



Namibia's experience with an electronic recording and reporting system



Background

- Population ~2.2 million
- Population density 2.2/km²
- 35 public hospitals, 34 health districts
- Government finances 100% of all anti-TB medicines (including 2nd line) and 60% of all HIV-care medicines
- TB & HIV diagnosis and care services provided for free in public health facilities
- Excellent telecommunication infrastructure in all districts
 - Telephone & email present at all major facilities





Epidemiology: HIV/TB in Namibia (1)

- 2010 ANC HIV prevalence: 18.7%
- 204,000 estimated PLWHA
- 76,307 patients active on ART (Dec 2010)
- 18,236 patients active pre-ART (Dec 2010)
- Of the active patients 13,581 received IPT (Dec 2010)
- 164,041 ever enrolled in HIV care since the programme began (includes died, lost to follow up and transferred to private)
- ART coverage for those eligible is currently estimated at about 69%
 - Dropped from 88% due to revision of guidelines
- 141/338 public health facilities providing ART
- 74% of notified TB patients had an HIV result
- 35% of HIV positive TB patients were put on ART in 2009



Epidemiology: HIV/TB in Namibia (2)

- In 2009 TB CNR 634/100,000 down from 665/100,000 (2008)
- 58% of TB patients are co-infected with HIV
- Treatment success in new smear positive cases was 82% (2008 cohort)
- 396 patients placed on 2nd line TB medicines in 2009 (275 MDR TB, 17 XDR TB, 80 PDR, 24 with no DST)
- TBIC guidelines printed in 2009; TB guidelines revised 2011; ART guidelines revised 2010 to include early initiation:
 - All TB/HIV co-infected to get ART in 2-8 weeks of starting TB Rx
 - CD4 \leq 350 regardless of stage
 - Stage 3 & 4 regardless of CD4 count



Overview of the TB and HIV reporting systems in Namibia

TB Programme

- Paper based tools have been in use since adoption of DOTS and have been reviewed periodically (under review currently).
- Desktop based Electronic TB register (ETR) in place since 2007
- Plans to introduce Web based *eTB manager* for PMDT (pilot to start May 2011)
- This tools can capture the following HIV-related information
 - Testing for HIV among TB patients
 - ART regimens for TB patients
 - Cotrimoxazole for TB patients

HIV programme

- Paper based tools have been in use since 2003 and has been reviewed periodically (under review currently).
- Electronic Patient Monitoring system (ePMS) in place since 2007
- Other electronic tools include Electronic Dispensing Tool (EDT) pharmacy based tool.
- ePMS can capture the following TB-related information
 - Screening for TB, and dates of treatment
 - IPT
 - Cotrimoxazole



MoHSS - NAMIBIA

ART Electronic Patient Monitoring System (ART ePMS)

Main Menu	New Patient	Search	HIVQUAL
Card Data_Entry	Card_F_Up	Quality Control	Reports
Appointments	Import_Export	Chang_ART_#	EWI

This_Facility_code

This_Health_Facility

This_Region



ePMS

- Main electronic reporting system for HIV patient care in Namibia
- Source of data for the system is the patient care booklet
- On the 3Is captures:
 - IPT among HIV positive patients
 - Number of HIV positive patients screened for TB in HIV care setting
 - Does not capture any information on TBIC yet



ART patient care booklet

Unique Number --

(Facility code) (Month) (Year) (Sequential numbers)

Pharmacy Number / Code: _____

Surname: _____

First Name/s: _____

Sex: M F Age: _____ DOB (dd/mm/yy): _____ Marital Status: _____

Current Address: _____
 Telephone: _____

Permanent Address: _____
 Telephone: _____

Cell phone (whose): _____

Prior exposure to ARV: Yes / No

Transfer in with records

Earlier ARV but not a transfer in

PMTCT Date: ./. / .

Regimen: _____

PEP

Private sector

Regimen: _____

None

Care entry point:

<input type="checkbox"/> PMTCT clinic	} Outpatient	<input type="checkbox"/> Private sector	} Other (specify): _____
<input type="checkbox"/> Medical		<input type="checkbox"/> Inpatient	
<input type="checkbox"/> Under5		<input type="checkbox"/> Self-referral	
<input type="checkbox"/> TB clinic		<input type="checkbox"/> CBO referral	
<input type="checkbox"/> STI clinic		<input type="checkbox"/> IDU	
<input type="checkbox"/> Adolescent		<input type="checkbox"/> Sex Worker	

