



Scaling use of health data: A decentralised approach



Western Cape
Government
FOR YOU



Situational Analysis Report: Scaling Data Use: RHS (Drakenstein)

In Phase 2 of the Scaling Use of Health Data project – a grant awarded by the Gates Foundation (BGMF) through The Health Foundation of South Africa (THFSA) to the Western Cape Government Health and Wellness (WCGHW) – Rural Health Services (RHS) was onboarded for the first time, alongside the City of Cape Town and Metro Health Services. The project works in collaboration with the Provincial Health Data Centre (PHDC) and Emergency and Clinical Services Support (ECSS).

This initiative aims to establish a learning system by improving data and systems quality, access to data, and use/ understanding of data and new technologies. It also integrates quality improvement (QI) methodology for targeted interventions and strengthens monitoring and evaluation processes. TB and HIV are used as sentinel conditions to gauge the overall capacity of the health system but are also the target areas for efforts to improve patient outcomes, as they are still the leading causes of mortality, morbidity, and costs to the health system in South Africa.

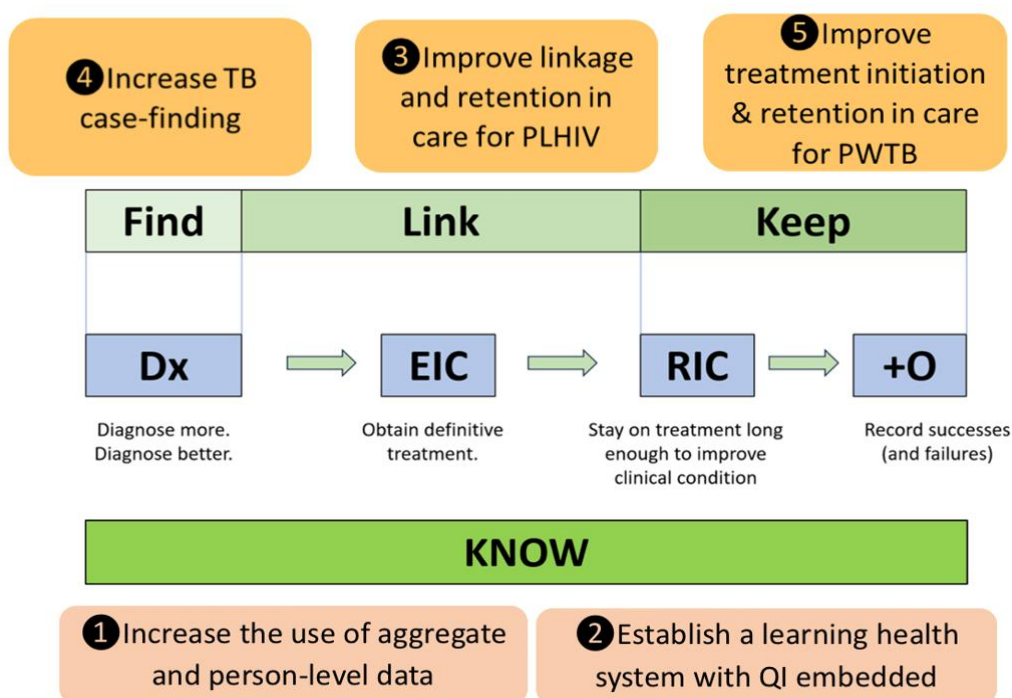


Figure 1: graphic showing the patient cascade/ information chain, surrounded by the Scaling Data Use grant objectives, Dr D Pienaar

Aim

A situational analysis was carried out to gain a deeper understanding of the region, engage with stakeholders, and identify appropriate tailoring of intervention strategies. This involved examining the information chain, existing information tools and systems, data quality, human resources and roles, facility layouts, and TB and HIV protocols and aggregate patient data.

Team

Led by Rural Health Services Public Health Medicine Specialist, Dr David Pienaar, and guided by Drakenstein sub-district's HIV, TB, and STI (HAST) coordinator, Mr Leonard Maschilla, and other key Drakenstein stakeholders; Dr Amy Collyer, a public health professional, Lutu Mngqibisa, a quality improvement advisor, and Keith Isaks, an information management officer, conducted the situational analysis.

Region

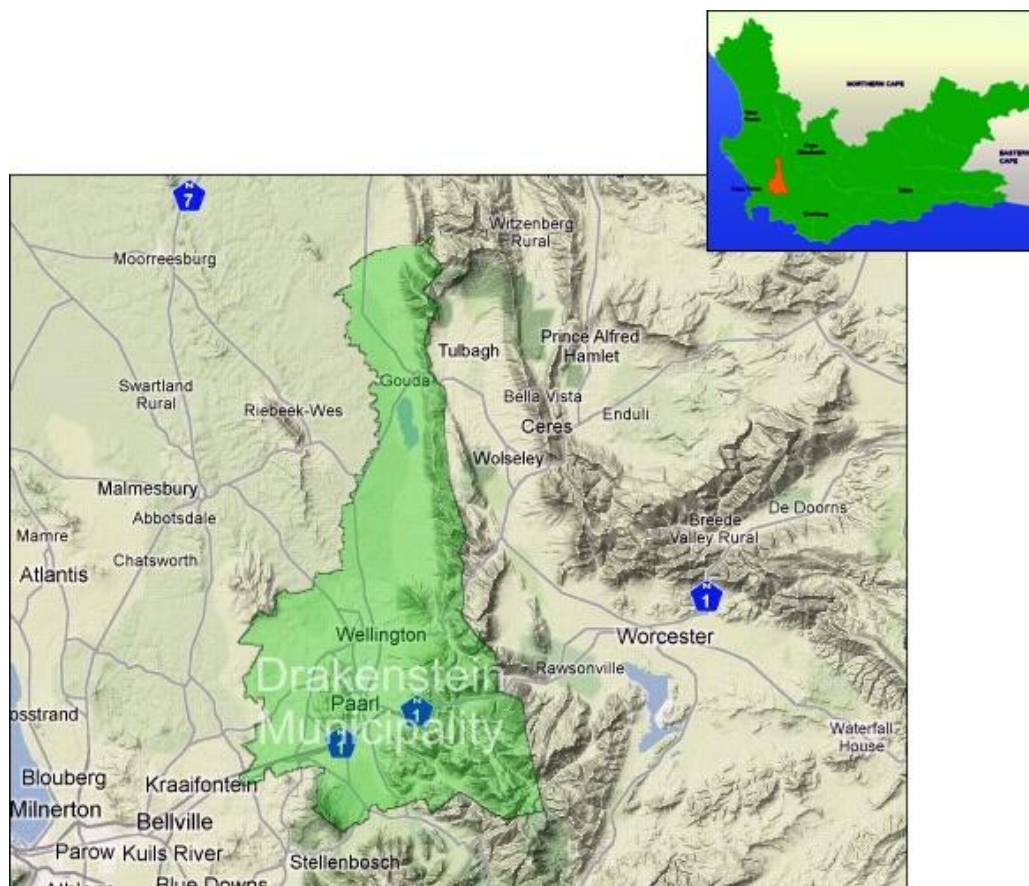


Image 1: Drakenstein sub-district of the Western Cape province, South Africa

Drakenstein is a sub-district of the Cape Winelands district in the Western Cape province of South Africa. The population is 320062, with 1537 people per square kilometre in 7677 households, of which 10% are

informal dwellings. 11.4% of households do not have piped water inside, 10.8% do not get weekly refuse removal, 3.3% do not have a flushing toilet connected to sewerage, and 2.1% do not have electricity. In addition, 2.2% of the Drakenstein population have no schooling, and just 16.9% have tertiary education (2024-25 Cape Winelands Municipality District Health Plan).

