404/468 (86%)	12/12 (100%)	0/240 (0%)	165/242 (68%)
Tsandi	182/210 (87%)	211/263 (80%)	12/12 (100%)	0/210 (0%)	86/105 (82%)
Tsumeb	185/209 (89%)	260/315 (83%)	12/12 (100%)	0/210 (0%)	82/153 (54%)
Usakos	153/166 (92%)	105/120 (88%)	11/12 (92%)	0/168 (0%)	1/3 (33%)
Walvis Bay	222/238 (93%)	573/660(87%)	11/12 (92%)	0/240 (0%)	33/41 (80%)
Windhoek Central	159/210 (90%)	310/384 (81%)	12/12 (100%)	0/210 (0%)	94/120 (78%)

EWI Site - Specific Results: 2012 Paediatrics (1)

Site Paeds	EWI 1: On-time Pill Pick-up	EWI 2: Retention	EWI 3: Pharmacy stock-outs	EWI 4: Dispensing practices	EWI 5: Virological Suppression
Andara	72/89 (81%)	22/27 (81%)	12/12 (100%)	0/90 (0%)	2/6 (33%)
Aranos	13/16 (81%)	6/6 (100%)	11/12 (92%)	0/16 (0%)	0/1 (0%)
Eenhana	122/166 (73%)	60/73 (82%)	11/12 (92%)	0/168 (0%)	1/2 (50%)
Engela	128/185 (72%)	80/91 (74%)	11/12 (92%)	0/186 (0%)	4/17 (24%)
Gobabis	102/120 (85%)	13/22 (59%)	12/12 (100%)	0/120 (0%)	-
Grootfontein	78/89 (88%)	19/23 (72%)	11/12 (92%)	0/89 (0%)	-
Karasburg	22/24 (92%)	2/2 (100%)	12/12 (100%)	0/24 (0%)	-
Katima Mulilo	179/186 (96%)	84/112 (75%)	12/12 (100%)	0/186 (0%)	1/1 (100%)
Keetmanshoop	46/58 (79%)	4/8 (50%)	11/12 (92%)	0/58 (0%)	-
Katutura HC	103/120 (86%)	42/56 (75%)	12/12 (100%)	0/120 (0%)	21/28 (75%)

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EWI Site - Specific Results: 2012 Paediatrics (2)

Site Paeds	EWI 1: On-time Pill Pick-up	EWI 2: Retention	EWI 3: Pharmacy stock-outs	EWI 4: Dispensing practices	EWI 5: Virological Suppression
Khomasdal	9/9 (100%)	2/3 (67%)	12/12 (100%)	0/6 (0%)	2/3 (67%)
Khorixas	24/25 (96%)	4/5 (80%)	12/12 (100%)	0/25 (0%)	2/3 (67%)
Katutura Hospital	172/185 (93%)	72/83 (87%)	9/12 (75%)	0/186 (0%)	36/61 (59%)
Luderitz	53/60 (88%)	7/7 (100%)	12/12 (100%)	0/60 (0%)	0/3 (0%)
Mariental	53/62 (85%)	19/23 (83%)	12/12 (100%)	0/62 (0%)	3/6 (50%)
Nankudu	105/119 (88%)	13/15 (87%)	12/12 (100%)	0/120 (0%)	-
Nkurenkuru	-	7/7 (100%)	12/12 (100%)	-	-
Nyangana	109/120 (91%)	30/41 (73%)	12/12 (100%)	0/120 (0%)	1/4 (25%)
Odibo	112/120 (93%)	23/27 (85%)	12/12 (100%)	0/120 (0%)	5/14 (36%)
Okahandja	70/75 (93%)	5/7 (71%)	12/12 (100%)	0/75 (0%)	2/4 (50%)

EWI Site - Specific Results: 2012 Paediatrics (5)

Site Paeds	EWI 1: On-time Pill Pick-up	EWI 2: Retention	EWI 3: Pharmacy stock-outs	EWI 4: Dispensing practices	EWI 5: Virological Suppression
Robert Mugabe	9/12 (75%)	2/2 (100%)	12/12 (100%)	0/12 (0%)	1/1 (100%)
Rosh Pinah	2/3 (67%)	1/1 (100%)	12/12 (100%)	0/3 (0%)	-
Rundu	161/174 (93%)	96/121 (79%)	12/12 (100%)	0/174 (0%)	9/24 (38%)
Swakopmund	93/108 (86%)	14/16 (88%)	11/12 (92%)	0/113 (0%)	5/11 (45%)
Tsandi	95/123 (79%)	17/19 (89%)	12/12 (100%)	0/120 (0%)	12/19 (63%)
Tsumeb	69/72 (96%)	14/17 (82%)	11/12 (92%)	1/72 (1%)	7/14 (50%)
Usakos	25/27 (93%)	10/10 (100%)	12/12 (100%)	0/27 (0%)	-
Walvis Bay	113/120 (94%)	19/25 (76%)	7/12 (58%)	1/120 (<1%)	4/5 (80%)
Windhoek Central	2/3 (67%)	1/1 (100%)	12/12 (100%)	0/3 (0%)	-

