



Metro Health Services
August 2021

Acronyms

ART: Antiretroviral Therapy

BMI: Budget Monitoring Instrument

CBO: Community Based Organisation

CEO: Chief Executive Officer

CoCT: City of Cape Town

DoH: Department of Health

ECCR: Electronic Continuity of Care Record

EXCO: Executive Committee

LTFU: Loss to Follow Up

HAST: HIV and AIDS/ STI / TB

HIV: Human Immunodeficiency Virus

HOD: Head of Department

IM: Information Management

IMLC: Integrated Management Labour Committee

IPC: Infection Prevention and Control

IT: Information Technology

ILTFU: Initial Loss to Follow Up

KESS: Khayelitsha Eastern Sub Structure

KMPSS: Klipfontein Mitchell's Plain Sub Structure

MHS: Metro Health Services

MO: Medical Officer

NPO: Not for Profit Organisation

NTSS: Northern Tygerberg Sub Structure

OHS: Occupational Health Safety

PDSA: Plan Do Study Act

PHC: Primary Healthcare Centre

PHDC: Provincial Health Data Centre

QA: Quality Assurance

QI: Quality Improvement

QIP: Quality Improvement Plan

SOP: Standard Operating Procedures

SPV: Single Patient Viewer

SS: Sub Structure

SWSS: Southern Western Sub Structure

TB: Tuberculosis

WCGH: Western Cape Government Health

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BACKGROUND

Health Information is a vital health system component and investment in data access and use at the clinical, programme and strategic level is crucial to health system strengthening. The Western Cape Government: Health (WCG:H) is considered a data rich environment – particularly following the development of the Provincial Health Data Centre (PHDC) which harmonises patient-level information from multiple stand-alone health information systems. However, this availability of data has not translated into improved patient outcomes.

In the Metro Health Services (MHS), the concerns relating to data access and use are summarised in the graphic below.

1	2	3	4	5	6	7
People have difficulty in accessing data incl. newer products	Reports are difficult to use, not intuitive, require manipulation of data	People don't know what to ask for or where to look for information/ which reports they should use	People don't know how to interpret data (graphs, etc.)	Decision making is not always backed by information	Roles and responsibilities around data are not clear	IT infrastructure inadequate for vision of data-informed decision making
Access to information products	Usability of reports	Knowledge about data sources and multiple reports	Data interpretation skills	Culture of data use for decision-making and continuous improvement	Accountability	IT Infrastructure gaps

Scaling Data Use to Improve Patient Care

The “Scaling Data Use to Improve Patient Care” grant aims to improve data access and use at a local level. The grant funds three project teams (Metro Health Services, City of Cape Town and Provincial Health Data Centre) that work collaboratively to achieve the project objectives in their respective organisations.

The broad objectives of the Scaling Data Use grant are to:

1. Address the technical, behavioural and organisational impediments to ensure effective data utilisation
2. Establish Single Patient Viewer (SPV) use amongst clinicians to improve the quality of care
3. Entrench data-driven continuous quality improvement methods to improve health outcomes at facility level
4. Implement real-time data use to link persons with TB and HIV to care
5. Implement data driven approaches to strengthen the implementation of new policies

Situational Analysis

To direct the activities of the MHS Scaling grant team, a detailed situational analysis was undertaken to answer specific questions relating to the following areas:

1. Data Tools, Reports and Meetings
2. Single Patient Viewer (SPV)
3. Management of Loss to Follow-up (LTFU)
4. Data Roles and Responsibilities
5. IT Infrastructure
6. Quality Improvement

AIM

To better understand data access and use in the Metro Health Services with a view to informing activities for the Scaling Data Use grant team

SPECIFIC OBJECTIVES

The specific objectives are described in terms of the 6 components below:

1. Data Tools/Reports and Meetings

- a. To identify the data tools and reports that are in use for routine data in the Metro Health Services
 - i. By clinicians
 - ii. By managers
- b. To describe the use of these data tools/reports
- c. To identify and describe the meeting spaces at which routine data is discussed
- d. To identify gaps in terms of data tools/reports

2. Single Patient Viewer

- a. To identify the reach of SPV in the Metro Health Services
- b. To describe barriers to SPV access
- c. To describe barriers to SPV use

3. Management of Loss To Follow Up

- a. To map and describe LTFU processes using HIV, TB and Immunisations as tracer conditions

4. Data Roles and Responsibilities

- a. To determine whether stakeholders have a clear understanding of their own roles and responsibilities in terms of data and in what way/s this is assessed

5. IT Infrastructure

- a. To describe IT infrastructure barriers to data access and use

6. Quality Improvement

- a. To describe the Quality Improvement landscape in the Metro Health Services in terms of structure, activities, roles, methodology, training, etc.