Drakenstein currently has 14 fixed PHC clinics, of which 6 have accompanying mobile clinics. There are also 4 correctional services centres with basic PHC services. There is one 331-bedded regional hospital (Paarl Hospital), but the sub-district also makes use of Sonstraal hospital, a 63-bedded facility in the Swartland sub-district of the West Coast district, that is used for longer-term care of TB patients.

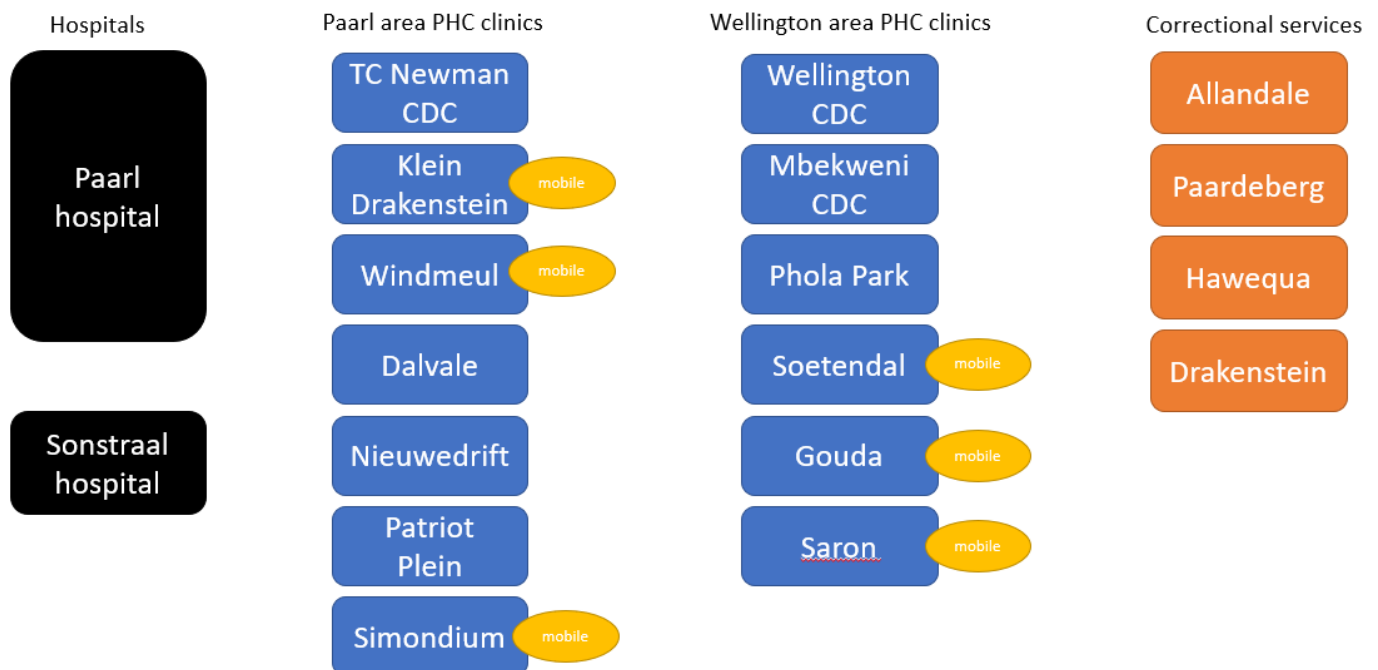


Figure 2: Drakenstein health system

Method

The Single Patient Viewer (SPV) is a product of the PHDC that can pull data from various sources and aggregate it into facility-level, sub-district-level, district-level, and provincial reports and dashboards. The following SPV features were used to get an overview of the burden in Drakenstein sub-district and its facilities:

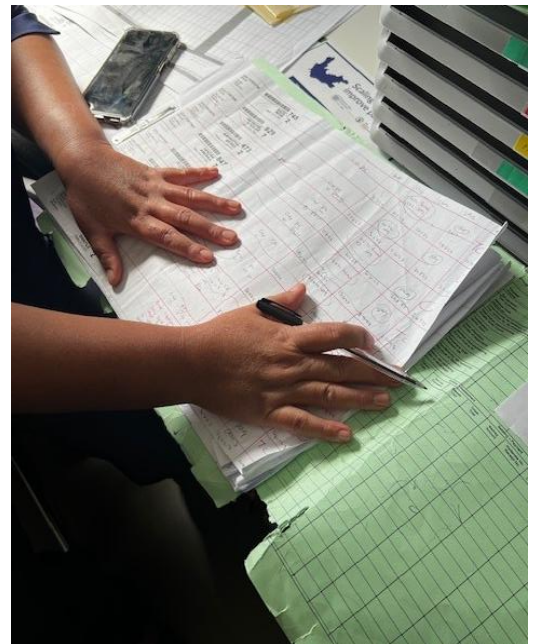
- NIDS/ PIDS dashboard
- TB cascade summaries
- TB cascade line list
- TUTT dashboard
- HIV cyclical cascade

Primary health care (PHC) clinics:

- Sub-district stakeholder engagements (WCG staff and NPO, NorSA)
- 14 focus groups and surveys at the PHC facilities conducted with operational managers, nurses at different training levels, clerks, and NPO staff
- Facility walk-through mapping
- Baseline data interrogation
- Attendance of monthly sub-district data sign-off meetings

Paarl hospital (PAH):

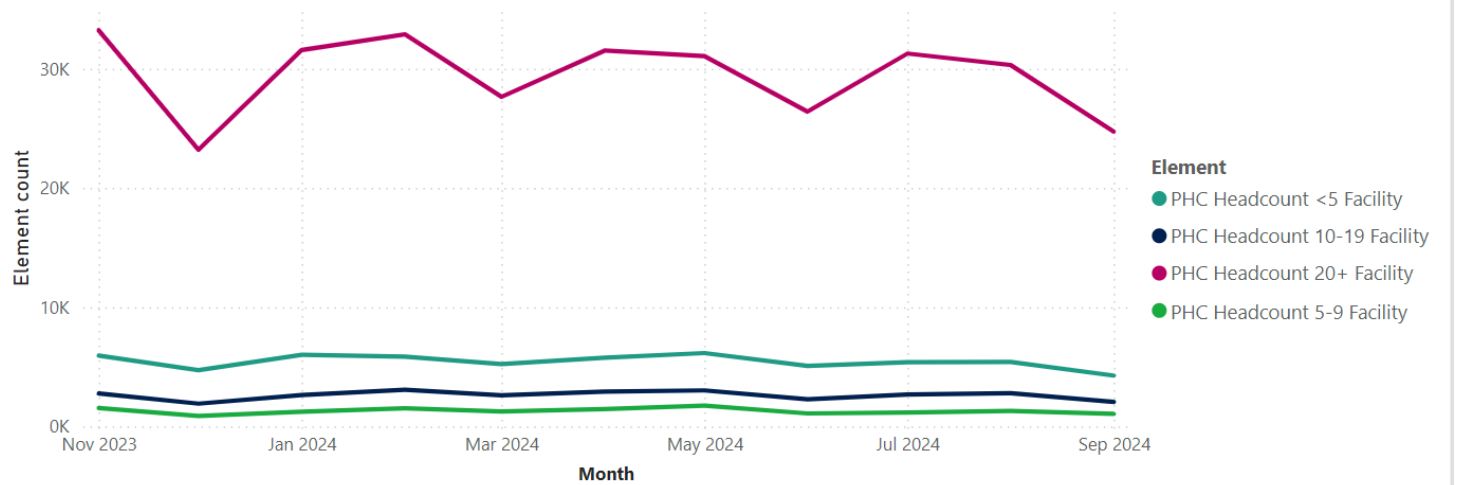
- 2 stakeholder engagements conducted with the medical manager, a physician, a ward operational manager, senior information management personnel, a clerk, an infection prevention control (IPC) practitioner, and other NPO staff (MatCH)
- Hospital walk-through mapping: OPD, EC, Paediatric ward, Internal Medicine wards
- Baseline data interrogation



