Data-Driven Approaches for an HIV Prevention Delivery System: Historical and Routine Data Analysis for the Blantyre Prevention Strategy

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COOPER/SMITH

Public Health Context

- **Cooper/Smith** uses hard data to improve the effectiveness of global development programs
- **Blantyre Prevention Strategy:** test case in Malawi for establishing an optimized HIV prevention delivery system with the following objectives:
  1) Catalyze the development of an optimized HIV prevention system through the uptake of HIV prevention interventions
  2) Implement such a system at the district level to evaluate prevention performance.
- In 2020, 1.5 million individuals acquired HIV[1], and the World Health Organization African Region remains the most high-prevalence HIV region, accounting for 2/3 of the global total incident HIV infection.[2]
- **Health systems must be able to monitor the state of HIV at regional and national levels and be able to support the effective delivery, uptake, and sustainability of prevention interventions to decrease the rate of HIV acquisition.**

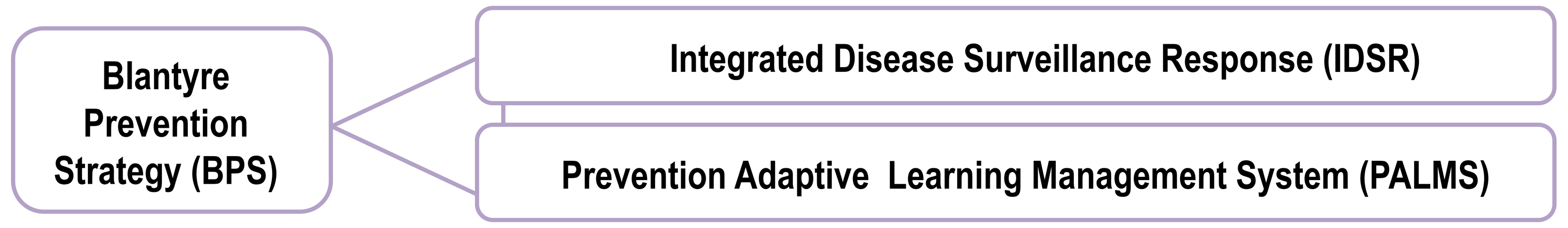


Figure 1. Sub-projects of the Blantyre Prevention Strategy

Objectives

1. The **validation of key performance indicators and targets** in the Integrated Disease Surveillance Response routine surveillance program
2. The **comparison and assessment of two routine HIV data sources** in Blantyre, DHAMIS and DHIS2, for data consistency, reliability, and validity for PALMS