Treatment supporter/med pick-up if ill: _____

Physical Address: _____

Telephone (whose): _____

Home-based care provided by (organization): _____

ART Treatment Interruptions		
Date (dd/mm/yy)	Why	Date if Restart:

Marital Status:

- S - single
- M - married
- D - divorced
- C - cohabiting
- W - widow/widower

Why treatment interruptions codes:

- Toxicity/side effects
- Treatment failure
- Poor adherence
- Illness, hospitalization
- Accessibility
- Patient decision
- Planned Rx interruption
- Hospital fee
- Other

HIV CARE / ART CARD

Date (dd/mm/yy) _____ (Circle / Tick) _____ (Circle / Tick) _____

Confirmed HIV positive test HIV 1 / 2 Ab / PCR

Enrolled in HIV care

ARV therapy Medically eligible Clinical stage _____ **COHORT:** _____

Why eligible: Clinical only CD4 _____ Clinical & CD4 _____

Medically eligible and ready for ART

ART started

Start ART 1st-line initial regimen: _____

At start ART: Weight _____ Height _____ Functional Status _____

Clinical stage _____ CD4 _____

Substitute within 1st-line:

Date (dd/mm/yy)	New regimen	Why Substitute

Switch to 2nd-line (or substitute within 2nd-line):

Date (dd/mm/yy)	New regimen	Why Switch

_____ Date of Death _____ Date of Death Reported

Functional status:

- Working
- Amb - ambulatory
- Bed - bedridden

Why SUBSTITUTE:	Why Switch to 2nd - line Regimen:
1 Toxicity/side effects	1 Clinical treatment failure
2 Pregnancy	2 Immunologic failure
3 Risk of pregnancy	3 Virologic failure
4 Due to new TB	4 Other reason (specify)
6 Medicine out of stock	
8 Other reason (specify)	



Data Flow

LEVEL	ACTIVITY
Health facility level:	Patient based data collected on the patient care booklet and Pre and ART registers
District level	Data entered at district level in a electronic patients monitoring system (EPMs) Data aggregated in periodic reports for the regional level Report for the district is made
Regional level	Hard copy of the district report is forwarded to the region
National level	Soft copy to the National office National aggregation of data Production of periodic reports



ePMS - data entry

Cohort: _____

Home | Back | Forward | Search

Facility_code Mo Yr **Serial_No** **Creation_Date**

First Name _____

Last Name _____

Sex _____

DOB _____

Age Group _____

Age Group_P _____

Telephone # _____

Outreach _____

Physical Address _____

Marital Status _____

Age_Calc (years) _____

Age_Calc_Month _____

Transferred_In _____ **ON_CTX_Cal** _____

Transferred_Out No _____ **ON_INH** _____

Current_Station This Facility _____ **Status_Code** Alive _____

Prior_ART

Transfer In w/ Earlier ART but not a transfer in PMTCT only PEP None

PMTCT Medical EID (PCR) Under5 TB STI

Private/CO Inpatient IDU Adol Sex Self_refer

CSD Other

Care_Entry_Point

Treatment_Supporter _____ **Address_Rx_Supporter** _____

Rx_Telephone _____ **Rx_Whose** _____

HBC provided by _____ **Last_Visit_date** _____

Family / Relatives

Name of close family members & partners(Relation)	Age	HIV_Status	HIV_Care	Unique_No

Allergy to Medicines _____

Stop_Lost

Stop_Lost	Date	Why	Restart_Date
<input type="radio"/> Stop <input type="radio"/> Lost			
<input type="radio"/> Stop <input type="radio"/> Lost			
<input type="radio"/> Stop <input type="radio"/> Lost			
<input type="radio"/> Stop <input type="radio"/> Lost			
<input type="radio"/> Stop <input type="radio"/> Lost			
<input type="radio"/> Stop <input type="radio"/> Lost			
<input type="radio"/> Stop <input type="radio"/> Lost			
<input type="radio"/> Stop <input type="radio"/> Lost			