Images 2 and 3: focus group and observation of source documents at Phola Park clinic

Situational analysis data overview

Element count by month



Element count by month

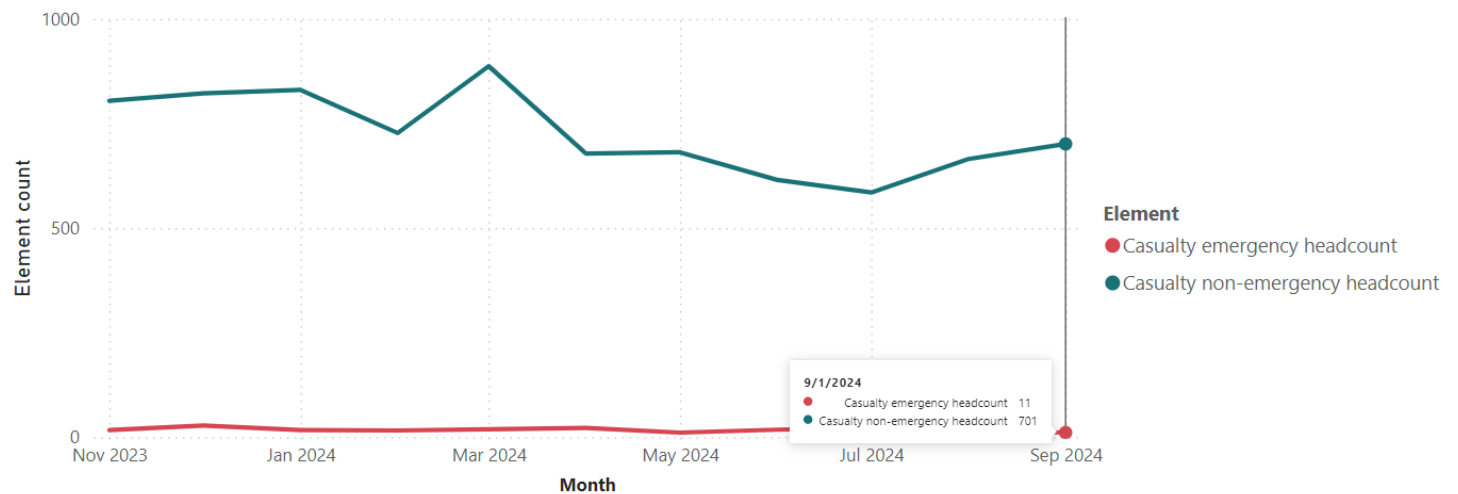
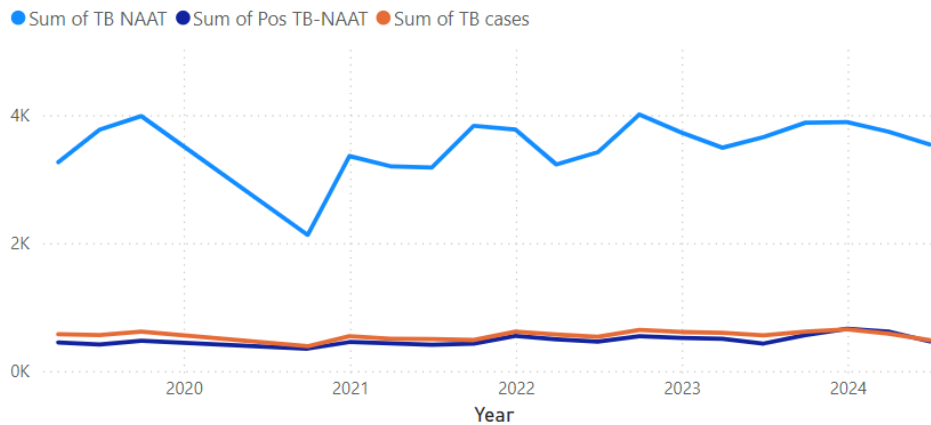


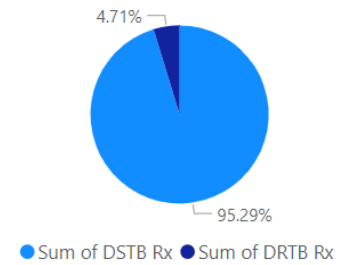
Chart 1 (top: PHC headcounts aggregated for the sub-district) and 2 (bottom: emergency headcounts) over time in Drakenstein, NIDS/PIDS dashboard, SPV

Scaling Use of Health Data, Drakenstein Situational Analysis, 2024

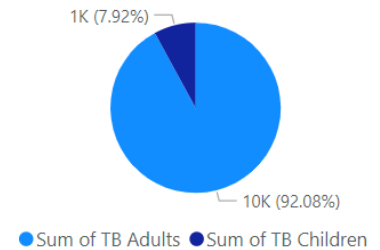
TB tests, pos. tests & cases



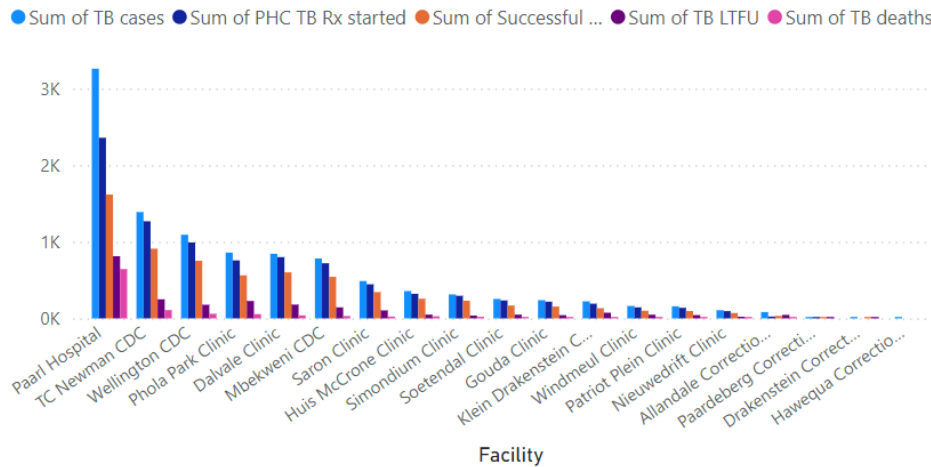
DSTB Rx vs. DRTB Rx



TB by age



TB outcomes



HIV with TB

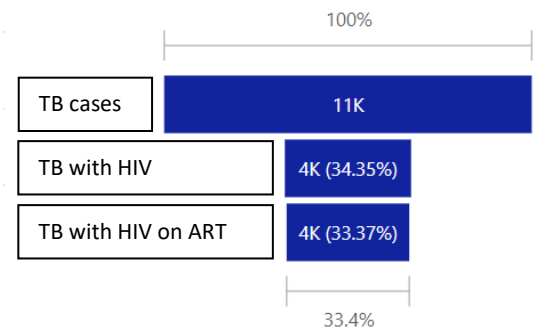


Chart 3: TB in Drakenstein, SPV TB cascade summary data Jan 2019- June 2024, processed with Power BI