METHODS

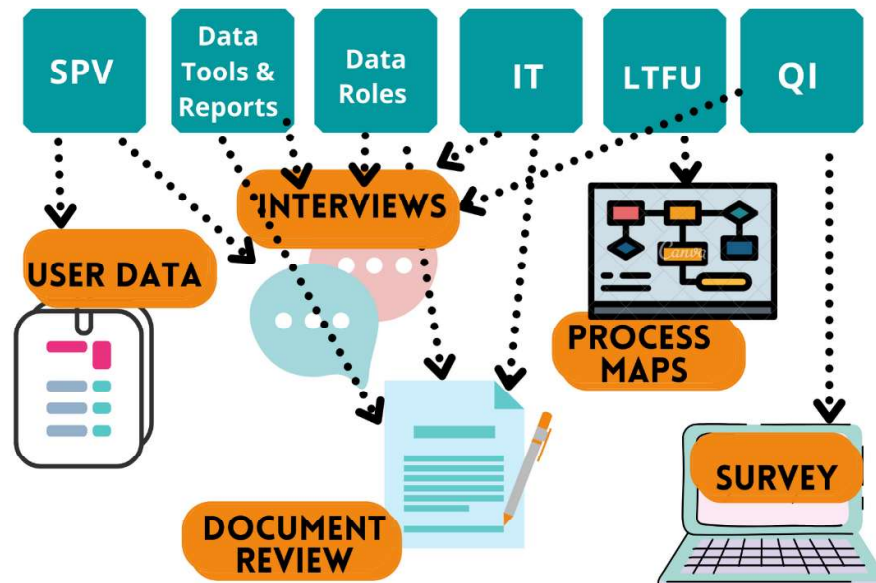


Figure 1. Methods

We used the following data collection methods to conduct this situational analysis.

1. Key Informant Interviews

We conducted interviews with key informants from each of the MHS sub-structures. The interviews were conducted in person or on MS Teams.

These key informants included:

- 1.1. Sub-structure managers
- 1.2. PHC Facility managers and teams
- 1.3. Acute hospital managers and teams
- 1.4. Community Based Services NPO teams
- 1.5. Externally funded NPOs

2. Survey

We conducted a survey using Google Forms to collect information pertaining to Quality Improvement from sub-structure and facility managers

3. Process Mapping

We visited PHC facilities and acute hospitals to meet with facility teams and map their loss to follow up processes. We used TB, HIV and Immunisations as tracer conditions to understand the management of loss to follow-up at facilities.

4. Desktop document review

We requested the following documents for review:

- Terms of Reference for meetings at which routine data is discussed
- Minutes of meetings
- Job descriptions

5. Single Patient Viewer User Audit

We sought to explore SPV use in the MHS by the following routes:

- SPV user data obtained from the PHDC
- Engaging key informants on their experience
- Engaging groups such as the Family Physicians forum, Sub-structure Information Managers, Sub-structure HAST teams.

FINDINGS

We will present the findings of the Situational Analysis in the following components:

1. Data Tools and Reports
2. Single Patient Viewer (SPV)
3. Management of Loss To Follow Up
4. Data Roles and Responsibilities
5. IT Infrastructure
6. Quality Improvement

DATA TOOLS AND REPORTS

Introduction

There are several information systems used in the Metro Health Services. The table below introduces the information systems that were commonly identified by clinicians and managers in key informant discussions. The table describes each system in terms of its purpose and users and summarises key details about the information system.

System Name	Description	Extent of Use	Purpose	Users	Web based?	Communication (SMS/Email)	Reports generated
Single Patient Viewer (SPV)	Patient dashboard	Mostly used by Clinicians	To have a holistic view of patient history	Clinicians	Yes	Can call, SMS and Follow-up patient	Cascade reports
National Health Laboratory Service (NHLS)	Lab results system	A view only access by Clinicians	To provides patient's lab results	Clinicians	Yes		
Clinicom	Hospital patient administration system	Used mainly by nurses, clerks and IMs	To manage patient information, ward information, patient admission	Admin Clerks, Managers, Clinicians	No	No	Operational reports but mostly generated on Health BI
JAC	Pharmacy system	Mostly used by pharmacists	To manage medicine stock control and dispensing	Pharmacists, Clinicians	No		Operational Reports
Enterprise Content Management (ECM)	Folder repository	Used at selected facilities only i.e. Khayelitsha, Tygerberg, Mitchells Plain and Groote Schuur Hospital	To store scanned patient folders	Clinicians, Admin staff	No	No	Usage Report
Electronic Continuity of Care Record (ECCR)	Electronic discharge summary	Mostly generated at hospitals and read only	To provide patient's discharge record	Clinicians Auditors Admin Clerks	Yes	No	Usage Report

		access at PHC level			Case Managers Allied Health Workers e.g. Social Workers			
Picture archiving and communication systems (PACS)/RIS (Radiology Information System)	Radiology system		To keep record of all patient's radiology information	Clinicians				
Hospital and Emergency Centre Tracking Information System (HECTIS)	Emergency centre patient management system	Currently used in some hospitals but will be extended	To track patients through the emergency centre	Clinicians	Yes	No	Operational reports	
Vula	Patient referral app		To manage referrals between facilities more efficiently	Clinicians	Yes			
Sinjani	Reporting system		To generate aggregated reports	Admin clerks, Managers	Yes	No	ART monthly report ART cohort report	
Primary Health Care Information System (PHCIS)	Information system for primary health care facilities with modules for HIV/ART, TB, Maternity Admissions, Births?, Appointment booking etc.		For registration of new patients, recording of patient level data and reporting	Admin Clerks NPOs via VPN	Yes	No	ART/HIV, TB and other operational related reports	
Tier	Information system for primary health care facilities with modules for HIV/ART, TB,	Mostly used by data capturers at designated facilities	For capturing ART and TB patient level data and reporting	Admin clerks, Managers	No	No	ART and TB monthly report ART and TB quarterly report LTFU	

Catch and Match App	App for home and community-based services		For capturing patient details in the field, for referring patients to designated facility	CHW	Yes	No	Dashboard where daily, weekly and monthly activities are generated Health BI – Operational and Management Reports
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Figure 2. Health Information Systems Overview

Methods

In key informant discussions with stakeholders, we asked clinicians and managers to indicate which tools or information systems were used most frequently. We asked them to describe their challenges and requirements for each of the tools they identified. Findings from this exercise are summarised in the table below.