Methods

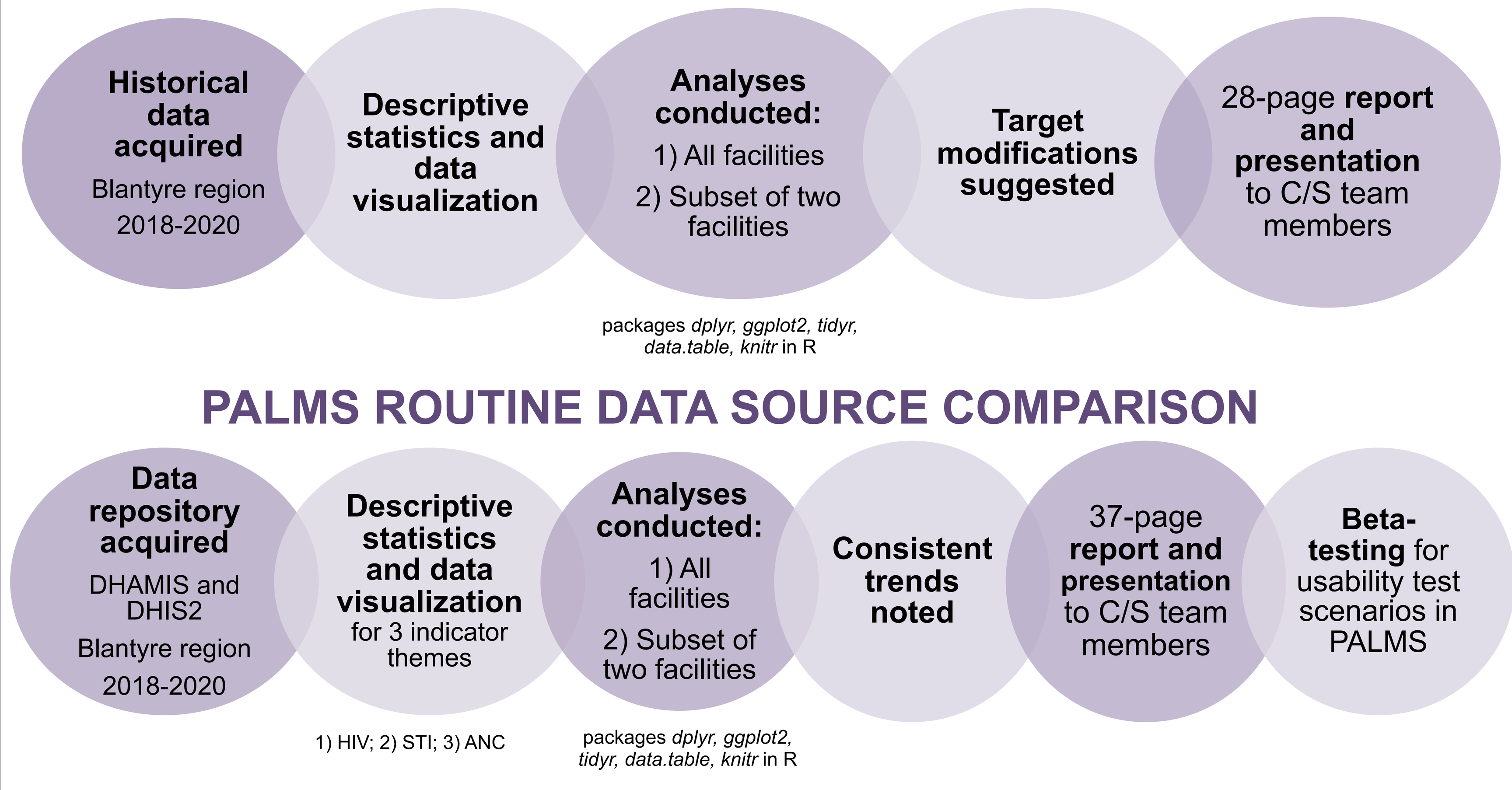


Figure 2. Methodology flowchart for data analyses completed within the IDSR and PALMS sub-projects of the Blantyre Prevention Strategy

Key Findings: IDSR

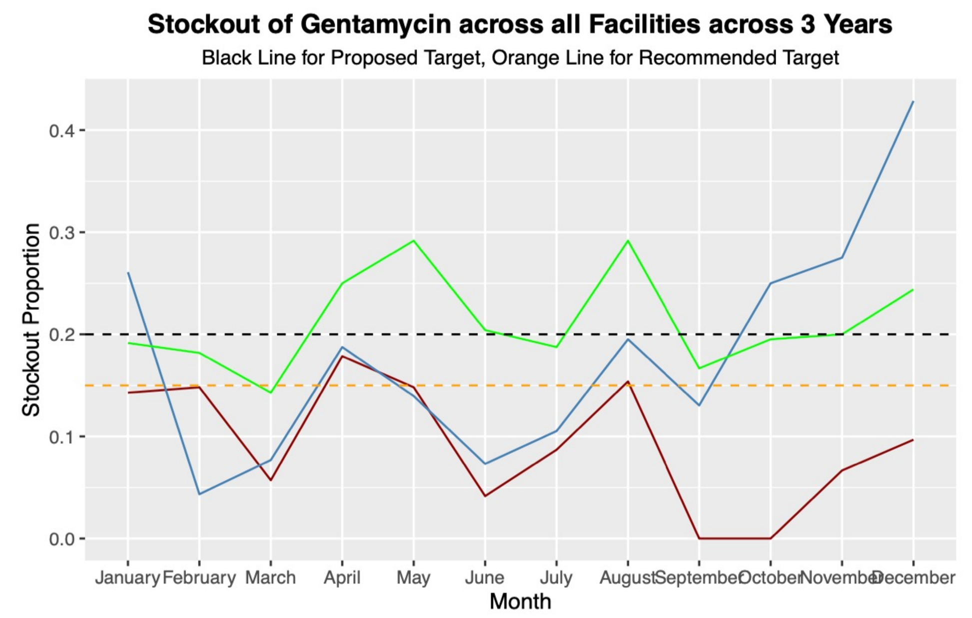


Figure 3. Stockout of Gentamycin across all facilities in Blantyre for 2018-2020 with a proposed and recommended indicator target. Seasonality is exhibited through higher stockouts in April-May and October-December of each year.