Element count by month

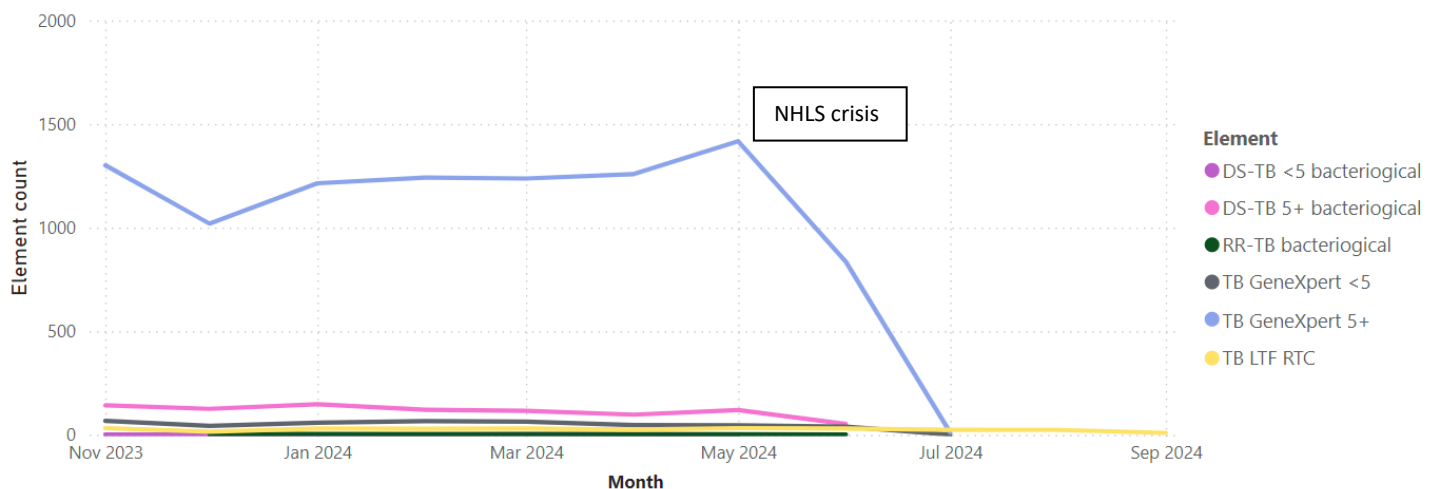


Chart 4: Drakenstein TB NIDS/PIDS elements, SPV

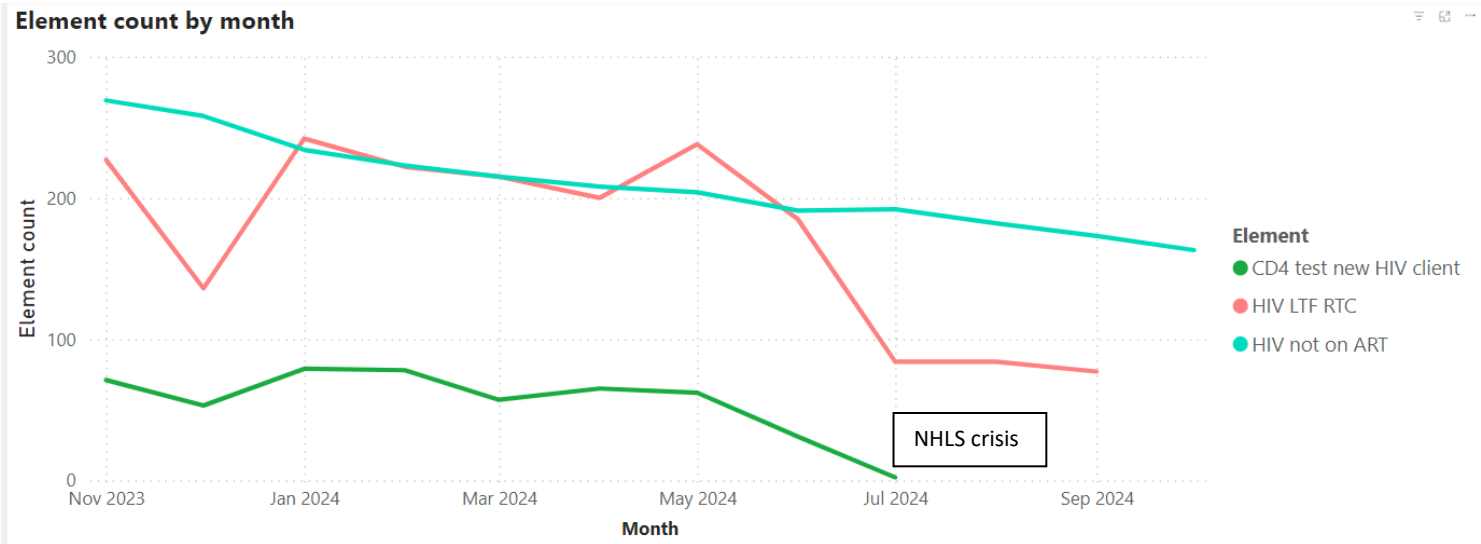


Chart 5: Drakenstein HIV NIDS/PIDS elements, SPV

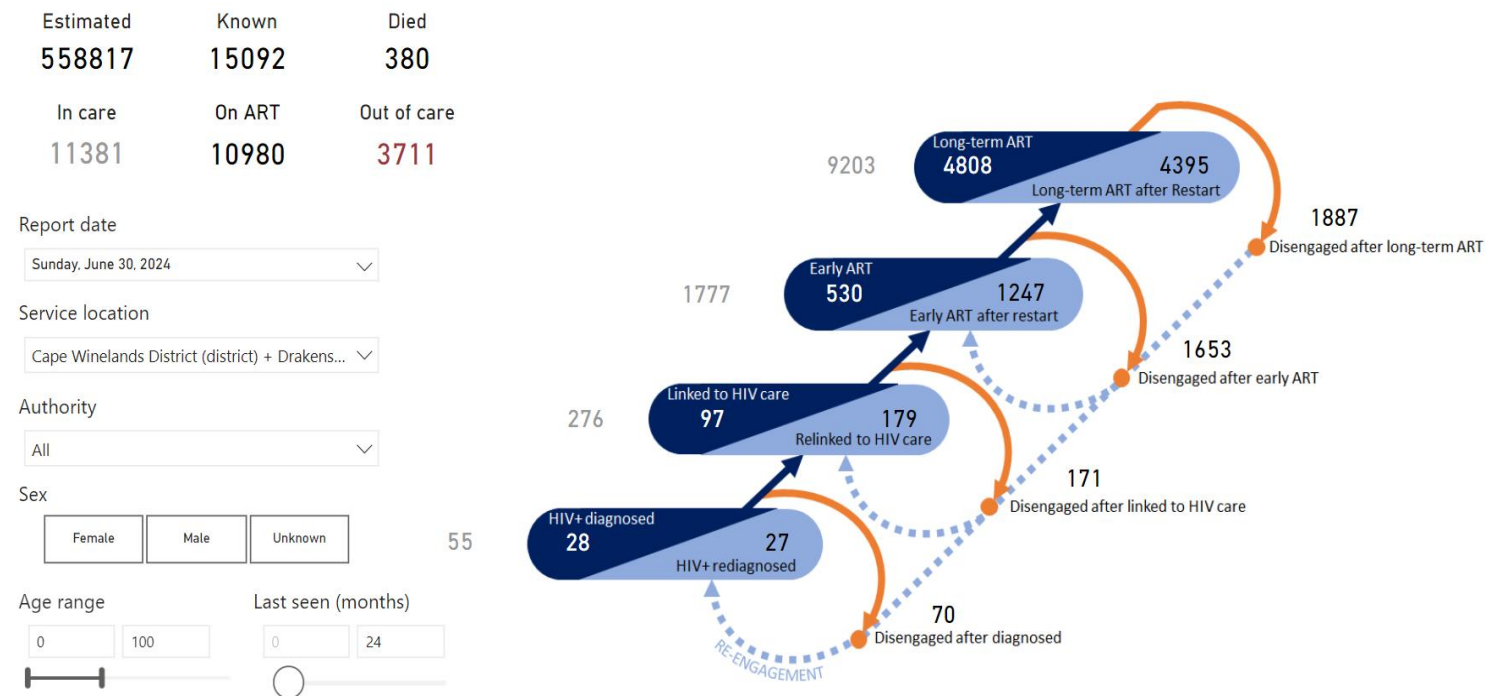


Chart 6: Drakenstein HIV cyclical cascade June 2022-4, SPV

Situational analysis: information, tools, and systems

Staff that are involved in information, include clinicians (for paper sources and sometimes digital sources, e.g., TB nurses who capture on the TB PHICS module), and information managers, admin clerks and interns.