Findings

System/Tool	Current Problem/Challenges	User Requirements
SPV (SPV will be covered in detail separately)	Not user friendly - too many filters Limited user access Delayed data movement from other systems to SPV (not up to date)	Expand user access – including clinicians, managers and clerks Limit data filters for user friendly experience. Could collapse frequently used filters and user can expand additional filters when required. User Training Request for "how to" buttons on the application Searchable training guide
ECM	Limited user access People dependent. Results in delayed scanning and backlog Not enough IT support	Expand user access System support
Clinicom	Unreliable data entry on the system which results in manual counting e.g. for in-patients daily headcounts. PHCIS folder numbers do not pull through to Clinicom Reports on Clinicom are seldom used as they are not user friendly, hence Health BI is the preferred option for reporting purposes	Reliable data that can be used for reporting purposes Allow PHCIS folder numbers to pull through so that they can reflect on Clinicom Refine reports to make them more user friendly
PHCIS	System is slow thereby slowing the capturing process System is managed centrally and getting access is a long process TB module: reports are not user friendly e.g. can only generate reports per facility and cannot generate a sub-district report PHCIS is not being used optimally – users are not aware of the features and how they could use the system to better manage their services – e.g. LTFU	Improved system connectivity Grant access locally to 'super-users' who can in turn assist users who require access Enhance the system to allow users to generate reports per required level Communicate latest system developments and how they can benefit the user
Tier	Tier is only used at selected facilities and there is a phased approach of migrating Tier into PHCIS	

System/Tool	Current Problem/Challenges	User Requirements
	Tier is a standalone system and therefore does not integrate with other systems Inaccurate data due to delayed data capturing Users are not able to identify silent transfers in this system	
NHLS/TrakCare	No issue was raised with regards to NHLS	
Vula	Nurses are reluctant to download the app on their cell phones; the issue is with the app taking up space on their phones Users were not aware that the Vula app is also accessible on a desktop	Seamless down and up Vula referrals to eliminate the use of manual referral forms Better integration between Vula and eCCR Promote use via desktop
HECTIS	Real time data is dependent on timely capturing	
eCCR	Not all departments and hospitals use eCCR for discharge summary	Make eCCR a mandatory component of the discharge process for all hospitals
Sinjani	Password expires too quickly and to change a password requires one to re-apply by completing a request form	Ability to update password without going through the re-application process Graphical data visualisation
JAC	JAC does not allow for repeats capturing for CDUs Manual scripts are sent from the pharmacy to CDU resulting in double capturing of data on JAC and CDU	e-Prescription functionality
PACS	Sometimes users experience challenges in viewing imaging from other facilities	Ability to view imaging irrespective of which facility it comes from
Catch and Match App	Not widely used by CHWs The current devices are not compatible with the latest version of the app Safety concerns in certain communities	Expand the use of Catch and Match app. Enhancing the app to capture all community-based activities.

Figure 3. Tools -Challenges and User Requirements

The following themes relating to data tools and reports were identified from the situational analysis:

Multiple disparate systems

Clinicians, in particular, reported that there were multiple information systems that they utilised in their daily work. The systems were viewed as disparate and there was a resounding request for integration. Apart from the concerns of a siloed approach to information, the lack of integration was also viewed as inefficient. Users were required to navigate different systems as

part of their workflow – which was time consuming and often resulted in a duplication of their work. Users were also in favour of a single sign-on approach which would eliminate the need for logging in and out of the various systems and simplify password management. There was a similar appeal for a unified process in terms of application for access to these multiple systems.

Incomplete adoption of electronic tools

Tools such as the Electronic Continuity of Care Record (eCCR) were valued widely by clinicians. However, there was concern that the value of the tool was diminished by incomplete adoption of the tool as part of the discharge process from hospitals. Similarly, PHC clinicians were pleased with the efficiency of the Vula app as a referral tool but were frustrated that the referral mechanism was not uniform and was dictated by individual departments or hospitals.

Community based services

Community Health Workers had positive experiences with the use of the Catch and Match app, however, the app has not been expanded to all NPOs. Among the NPOs that are using the Catch and Match app, the application is also not widely used - primarily due to safety concerns. In some communities, CHWs are targeted by criminals who are aware that they are in possession of smartphones and as a result the CHWs are afraid to use them. In some instances, the CHWs resort to paper-based systems while in others they use the paper-based systems in the field and back-capture into the app at the end of the day or week. This process is a duplication of processes and is time-consuming and inefficient.

Another concern is that the current devices used by the CHWs are not compatible with the latest version of the App. Additionally, CHW work processes have been expanded as a result of COVID-19 to include home delivery of chronic medication. This workflow has not been incorporated into the application yet and results in a reliance on paper-based documentation. Referrals between primary health care facilities and community health workers follow a manual process and feedback is usually on paper-based referral slips or in team meetings.