OVERESTIMATED TARGETS

1. Considerable **overestimations of the targets for several indicators**, including ART retention rate and new HIV positive cases.
2. Historical data validation needed to determine **feasible targets** for each indicator.

SEASONALITY

1. There is decreased HIV testing **consistently every year** during the period from October to December across all facilities.
2. **Seasonal targets may be necessary** to accurately characterize the state of the indicator.

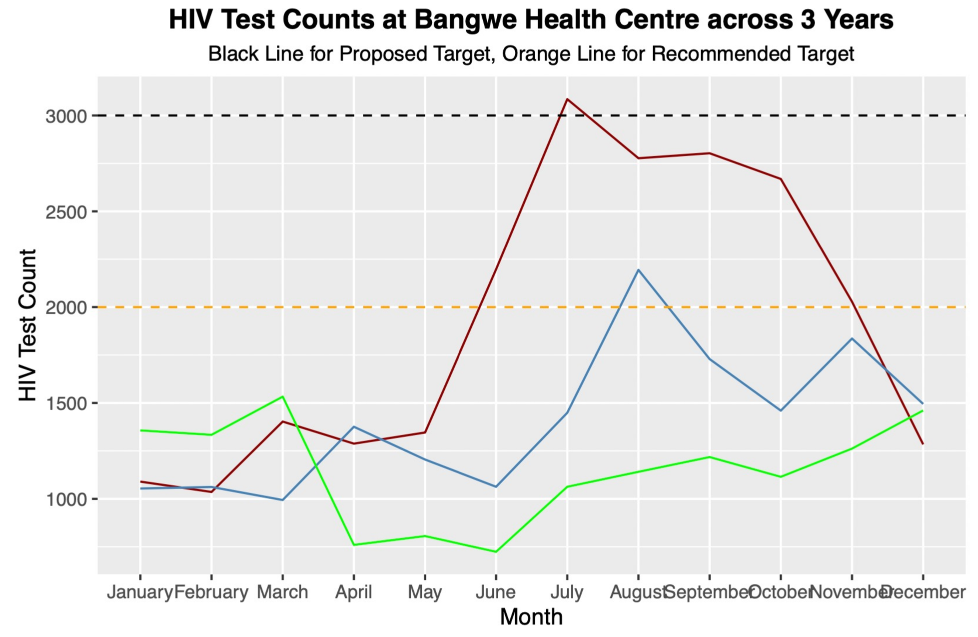


Figure 4. HIV test counts at Bangwe Health Centre for 2018-2020 with a proposed and recommended indicator target.