The key components of the patient information chain at the clinics involves data capture onto:

- 1) Paper-based sources: screening tools (TB), tally sheets, patient folders, lab forms, the TB case identification register (TB CIR), and the HTS register (HIV)
- 2) Digital sources:
 - a. RMR: aggregated TB data is captured on Excel weekly and printed if needed for other capturing purposes
 - b. Sinjani: relevant aggregated indicators are captured monthly. All Drakenstein clinics capture on-site, except Dalvale, Klein Drakenstein, Patriot Plein, Huis McCrone, Phola Park, Saron and Soetendal which either send their data to the sub-district office or one of the three CDC's for capturing
 - c. Primary healthcare (PHC) source systems: certain tests and visits are captured onto systems for specific diseases, like PHCIS (DSTB data captured on-site at all Drakenstein clinics, and HIV data captured on-site at TC Newman CDC), EDR.web (DRTB data for all clinics is captured at the sub-district level), and TIER.net (HIV data is captured on-site for all Drakenstein clinics)

The clinics all have at least one computer for SPV analysis and limited capturing, like ePrescribing, but this is not yet happening at any of the clinics.

FACILITY	QUARTER 1 JAN - MARCH 2024	QUARTER 2 APRIL - JUNE 2024
Dalvale	1. Yes	1. Yes
Klein Drakenstein	2. No	1. Yes
Nieuwedrift	2. No	2. No
Patriot Plein	2. No	1. Yes
Simondium	1. Yes	1. Yes
TC Newman CDC	2. No	1. Yes
Windmeul	2. No	1. Yes
Paarl Hospital	1. Yes	1. Yes
Gouda	2. No	2. No
Huis Macrone	2. No	2. No
Mbekweni	2. No	2. No
Phola Park	2. No	2. No
Saron	2. No	2. No
Soetendal	2. No	2. No
Wellington CDC	2. No	1. Yes

Table 1: SPV use, The Health Foundation coverage tracker (THF Sharepoint)

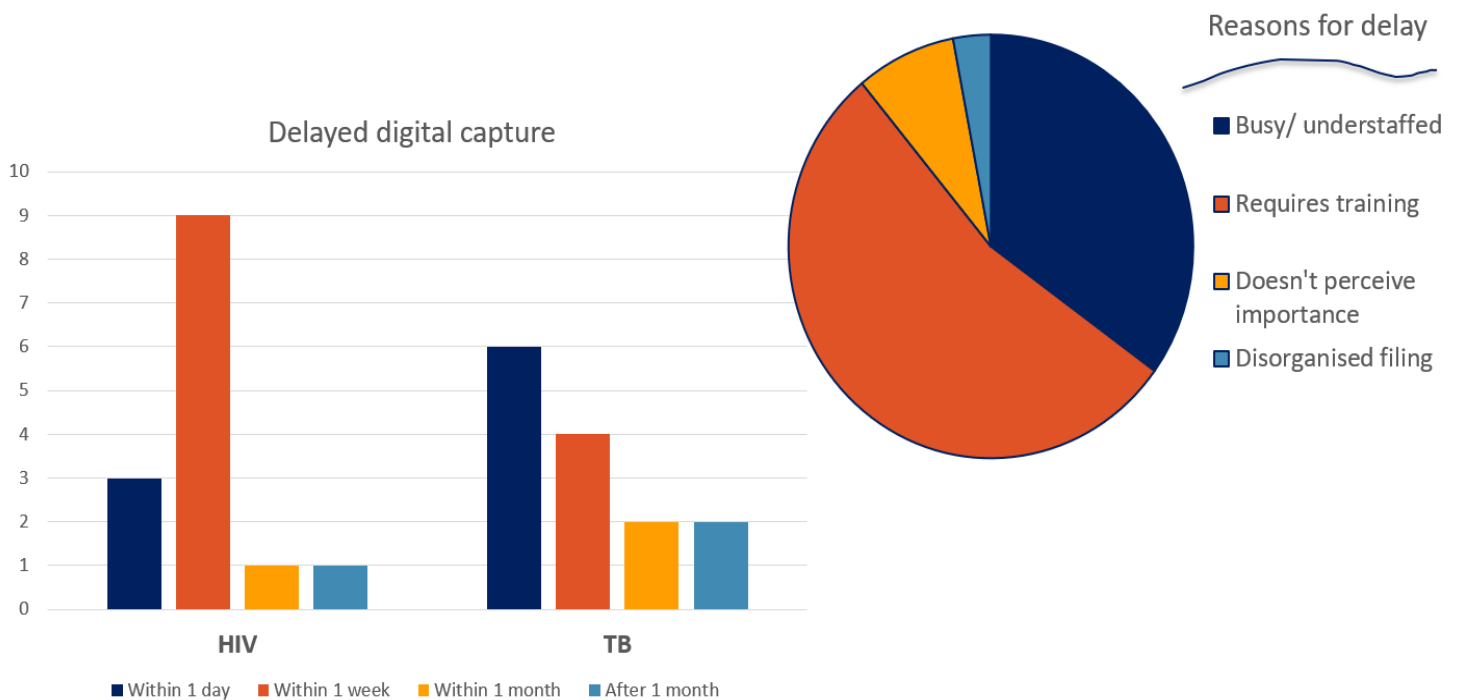
The key components of the patient information chain at Paarl Hospital involves data capture onto:

- 1) Paper-based sources: departmental registers, ICD10 information from discharged EC patients, lab forms, patient folders
- 2) Digital sources:
 - a. HECTIS: EC triage information captured at entry and updated with ICD10 codes and patient movements throughout EC visit
 - b. Imaging: booking via iPlan and viewing on PACS
 - c. RMR: aggregated TB data is captured on Excel weekly and printed if needed for other capturing purposes
 - d. CLINICOM: headcounts, admissions and discharges, and in and outpatient service information
 - e. ECCR: clinical records/ discharge summaries
 - f. Sinjani: CLINICOM data is published on Health BI monthly for Sinjani capturing

SPV is used at the hospital by doctors mostly for patient searching, but some doctors use specific reports. Most clerical staff are not using SPV. During our stakeholder engagements it was not established if nurses are using SPV due to lack of representation.

Key challenges

At both the hospital and the clinics, there are widespread data capture delays and data quality issues due to understaffing, busyness, disorganisation, and training gaps.



Charts 12 and 13: Issues with data, PHC focus groups and surveys

At the clinics, as previously mentioned, a key issue was non-standardisation. There are varied methods for screening for TB, entering patients digitally into care for both HIV and TB, and keeping track of and recalling patients who are disengaged from TB/ HIV care (with many clinics not using the correct reports). In addition, there are laborious and redundant manual capturing requirements (i.e., Viral loads on TIER.net; and many TB elements on PHCIS) that can rather be imported from NHLS or SPV. We also detected system errors on PHICS, like the ability to have more than one episode open at a time on PHCIS which leads to displaying patients erroneously as disengaged; and on SPV where patients show wrongly on the TB action list but are actually in care. It also appeared that the importance of having a “data driven mindset” for knowing one’s burden and ensuring data quality, timeliness, and accurate interpretation to drive actions, needs strengthening. Only 4/ 14 PHC clinics currently have regular data/ performance review meetings. Rather, meetings are ad-hoc before the monthly data sign-off meetings where only the operational managers attend with sub-district managerial staff. The data sign-off meeting is important for highlighting validation errors and best practices but lacks discussion on deeper reasons for discrepancies and how these will be addressed through data-driven actions.

Regarding lack of SPV use, while doctors are already versed with using SPV for clinical care, many nursing and clerical PHC staff were not registered or trained on SPV, posing a gap for surveillance.