Red-tape for innovation and development of tools

At one facility in particular, the issue of red-tape relating to innovation and data was identified as a concern. Tools such as MS Access were considered useful for management of non-routine data. However, access to this tool was denied. This points to a larger concern around the pathway for information system and report development. This does not appear to be a

transparent and accessible process for systematically fielding and assessing the data needs of users.

Information System Development Alignment

We noted that individual system development was not necessarily aligned resulting in duplication of clinician workflows. The example of this that we identified involved an overlap in the features of eCCR and HECTIS which required the clinician to make entries into both systems to complete the workflow. We acknowledge that HECTIS is in the early stages of roll-out and that a problem like this may be identified and addressed as part of the roll-out. However, we raise the concern that the planned development of these two systems do not appear to have been aligned.

Awareness and Training

There is a lack of awareness regarding the information systems that are in use. Users are sometimes unaware of the features and the value of each of the systems. In most cases, training on information systems is once-off and users would benefit from training updates or refresher training.

Usability

There was a call for user-friendly systems that are intuitive and mobile-friendly. Some clinicians were frustrated with outdated information systems which were time-consuming to use. Additionally, there was frustration with manual processes that could be replaced by digital systems such as e-prescriptions.

Reporting

Users requested improved data visualisation –particularly for routine data drawn from Sinjani. There was concern that the current output (raw data in Excel format) relied on the technical skills of the user. Clinicians and managers often obtained data via requests to Information Management staff at facility and sub-structure level rather than from the source systems. Organising data into meaningful tables and figures was viewed as a skill that is not widespread. Additionally, this added step was time-consuming for managers. Data interpretation skills was also highlighted as a skill that required strengthening.

Users provided examples of standard reports that can be drawn from information systems. In some cases e.g. the early and late missed appointments list for HIV, there are defined processes which provide clarity around the intended purpose of the reports and how they should be utilised. A process of consolidating reporting by identifying the intended purpose and how the report should be utilised (i.e. use cases) would be helpful.

Recommendations

1. Simplify the access process for information systems
 - a. Develop one access process that is used for all information systems. This can be done using applications like MS Flow which can automate workflows
 - b. Access to information systems can be included in the appointment/induction process for new users and can be linked to the user's role
2. Single sign-on
 - a. Eliminate the need for multiple usernames and passwords by developing a single sign-on system
3. Information System Summary page
 - a. Develop a summary page which describes key features of each information system. This would guide new and existing users to identify which information system to access
4. Training
 - a. Include health information system training (including refresher training) in individual and team development plans
 - b. Modify training format and allow for multiple training options e.g. training videos, online training, in-person sessions.
5. Address incomplete adoption of tools like eCCR and Vula
 - a. Strengthen the use of key tools that benefit the health service platform by formalising the use of the tool and addressing incomplete adoption
6. Improve alignment of information systems
 - a. Develop a transparent EHR roadmap that minimises duplication of efforts by different health information systems and prioritises clinical workflow
7. Strengthen user feedback process
 - a. Develop and promote a structured process to field queries and suggestions about health information systems and reporting outputs. There should be transparency in the way the requests are collected, assessed and prioritised
8. Improve reporting by:
 - a. Consolidating routine reports and linking each report to a use case
 - b. Creating a widely accessible interactive dashboard for routine data
 - c. Enhancing data visualisation

SINGLE PATIENT VIEWER (SPV)

Introduction

SPV is a tool developed by the PHDC which enables the user to view patient-level information from multiple information systems on one platform. SPV uses the unique patient identifier to stitch together a patient history that includes facility visits, laboratory results, prescriptions and inferred health conditions among others.

The SPV application has been available for a few years and access to the application has been identified as poor. Increased functionality for managing COVID-19 cases has been instrumental in improving access to the application, but there is ongoing concern that uptake remains poor.

Aim

The situational analysis sought to:

- Identify the reach and use of SPV in the Metro Health Services
- Describe barriers to SPV access
- Describe barriers to SPV use

Methods

We used the following methods:

1. PHDC SPV user data

- All WCGH: We obtained SPV user data for all Western Cape Government: Health users from the PHDC. The data included a “user status” variable which designated users as “active” or “inactive” according to their user history. An active user was defined as a user with any history of logging in to SPV. A last activity date was provided for users that were designated active. The user data could not distinguish Metro Health Service users from other WCGH users and did not include a description of the user’s role or job description. We analysed this data and present a summary below.
- MHS Doctors: In order to give a Metro Health Services view, we obtained a list of MHS doctors (from People Management) to match against the SPV user data. We chose to do this analysis for doctors - to make the process more manageable. The matching process enabled us to determine which doctors in the MHS had access to SPV and which were active users.
- MHS Managers: To give a view of SPV use by managers, we compiled a list of managers for each sub-structure and matched this list with the SPV user data. The manager list included:

- Sub-structure office managers: Director, DD: Professional Support, DD: Comprehensive Health, PHC Manager, HAST Manager, HAST MO, ASD: Information Management
- Primary health care facility managers
- District Hospital CEOs

2. Engagement with users

- We included SPV access and use as a component of the discussions we had with the various MHS stakeholders