EWI Site - Specific Results: 2012 Paediatrics (3)

Site Paeds	EWI 1: On-time Pill Pick-up	EWI 2: Retention	EWI 3: Pharmacy stock-outs	EWI 4: Dispensing practices	EWI 5: Virological Suppression
Okahao	153/158 (97%)	59/65 (91%)	12/12 (100%)	0/158 (0%)	11/17 (65%)
Okakarara	25/31 (81%)	6/6 (100%)	11/12 (92%)	0/31 (0%)	0/1 (0%)
Okalongo	162/186 (87%)	47/58 (81%)	12/12 (100%)	0/186 (0%)	24/33 (73%)
Okongo	100/120 (83%)	26/30 (87%)	12/12 (100%)	0/120 (0%)	2/6 (33%)
Okuryangava	9/9 (100%)	1/1 (100%)	12/12 (100%)	0/9 (0%)	-
Omaruru	34/42 (81%)	7/9 (78%)	12/12 (100%)	0/42 (0%)	1/3 (33%)
Onandjokwe	194/216 (90%)	113/130 (88%)	12/12 (100%)	0/216 (0%)	77/131 (59%)
Onesi	55/74 (74%)	25/25 (100%)	12/12 (100%)	0/74 (0%)	8/12 (67%)
Ongha	110/120 (92%)	22/23 (96%)	12/12 (100%)	0/120 (0%)	0/1 (0%)
Ongwediva	135/144 (94%)	42/49 (86%)	12/12 (100%)	0/144 (0%)	13/13 (100%)

National EWI Summary (Adults)

EWI	EWI Target for all sites (time period)	Number of sites meeting EWI target (% of sites meeting target) N=X ART sites
EWI 1: On-time ARV Drug Pick–up	Green: >90% Amber: 80–90% Red: <80% (1 Jan 2012 -)	Green 20/48 (42%) Amber 23/48 (48%) Red 5/48 (10%)
EWI 2: Retention in care	Green: >85% Amber: 75–85% Red: <75% (1 Jan 2010 – 31 Dec 2010)	Green 22/49 (45%) Amber 20/49 (41%) Red 7/40 (18%)
EWI 3: Pharmacy stock-outs	Green: 100% Red: <100% (1 April 2012 - 31 Mar 2013)	Green 44/49 (90%) Red 5/49 (10%)
EWI 4: ARV dispensing practices	Green: 0% Red: >0% (1 Jan 2012 -)	Green 46/48 (96%) Red 2/48 (4%)
EWI 5: Virological Suppression at 6 months	Targets to be determined by WHO (1 Jan 2010 – 31 Dec 2010)	NA

EWI Site - Specific Results: 2012 Paediatrics (4)

Site Paeds	EWI 1: On-time Pill Pick-up	EWI 2: Retention	EWI 3: Pharmacy stock-outs	EWI 4: Dispensing practices	EWI 5: Virological Suppression
Opuwo	19/23 (83%)	1/4 (25%)	12/12 (100%)	0/23 (0%)	-
Oshakati	199/209 (95%)	183/215 (85%)	12/12 (100%)	0/209 (0%)	87/111 (78%)
Oshikuku	181/185 (98%)	64/74 (86%)	12/12 (100%)	0/186 (0%)	22/32 (69%)
Oshivelo	-	7/7 (100%)	12/12 (100%)	-	1/4 (25%)
Osire	8/8 (100%)	1/1 (100%)	12/12 (100%)	0/8 (0%)	-
Otjiwarongo	109/120 (91%)	15/18 (83%)	10/12 (83%)	1/120 (<1%)	-
Otjomuise	10/11 (91%)	5/5 (100%)	12/12 (100%)	0/11 (0%)	1/2 (50%)
Outapi	182/191 (95%)	95/107 (89%)	12/12 (100%)	0/192 (0%)	17/26 (65%)
Outjo	22/27 (81%)	9/14 (64%)	12/12 (100%)	0/27 (0%)	1/4 (25%)
Rehoboth	45/48 (94%)	5/5 (100%)	10/12 (83%)	0/47 (0%)	3/4 (75%)

National EWI Summary (Paediatrics)