At the hospital, because it is so busy, digital capture of paper elements, or completion of digital discharge summaries and records may not always be reliable. Further, there is no use of the TB CIR, but also no good digital replacement (this is a longstanding historical issue with how to deal with TB administration at the hospital-level, when TB is primarily managed at PHC). The information manager at Paarl hospital expressed the need for more clerical training on the RMR TB elements, and the need for SPV training.

Lastly, community-level data for the NPOs is a challenge. During initial analysis, NorSA community TUTT data was not reflecting at sub-district level, and the information was just sitting in their CIR (paper source). Meetings were held to open NorSA on Sinjani (captured at sub-district level), and data was back-captured from April 2023. MatCH, the newer NPO partner, faces a similar challenge and is still waiting to be opened on Sinjani. Currently we cannot track what their services are contributing.

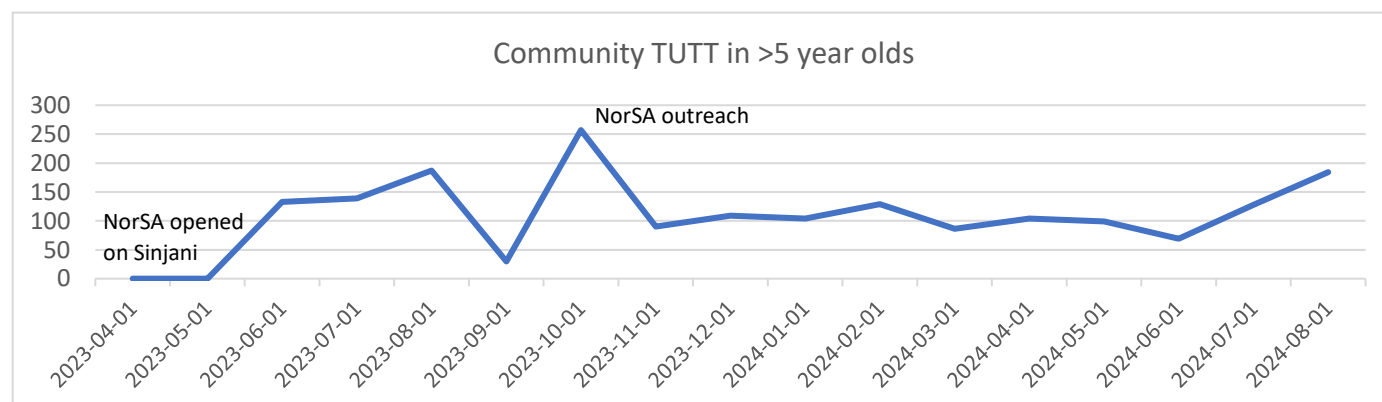


Chart 14: NorSA community TUTT, Sinjani

Situational analysis: finding disease

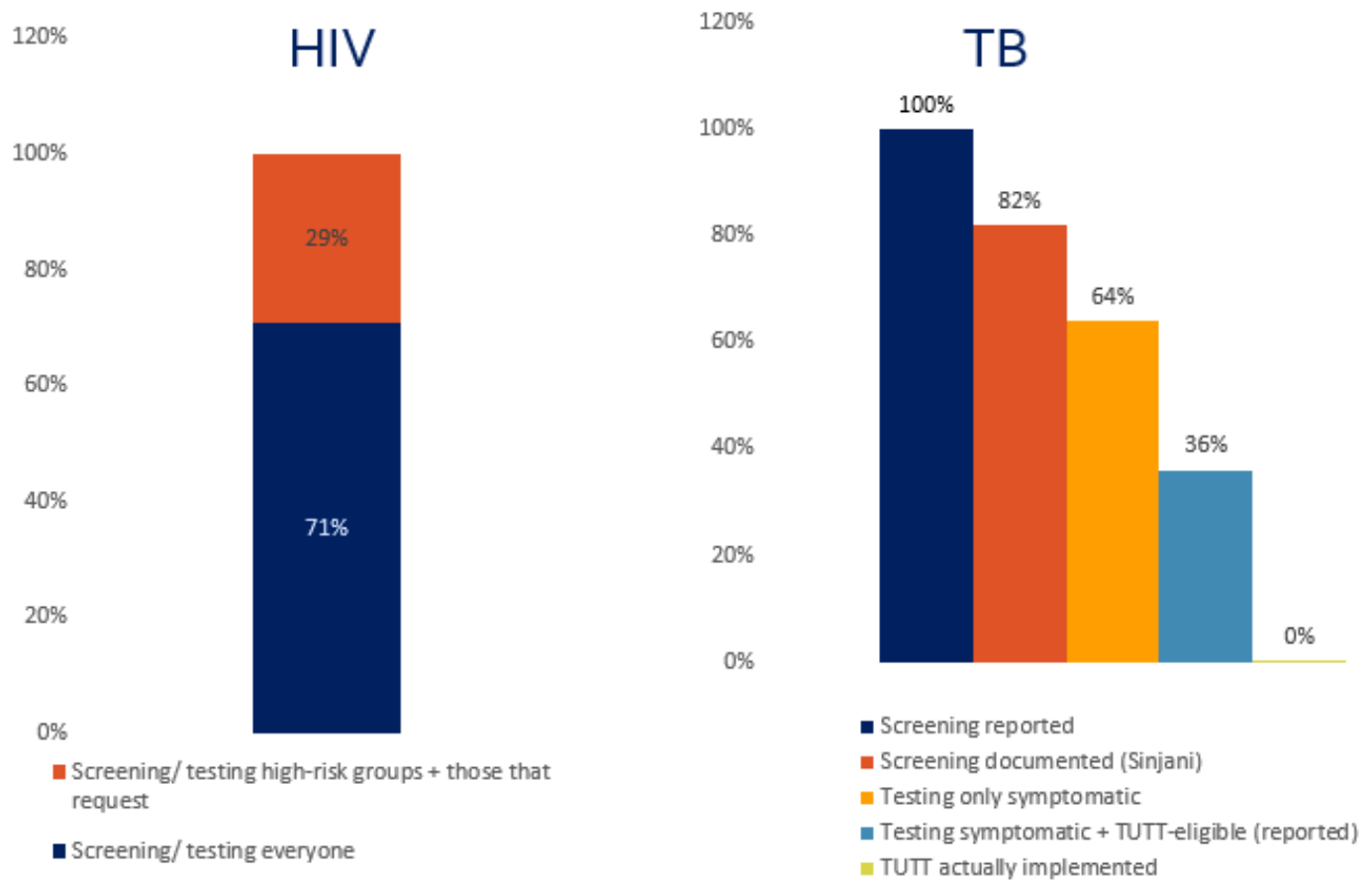


Chart 7: finding HIV and TB, PHC focus groups and surveys

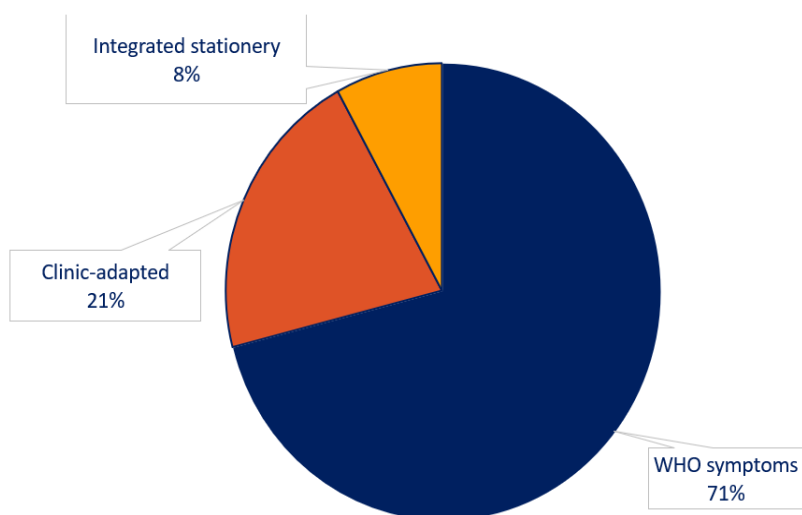


Chart 8: TB screening, PHC focus groups and surveys

HIV and TB Screening-Adult

HIV
Positive, Negative, Unknown, Exposed +, Exposed -

TB
Screen, Known TB, Unresponsive

Please complete all TB screening questions!