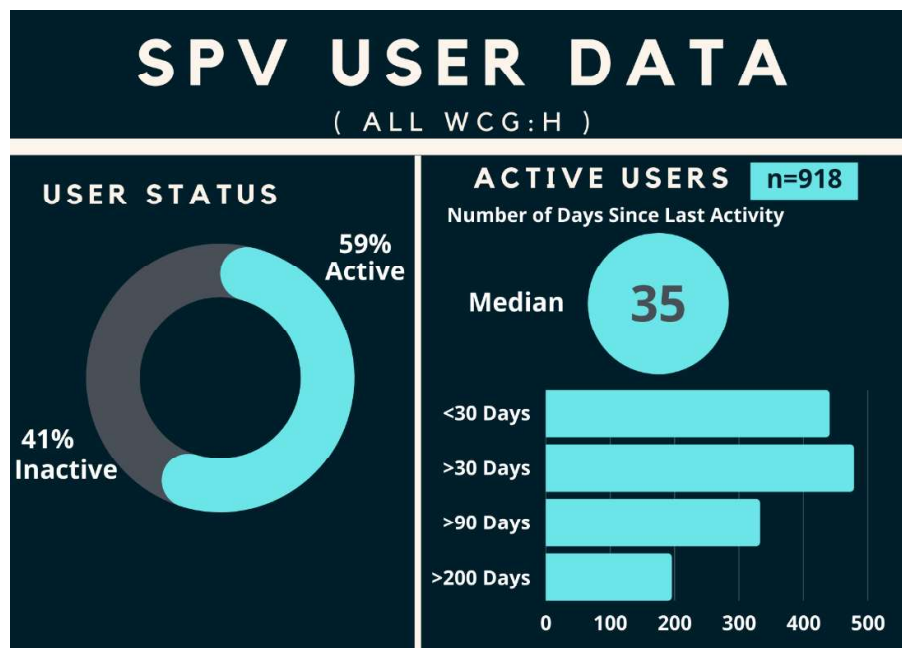
3. Desktop document review

- We reviewed two documents which engaged users on SPV. These documents provided background and contextual information.
 - SPV user survey undertaken by PHDC in 2020
 - Telehealth survey undertaken by MHS in 2020

Findings

1. PHDC SPV User Data

a. All WCGH



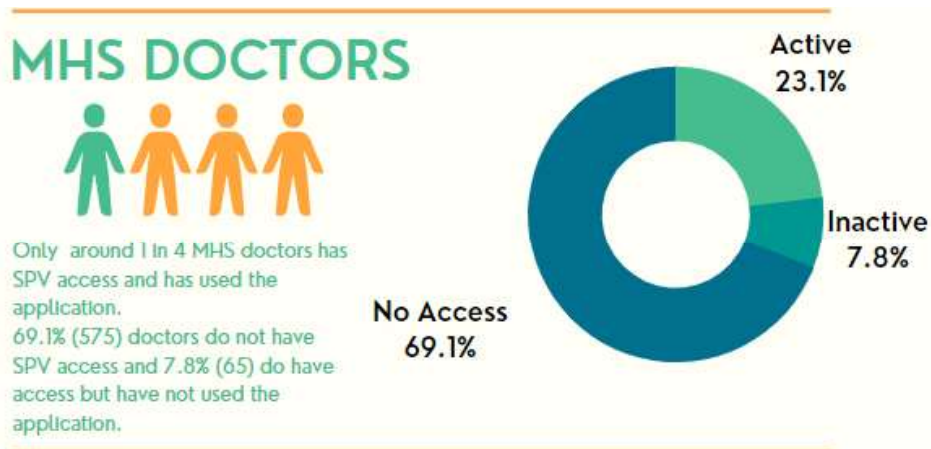
There are currently 1559 WCG:H staff that have access to SPV. Of these, 918 (58.8%) are considered active i.e. they have logged on to the application at least once. 641 (41.1%) are inactive users i.e. they have been granted access but have not logged on to SPV.

Active users had a median of 35 days since the last activity date. This measure is static (only refers to the last activity date at the time of data extraction i.e. 26 June 2021). Nearly half (440, 48%) of the active users had accessed SPV in the month preceding the data extraction and 388 (42%) had last accessed SPV more than 60 days from the date of data extraction. 195 users (21%) had last accessed more than 200 days from that date.

Limitations:

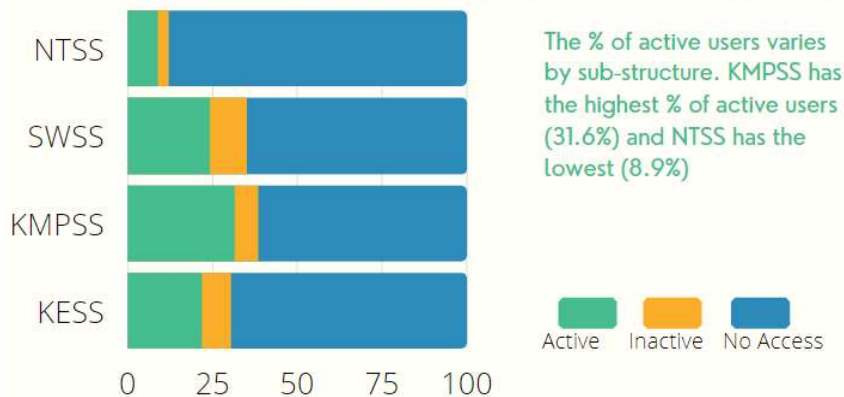
- This dataset refers to all users with a westerncape email address and therefore does not reflect only Metro users. The dataset may also include individuals who are no longer WCGH employees.
- The last activity date is a once-off measure in terms of use of the application and frequency of use cannot be inferred reliably.