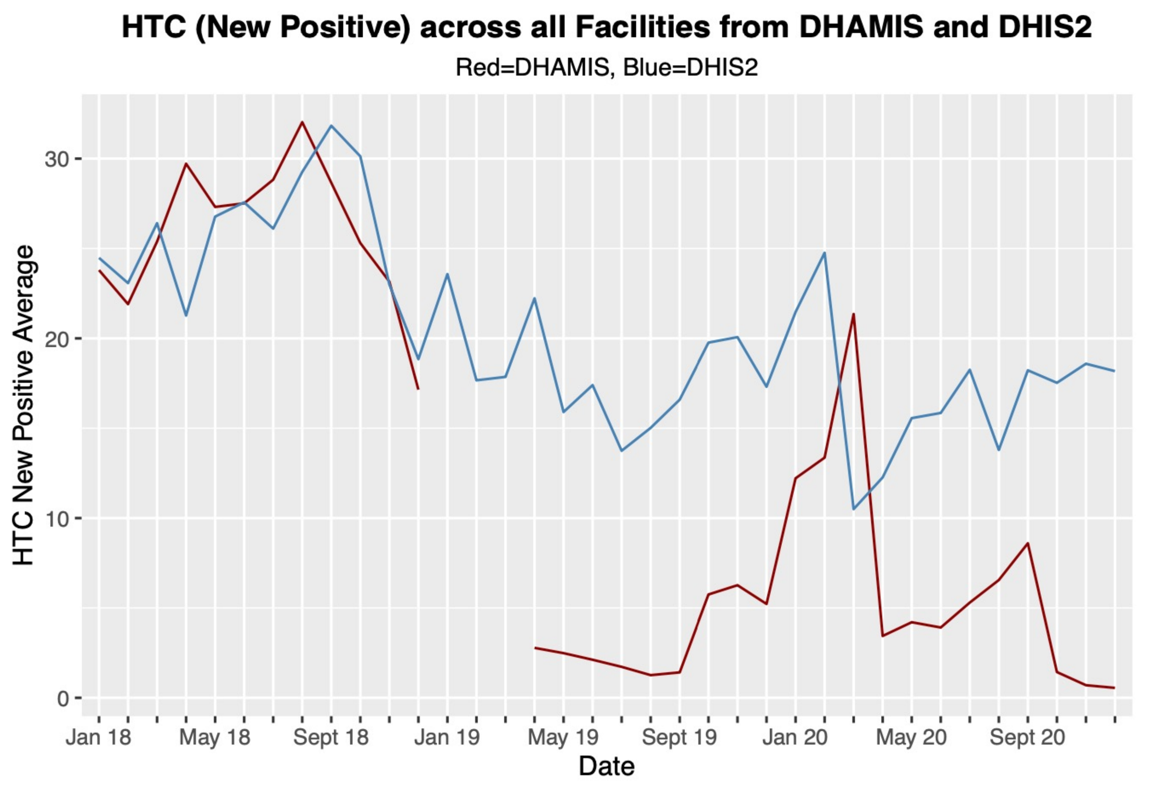
Key Findings: PALMS

DATA VALIDITY AND QUALITY

1. DHAMIS has **more missing data** than DHIS2 across all indicators.
2. **Consistency** between DHAMIS and DHIS2 differed based on the indicator of interest.
3. More **facilities report each month in DHAMIS** than DHIS2 for the majority of indicators.
4. Both routine data sources exhibit **the same data trends**, but at different data values.

USER FRIENDLINESS

1. Beta testing of PALMS ensures both internal and external **stakeholders can access pertinent HIV information** in Blantyre.



The above graph shows the HTC New Positive average across all facilities 2018-2020, with the red line representing DHAMIS and the blue line representing DHIS2.

Observations:

- DHAMIS had missing data for Quarter 1 of 2019 for all centers.
- Trends are similar in 2018, but become more inconsistent in 2019/2020.
- More inconsistency in trends between DHAMIS and DHIS2.

Figure 5. New positive cases across all facilities for 2018-2020 comparing DHAMIS and DHIS2-sourced data. Similar trends are exhibited in both data sources.

Significance

Persistent infection reservoirs threaten long-term epidemic control of HIV in Malawi despite existing prevention interventions.
The BPS functions directly in this space, making investments along the HIV prevention cascade and developing an optimized prevention delivery system that will enhance deployment and uptake of HIV prevention interventions.

IDSR INDICATOR AND TARGET VALIDATION

- Targets modified according to recommendations
- Targets will be used to assess indicator improvement and monitor programmatic performance

PALMS ROUTINE DATA SOURCE COMPARISON

- Data source underlying PALMS will be adjusted to ensure accurate source data.
- PALMS will be used as a dashboard for the comparison of programmatic activities with key performance metrics

Lessons Learned

Garbage in, garbage out: Robust data sources are needed to ensure programming or insights pulled from data have their intended effect.

Communicate effectively for your audience: Insights must be communicated in a manner that is comprehendible. The health and data literacy of the audience must be considered.

Regularly evaluate interventions for accountability: All programming should be regularly assessed to ensure progress toward the goal in mind.

Insights should be evidence-based: Evidence can provide insights that cannot be gleaned without quantitative and qualitative investigation.

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[1]HIV/AIDS. World Health Organization. World Health Organization; [cited 2021Oct3]. Available from: https://www.who.int/news-room/fact-sheets/detail/hiv-aids
[2]Ghosn J, Taiwo B, Seedat S, Autran B, Katlama C. HIV. The Lancet [Internet]. 2018;392(10148):685–97. Available from: https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(18)31311-4/fulltext