Cough
Yes, No

Persistent fever of more than two weeks
Yes, No

Unexplained weight loss > 1.5kg in a month
Yes, No

Drenching night sweats?
Yes, No

TB Screening is Compulsory!

Figure 5: TB screening, HECTIS, May 2024

Key challenges

Targeted universal TB testing (TUTT) was published as a national SOP in June 2022, which was then approved by OPEXCO for the Western Cape in March 2023. Despite this, TUTT is not implemented in the hospital, clinics, or widespread in the communities in Drakenstein according to the policy. This is largely due to staff and resource constraints, lack of widespread policy communication, and lack of training for community health workers (CHWs) for sputum collection, TPT initiation, gastric washing conduction, etc. At mid-2024, TUTT is only implemented at the community-level for a small cohort of hospital-discharged index patients that receive services from 2 TUTT professional nurses (1 NorSA and 1 MatCH) for the whole sub-district.

Additionally, there are various tools used for TB screening, none of which detect asymptomatic (TUTT-eligible) cases at both the hospital and clinic level. At PAH, TB screening is not standardised between EC, labour ward, and OPD. This leads to missing the opportunity to test for TB, or TB testing being done for symptomatic patients only, so sub-clinical TB can be missed.

HIV testing at the clinics is largely for ill patients and those that request it, and not everyone is offered testing at every visit. There is no self-testing for HIV, or door-to-door HIV testing in the communities in Drakenstein. However, HIV and TB testing is done in the communities during outreach events. At Paarl Hospital, patients are tested for HIV based on a clinician's request.

Situational analysis: linkage to care

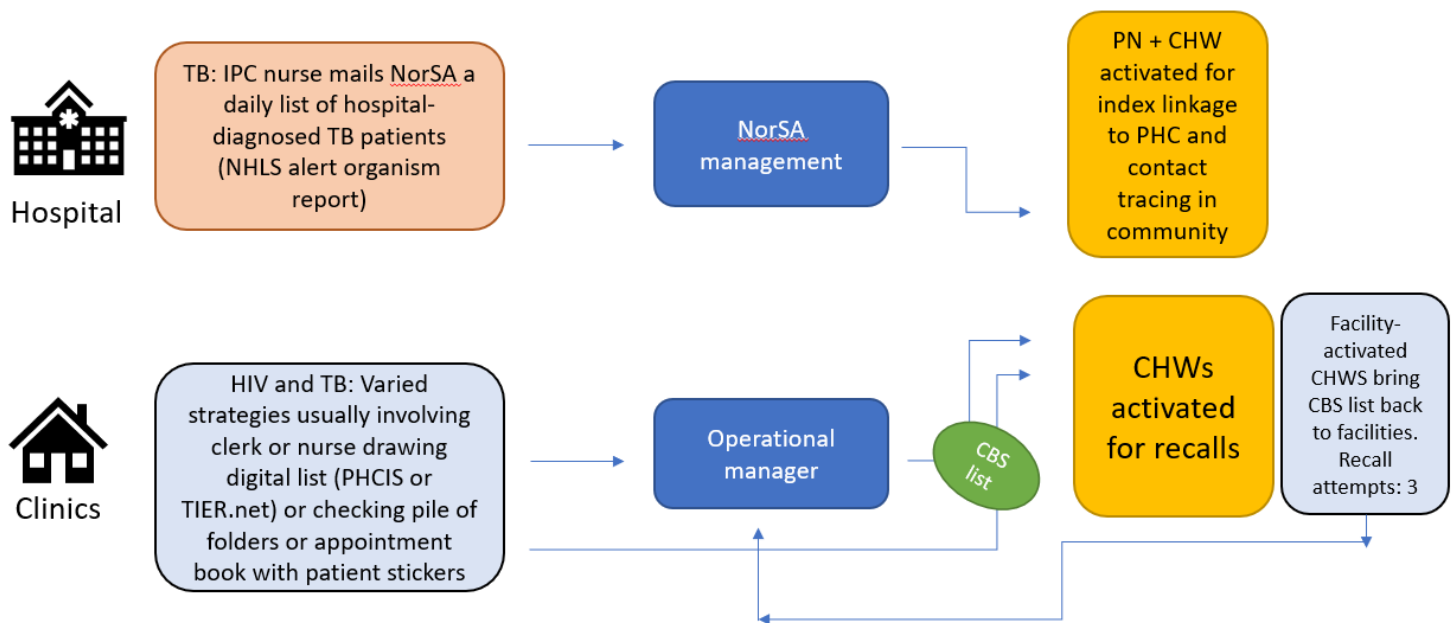


Figure 6: linking to care, current practice in Drakenstein sub-district, revealed through stakeholder engagements and PHC focus groups

Key challenges

Many PHC staff do not recognise that linking to/ entering in care is both a physical and digital process, yet a digital footprint is important for surveillance, resource allocation, and policy changes. It is a challenge to instil a “data-driven” mindset into a region that is largely using paper sources, has disparate, digital systems for different tasks, and is grappling with austerity measures. Therefore, getting health workers to capture digital linkage (through PHCIS or TIER.net) is often delayed.

The linkage to care strategy for TB patients discharged from the hospital involves daily emails containing information about indexes from the NHLS alert organism report which are sent from the IPC practitioner to the NPO, NorSA, who then actions their CHWs to do contact tracing and linkage of indexes to PHC. This process is laborious as the NPO goes to the facilities to first check if patients have linked to care before heading into the community. The process also misses non-lab diagnosed TB patients and has no feedback loop to the hospital but does have somewhat of a feedback process to the sub-district.

The linkage strategy for HIV and TB from the clinics is varied, non-standardised, and largely paper-based, as depicted by figure 16. Additionally, the handover process for successful or failed linkage/ recalls between the CHWs and the clinic’s managerial staff is not always formal or complete.

Situational analysis: returning to care

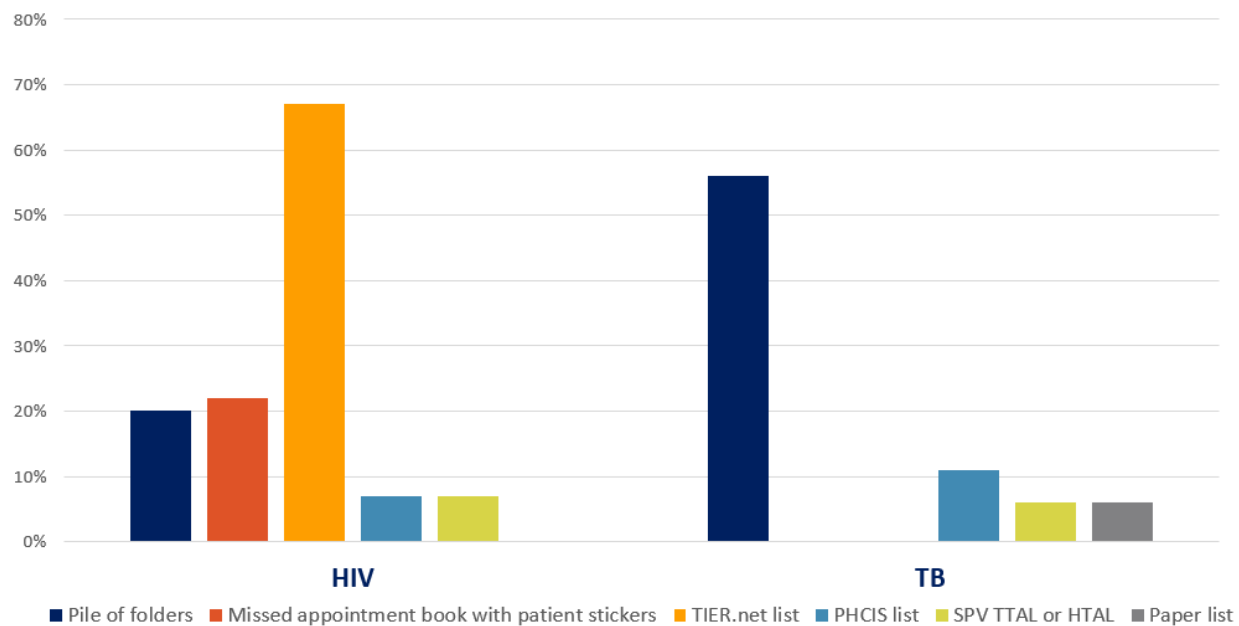


Chart 9: How do we know when a patient has disengaged from care? PHC focus groups and surveys