b. SPV use amongst doctors in MHS



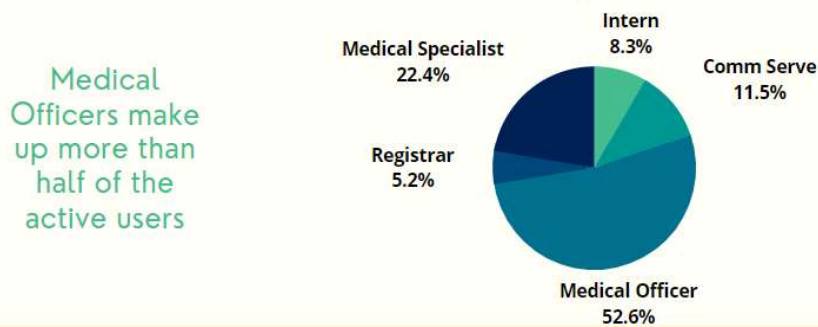
Only 23% of doctors in the MHS have SPV access and have used the application at least once. 7.8% are inactive users i.e. they do have SPV access but have not logged in to SPV. 69% of doctors in the MHS do not have SPV access.

VARIATION BY SUB-STRUCTURE

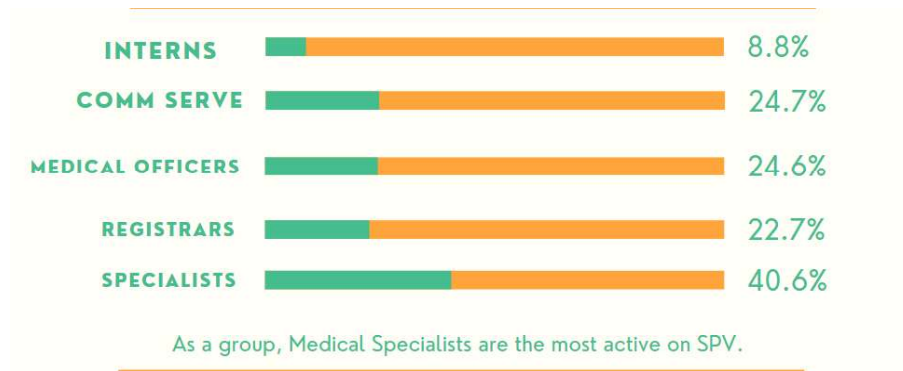


Within each sub-structure, the percentage of doctors that were considered active users varies widely. In the Klipfontein/Mitchells Plain sub-structure (KMPSS), 31.6% of the doctors were classified as active users, while in the Northern Tygerberg sub-structure (NTSS), only 8.9% of doctors were considered active SPV users.

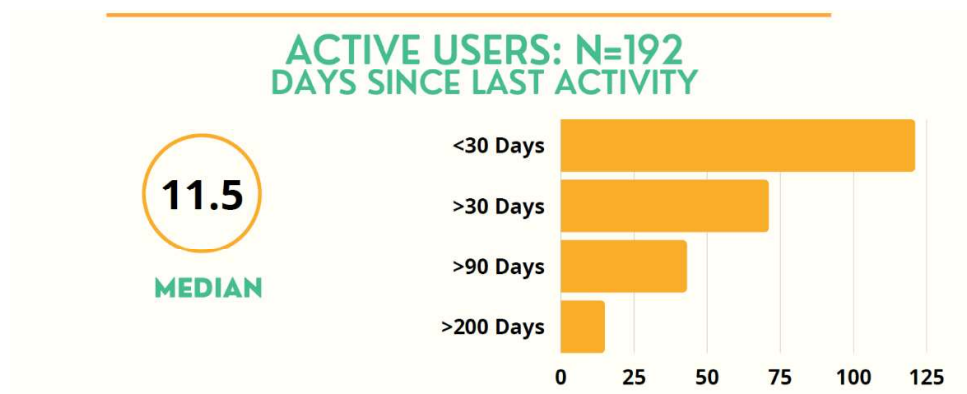
ACTIVE USERS BY JOB DESCRIPTION



Medical Officers make up more than half of the doctors that were considered active on SPV (52.6%) and Medical Specialists account for 22.4% of active users.



However, as a group Medical Specialists are the most active on SPV compared with other doctor categories.



Active users had a median of 11.5 days since the last activity. (Data was drawn on 26 June 2021). Two-thirds (121, 63%) of active users had accessed SPV in the month preceding data extraction. However, 70 active users (36%) had >30 days since the last activity date and 43 active users (22.4%) had more than 90 days since the last activity date.

Limitations

- There is concern about the accuracy of the list of staff obtained from People Management. Inaccuracies in the number of staff could result in falsely lower proportions of active users.
- Activity data is static as at the time of drawing the data and cannot be used to indicate frequency of access.