EWI	EWI Target for all sites (time period)	Number of sites meeting EWI target (% of sites meeting target) N=X ART sites
EWI 1: On-time ARV Drug Pick–up	Green: >90% Amber: 80–90% Red: <80% (1 Jan 2012 -)	Green 23/47 (49%) Amber 15/47 (32%) Red 9/47 (19%)
EWI 2: Retention in care	Green: >85% Amber: 75–85% Red: <75% (1 Jan 2010 – 31 Dec 2010)	Green 28/49 (57%) Amber 10/49 (20%) Red 11/49 (22%)
EWI 3: Pharmacy stock-outs	Green: 100% Red: <100% (1 April 2012 - 31 Mar 2013)	Green 37/49 (76%) Red 12/49 (24%)
EWI 4: ARV dispensing practices	Green: 0% Red: >0% (1 Jan 2012 -)	Green 43/47 (91%) Red 4/47 (9%)
EWI 5: Virological Suppression at 6 months	Targets to be determined by WHO (1 Jan 2010 – 31 Dec 2010)	NA

09/15/2014

Summary of EWI Results - Namibia (1)

EWI 1: On-time ARV Pick-up

- Adults:
  - 42% of sites "excellent"
  - 48% of sites "fair"
  - 10% of sites "poor"
- Paediatrics:
  - 49% of sites "excellent"
  - 32% of sites "fair"
  - 19% of sites "poor" (4 of 9 very small sample)

Remarks

- Broad range of adherence rates between sites suggest there may be factors at site-level that are influencing population adherence

Summary of EWI Results - Namibia (2)

EWI 2: Retention in care

- Adults:
  - 45% of sites "excellent"
  - 41% of sites "fair"
  - 18% of sites "poor" (1 of 7 very small sample)
- Paediatrics:
  - 57% of sites "excellent"
  - 20% of sites "fair"
  - 22% of sites "poor" (4 of 11 very small sample)

Remarks

- Data suggests many patients are disengaging from care within first 12 months of ART and/or many transferring out without informing site
- These patient populations may be at high risk for experiencing treatment interruptions and developing HIVDR
- Broad range of retention rates between sites suggest there may be factors at site-level that are influencing retention
- Findings seems to be similar to ART quarterly reports

Summary of EWI Results - Namibia (3)

EWI 3: Pharmacy stock-outs

- Adults:
  - 90% of sites "excellent"
  - 10% of sites "poor"
- Paediatrics:
  - 76% of sites "excellent"
  - 24% of sites "poor"
- Adult stock - outs:
  - 3TC/d4T/NVP [150/30/200mg] tabs
  - 3TC/TDF [300/300mg] tabs
- Paediatric stock - outs:
  3TC/d4T [30/6mg] tabs; 3TC/d4T [60/12mg] tabs; ABC 20mg/ml; NVP 10mg/ml; 3TC/d4T/NVP [60/12/100mg] tabs; LPV/r [80/20mg]/ml; 3TC 10mg/ml

Remarks

- Median length of stock-out = 5 days (range 1 – 31 days)
- Some reasons (from ART quarterly reports):
  - Poor inventory management practices at facilities
  - Storage space constraints (ideally facility should keep min 3 months, max 6 months)
  - Receipt of short-dated ARVs from central medical stores

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Summary of EWI Results - Namibia (4)

EWI 4: ARV dispensing practices

- Adults (Def1):
  - 96% of sites "excellent"
  - 4% of sites "poor"
- Paediatrics (Def1):
  - 91% of sites "excellent"
  - 9% of sites "poor"
- Adults (Def2):
  - 81% of sites "excellent"
  - 19% of sites "poor"
- Paediatrics (Def2):
  - 91% of sites "excellent"
  - 9% of sites "poor"

Inappropriate regimens

- Adults (Def1):
  AZT/3TC/RTV; ABC/LPV/R
- Paediatrics (Def1):
  D4T/LPV/R; ABC/LPV/R; 3TC/LPV/r
- Adults (Def2):
  AZT/3TC/IDV/RTV; TDF/3TC/ABC/LPV/r; TDF/IDV/LPV/r; AZT/3TC/RTV; ABC/LPV/r; 3TC/DDI/LPV/r
- Paediatrics (Def2):
  D4T/LPV/r; ABC/LPV/r; 3TC/LPV/r

Summary of EWI Results - Namibia (4) cont.

- Def1: Only 8 of 14,008 patients were dispensed dual therapy. There was no mono-therapy
- Def2: Only 17 of 14,008 patients were dispensed inappropriate regimen according to Namibia "expert opinion"
- Preliminary investigation of these patients revealed that many of patients with unusual regimens were transfers in from private sector

Summary of EWI Results - Namibia (5)

EWI 5: Virological Suppression at 6 months

- It was discovered that in many sites ART data clerks were NOT entering VL data with results "target not detected"
- Therefore, VL suppression estimates would be underestimates
- It was discovered that a proportion of VL were being conducted before ART start at some sites