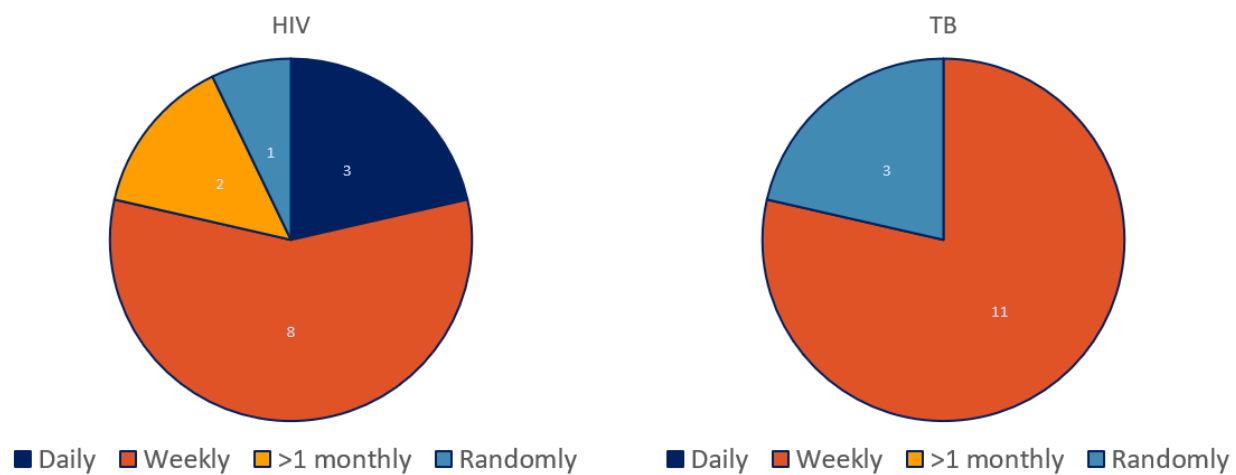


Chart 10: How often are disengaged patients sought? PHC focus groups and surveys

Key challenges

Similar to the linkage strategy at clinic-level, the action of a recall strategy for disengaged HIV and TB patients is by non-standardised methods and at irregular intervals. This is also impacted by delayed data capture and disorganisation, so it is often hard to tell from both the patient folder, and the digital systems if the patient is actually disengaged until digging deeper.

In addition, the clinics express multiple reasons for patient disengagement which are socioeconomic in nature, depicted in figure 18; and 71% of PHC clinics report that the CHWs return after 3 recall attempts lamenting of wrong patient addresses and contact details. These are all factors requiring a multi-sectoral response.

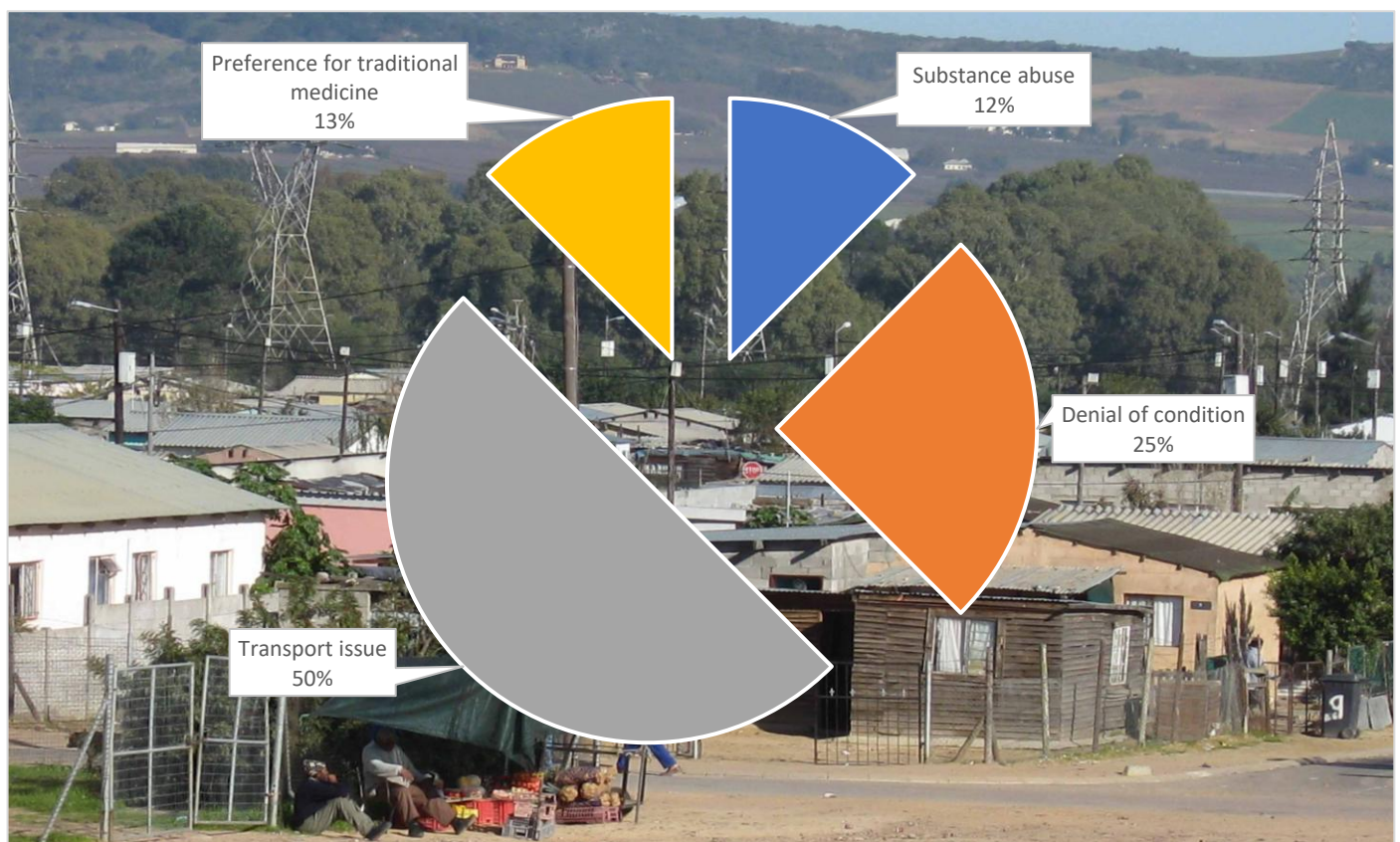


Chart 11: Facilities reporting reasons for patient disengagement, PHC focus groups and surveys. Backdrop image of Mbekweni by Laura Lopez Gonzalez/IRIN

Way forward

This situational analysis serves as launching pad for tailoring the grant's activities to what the sub-district needs and want; and highlights that additional areas for mapping and analysis will likely continue to arise, along with new activities. Further information: [Drakenstein implementation tracker](#).