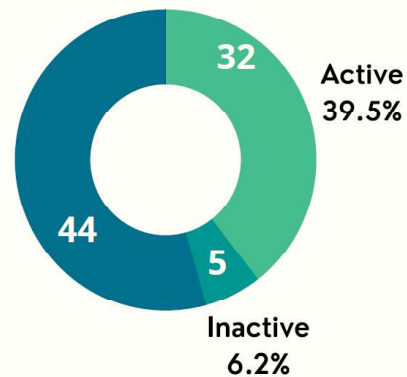
c. SPV use amongst managers in MHS

MHS MANAGERS

Director
DD: Comprehensive Health
DD: PSS
PHC Manager
HAST Manager
HAST MO
ASD IM

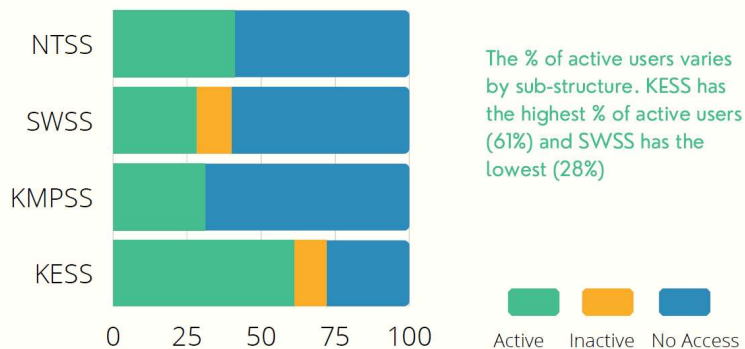
PHC Facility Managers
Hospital CEOs

No Access
54.3%



32 of the 81 MHS managers were active on SPV i.e. they had been granted access and had logged in to the application. More than half of the managers (54%) did not have SPV access.

VARIATION BY SUB-STRUCTURE



The proportion of active manager users varied by sub-structure. KESS had the highest proportion of active users in this group.

ACTIVE USERS: SUB-STRUCTURE OFFICE VS FACILITY

SUB-STRUCTURE 20 71%

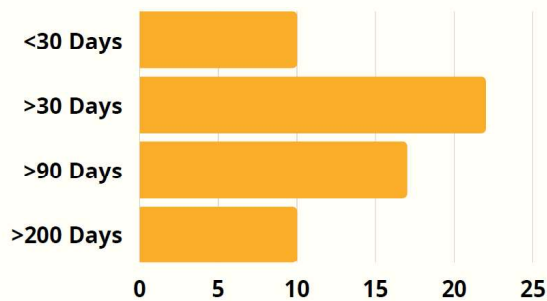
FACILITY 12 23%

As a group sub-structure managers are more active on SPV than facility managers

Sub-structure office managers as a group were more active on SPV than facility managers. Please note the small size of this cohort.

ACTIVE USERS: N=32 DAYS SINCE LAST ACTIVITY

97
MEDIAN



The 32 active manager users had a median of 97 days since the last activity date (data extracted on 29 June 2021). 10 of these users had accessed SPV in the month preceding data extraction and a further 10 had last accessed SPV more than 200 days from the date of data extraction.

2. SPV User Engagement

a. SPV Awareness

- While many potential users had heard of SPV, we encountered some clinicians and managers that were not aware of the application or had only superficial knowledge of it.

b. SPV Access

- Some users have had a poor application process experience. However, this has largely improved as a result of using the application for COVID-19 case management and due to the use of an online form.
- One user found the user support feedback to be unhelpful and requested that support feedback should be user-friendly and consider differing levels of experience and comfort with IT systems. As an example, the user was asked to “try accessing SPV in *in cognito* mode” which was unfamiliar terminology and unhelpful to the user.
- WCG:H employees that do not have an active westerncape email address will need to apply for the email address as a first step before proceeding with the SPV application. This is a line manager function.
- Clerks were identified as a key user group for SPV. There is a need for clarity around the application process and user rights for clerks.

c. SPV Use

- Users require training in order to become more comfortable using SPV. The training need differs by users and may range from hands-on training to short videos.
- Users are not aware of all the features on SPV.
- The reports are not user friendly. There are too many filters for the average user and users are not familiar with the terminology that is used for the filters.
- There are many reports per condition and it is not clear what the purpose of each is and how they could be used.

Recommendations

1. Marketing and Communication:

- a. SPV should be marketed as a tool for clinicians and managers using a combination of online and in-person approaches.
- b. Updates to the application e.g. new features should be communicated to existing users to drive uptake

2. Access:

- a. A bulk application process should be undertaken. This can be done systematically by user group facilitated by the MHS office.

- b. The access rights and process should be clarified by user group including clerks
- c. NPO access rights for SPV should be clarified and the process standardised

3. Westerncape email addresses:

- a. @westerncape email addresses should be allocated to intended SPV users that do not have active email accounts
- b. The process around application for @westerncape email addresses should be refined and the application should be automated when the staff member is appointed. This will reduce the reliance on line managers to make the application.

4. SPV user feedback:

- a. The user interface should be refined to consider feedback from users e.g. simplify the filter options for the average user by keeping advanced filter options hidden.
- b. A user feedback process should be developed including both passive and active feedback request.

5. Development and Prioritisation process:

- a. There should be a transparent and structured process to inform the development of and prioritisation of tools and reports considering existing structures

6. SPV User Support:

- a. User support feedback should accommodate differing levels of comfort with IT systems.
- b. User support should be strengthened by de-centralising certain support functions to sub-structure or facility level.