Follow Up Visits

Visit Date	Status	Function	Visit Type

HIV Test | **Initiating Therapy** | **Therapy Change** | **TL TO**

Confirmed_HIV_Test _____

Enrolled_HIV_Care _____

HIV_Subtype _____

HIV_Test_Type _____

Medically_Eligible_Stage _____

Why_Eligible _____

CD4_Absolute _____

CD4_% _____

Eligible & Ready for ART _____

INH | **CTX** | **TB** | **Pregnancy** | **Death**

INH_Start_date _____

INH_Stop_date_Expected _____

INH_Stop_date _____

INH_Status _____

HIV Care/ART Card

Unique # Check

HIV_Care_ART_Card_No. _____

Health_Passport_No. _____

3, Mar, 2010

Main Menu

Card Data Entry

Card_F_Up

Find Related F_Up Records

New Patient

Create F_UpCard

HIVQUAL

Reports

Data Entry Table

Quality Control

Health Facilities

Duplicate Entry

Appointments

Referral Letter

Change_ART_#

Info block

Still_On_ART_Code _____

Still_On_Care Yes

Modification Date _____

Still_On_Care Yes

Still_On_Care in this facility Yes

Periodic_Palliative_Care_Code _____

Lost_Follow_Up N/A

Lastest F Up Visit _____

Last_Follow_Up_Duration _____

F_Up_Visit _____

Current_Therapy _____

Current_Therapy_code Not/A **Regimen_Code** 0



ePMS - follow up data entry

106060400212
12
Find Mode
View as Table
Modification_Date 13/1/10

March2005

F_Up Children

Main Menu

Card Data_Entry

New F_Up Visit

Create F_UpCard

Special Services

Reports

Data Entry Table

Quality Control

Health Facilities

Duplicate Entry

Appointments

Referral Letter

Serial: 00212

Visit_Date: 22/3/05

F_Up_Visit: 5/Apr/05

Cohort: March2005

Health_Facility:

Surname:

Given_Name:

Age_Now: 6/28/0006

Sex:

Age_Group:

Visit_Status

New F_Up

Schedules_Visit

Height: cm

Weight*: 50

Function*: Ambulatory

Status*: On ART Original

Current_Regimen*: D4T/3TC/EFV (1d)

Dispensed_Duration*: 0.5

(Dispensed in months)

Visit_Type: First

WHO_Clinical_Stage: T2

TB_Status: TB Rx

Potential_Side_Effects:

New_OI:

Other_OI:

CTX_Status:

Adherence_CTX:

Adh_CTX Code:

Dispensing_CTX:

Other_Meds_P rescribed:

Adherence_ART:

Adherence_ART Code:

Prescribed_ART_Dose:

INH

CTX

TB

Pregnancy

Death

Death_Date:

Death_Reporting_Date:

LABORATORY

Test	Date
CD4	32 CD4%
Hb	10.90
ALT	5
HBsAg	
RPR	
V/Load	
V/Resistance	
Cr Clearance	

Referral:

Referral_B:

Notes:

Staff Signature:

Care Card

Latest

Care Card

Cohort

Sex

Age

DOB

Prior_ART

Enrolled_HIV_Care

Start_ART

Original_Regimen

Where_Started_Rx

Age_Calc_Months

At_Start_Weight

At_Start_Function

At_Start_Clin_Stage

At_Start_CD4

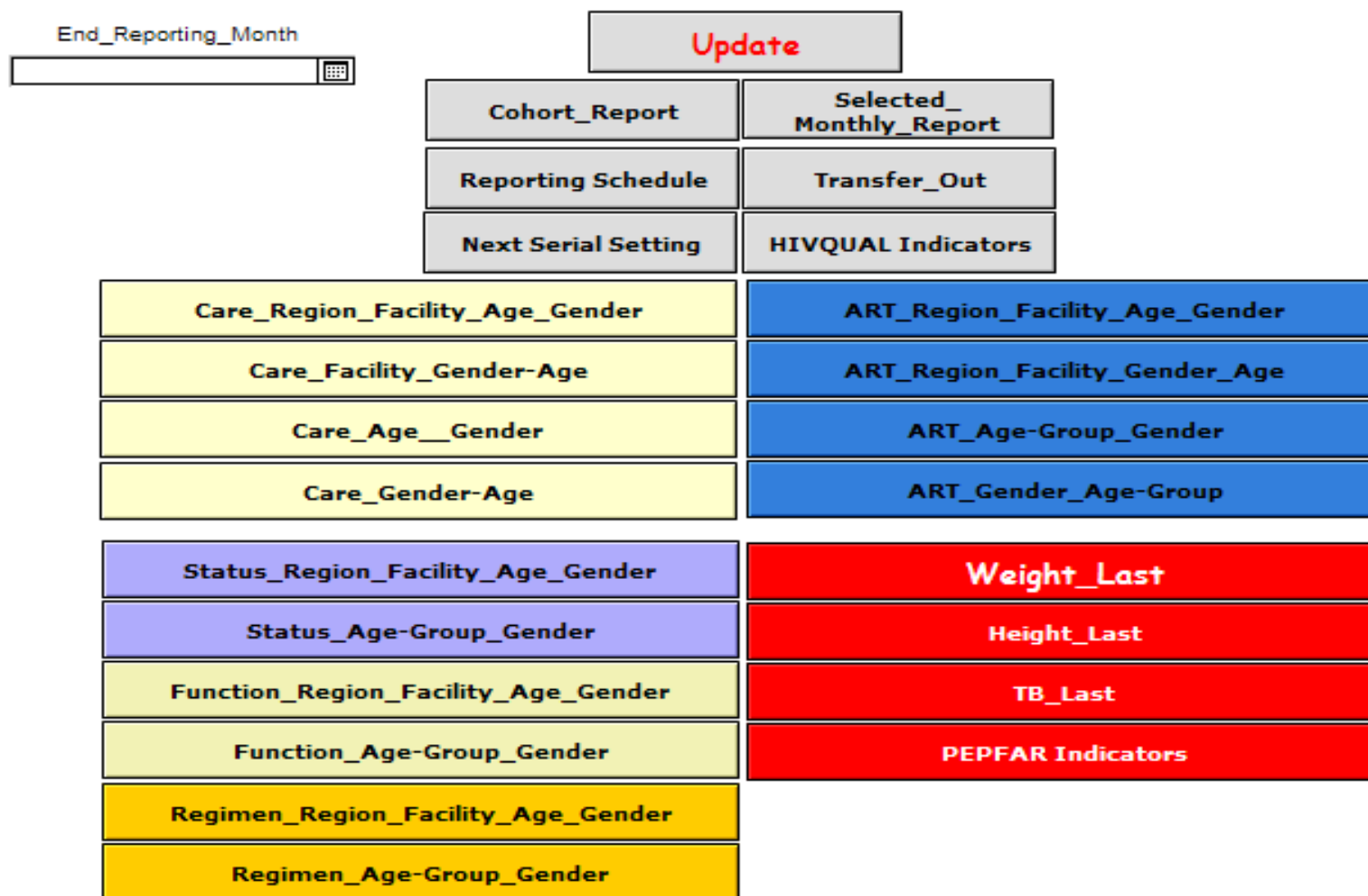
At_Start_ART_CD4%

Follow Up Visits

Visit_Date	F_Up_Visit	Weight	Height	Function	WHO Stage	TB_Status	Side Effects	OI	Status	Regimen
22/3/05	5/4/05	50		Ambulato	T2	TB Rx			On ART	D4T/3TC/EFV (1d / 4c)



ePMS - reports



Update

Cohort_Report	Selected_Monthly_Report
Reporting_Schedule	Transfer_Out
Next_Serial_Setting	HIVQUAL_Indicators

Care_Region_Facility_Age_Gender	ART_Region_Facility_Age_Gender
Care_Facility_Gender-Age	ART_Region_Facility_Gender_Age
Care_Age__Gender	ART_Age-Group_Gender
Care_Gender-Age	ART_Gender_Age-Group
Status_Region_Facility_Age_Gender	Weight_Last
Status_Age-Group_Gender	Height_Last
Function_Region_Facility_Age_Gender	TB_Last
Function_Age-Group_Gender	PEPFAR Indicators
Regimen_Region_Facility_Age_Gender	
Regimen_Age-Group_Gender	



Data collection and management

- Recorded by HCW (community counsellor, nurse and doctor) at point of care in the *Patient care booklet* ; *Pre-ART* and *ART* registers
- Entered by data clerks into EPMS at district level
- Periodic reports generated and hard copies send to regional level
- Electronic reports emailed to national level for cleaning aggregation & analysis
- National office produce quarterly bulletins based on ePMS reports



Enablers

- Introduction of the IMAI & HIVQUAL has managed to strengthen the following aspects of the system
 - Identifying gaps and areas for improvement
 - Screening for TB in HIV patients
 - Roll out of IPT
 - Task-sharing and role of teamwork
- Housing of the TB & HIV programmes in the same directorate and division
- Presence of a TB-HIV collaboration technical working group at national level –joint planning and cross consultation
- Regular training of both implementers and data entry staff on the tools
- Mentoring and support visits to the sites
- Good telecommunication infrastructure



Challenges

- Sub-optimal integration of TB and HIV reporting systems (parallel reporting), sometimes leading to conflicting or double-reported data
- Data verification done on ad-hoc basis
- Human resources challenges still remain
- Data clerks often overwhelmed by the reporting requirements



THANK YOU