



### HIV Case Surveillance Implementation in Botswana

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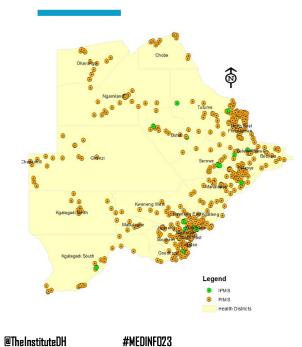


HI landscape in Botswana
NDW data flow
NDW Data Deduplication Process
Summary of HIV CBS Implementation
Challenges experienced
Data use impact





### Botswana HIS Landscape - Main EMRs



"Botswana has about 750 facilities **countywide**, with 2 main EMRs, (PIMS and IPMS) running in the public health facilities"

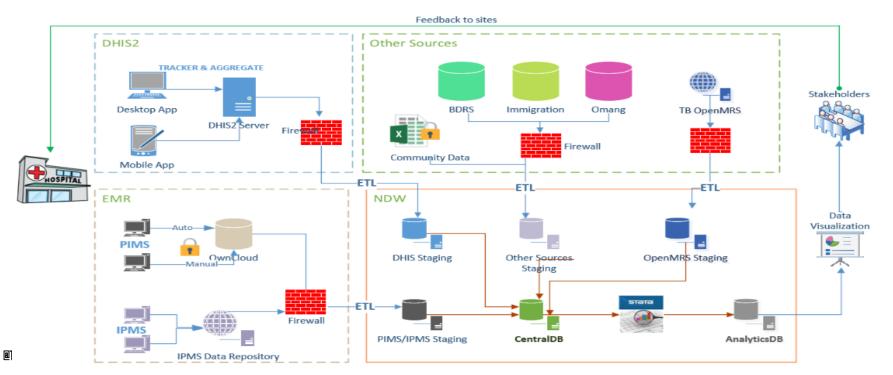
IPMS	PIMS	DHIS2
centralized web-based system at 56 sites	Stand alone localized area network system at 497 facilities.	Web based platform for Patient level data.

**\*\*Other Sources:** Other systems that collect health related data, BDRS, Omang, Immigration, Open MRS Tb data system, Community testing data.





## NDW Data Flow







## **NDW Data Deduplication Process**



### PRE- PROCESSING

- Data from various HIS is standardised into the same format
- For patient records without Omang, generate an SUID through concatenation name, surname, date of birth and sex

### INDEXING

 Calculate similarity scores for pairs using Python Record Linkage library and SQL Server Integration Services



## **NDW Data Deduplication Process**



### **Comparison & Similarity**

Perform a comparison on the record pairs to create a comparison vector that calculates the similarity score between both pairs using the algorithms: jarowinkler, levenshtein, longest common substring (lcs) and jaccard

### Classification

 Records with similarity scores above the 80% threshold are considered duplicates, and those below the threshold are considered unique.



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# CBS Summary 2021

Start Date: Friday, January 01, 2021

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#### Data as of: Friday, December 31, 2021

**HIV CASE-BASED SURVEILLANCE - BOTSWANA** 8,627 81.7% 7,044 **New Diagnoses** Linked to care % Linked to care 3,632 1.094 15.5% 42.1% Males % Male %Baseline CD4 completed With Baseline CD4 test 4,995 57.9% 4.03196.8% Females % Female Recent VL( <=6 months) % Virally Suppressed (<400) 3.8% 330 Deaths (from New Diagnoses % Dead



Dashboard produced using Power Bl

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• Data is coming from the data warehouse

HIV case based surveillance in Botswana is conducted through active and passive methods (routine data collection systems (EMRs). HIV case is defined as an individual with positive test for HIV infection based on the National Testing Algorithm. Linkage to treatment is defined as a case that is initiated on ART from health facility providing ART services.

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# **Challenges experienced**

- The challenges experienced during establishment of HIV CBS are:
  - Omang on its own as a unique identifier has limitations (non citizens, unregistered individuals)
  - $\checkmark$  Covid-19 delays in rolling out trainings and implementation
  - $\checkmark$  Low utilization of EMR





## Data use impact

- The HIV CBS dataset has enabled:
  - Building a longitudinal record for each PWHIV to monitor quality of service delivery across facilities
  - Ability to monitor trends on HIV diagnoses
  - Improved monitoring of PWHIV patient outcomes
  - Ability to generate line list for interventions at facility level



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