7. Training:

- a. A training plan should be developed for SPV using a train-the-trainer approach and local (sub-structure or facility-level) SPV Champions
- b. A training process should be articulated for new users. This should detail the process for requesting training, identify who will provide the training, etc.
- c. Training materials that cater to different user training needs should be developed e.g. in-person workshops, training videos, how to buttons on the application, etc.
- d. Training materials must be updated at regular intervals to reflect the ongoing changes made to the platform.

8. Use Cases:

- a. Use cases should be identified for each report and should be aligned with the user's M&E and workflow process to give clarity to users and strengthen use.

MANAGEMENT OF LOSS TO FOLLOW-UP

Among the tools developed by the PHDC and prioritised for scale-up are the TB Treatment Action List and ART Action List. These lists address the identification and management of patients who are lost to follow up. Loss to Follow Up (LTFU) is not unique to TB and HIV services. However, identification and management of LTFU for HIV and TB is more structured than for other services due to investment in TB and HIV data.

Aim

We aimed to describe LTFU processes at primary health care facilities using TB, HIV, and Immunisations as tracer conditions.

Methods

We visited primary health care facilities to understand their LTFU processes. We developed process maps which detail a generic LTFU process for each condition at primary health care facilities. We also described the CHW Referral process which is key to tracing patients in communities.

Findings

The findings are presented below for each of the tracer conditions. A process map is presented first followed by a description of the process.

1. TB LTFU Process

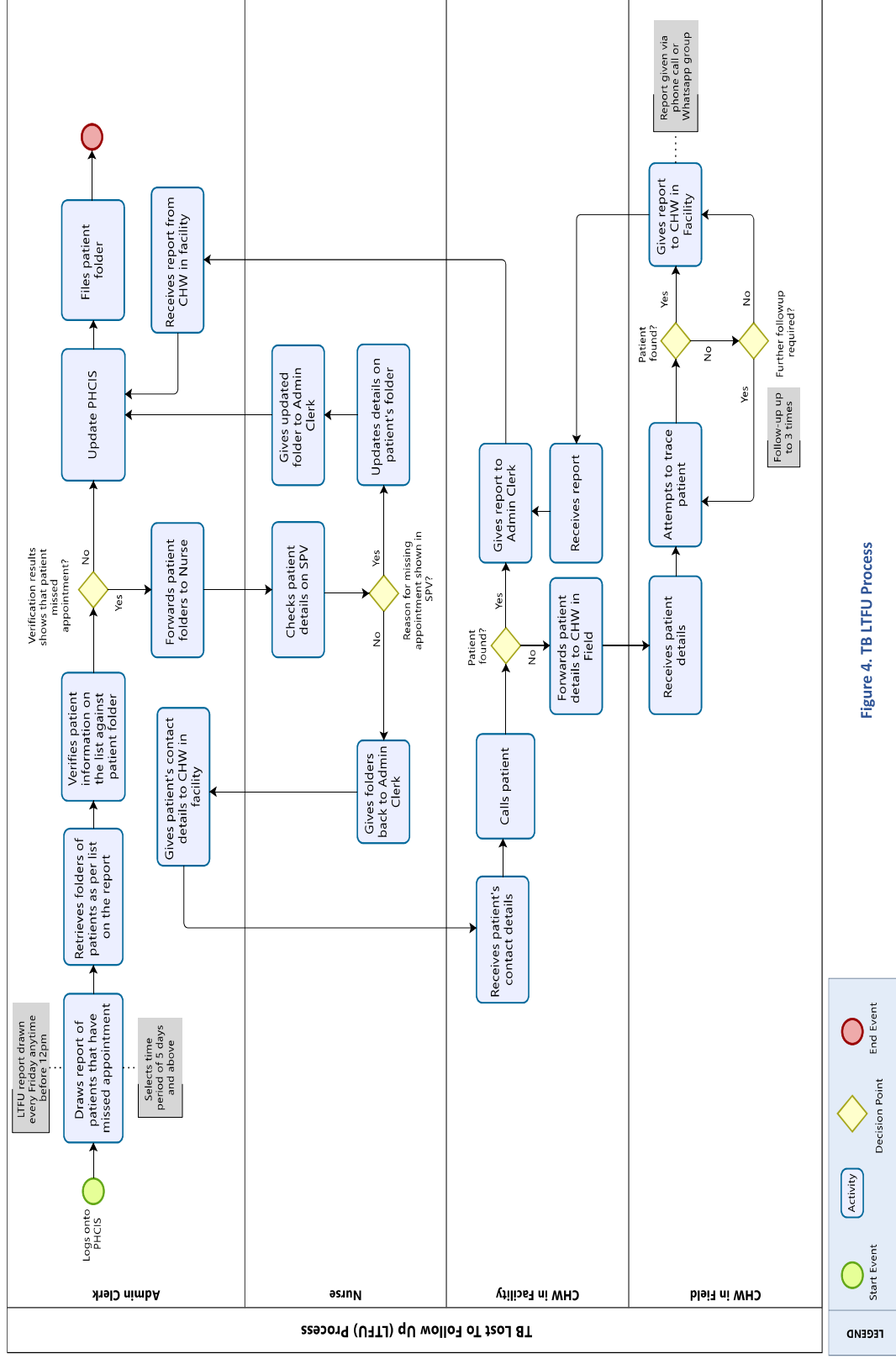


Figure 4. TB LTFU Process

TB LTFU Process Narrative

- Every Friday, the admin clerk logs onto PHCIS and generates a report of all the patients that have missed their appointment date at least 5 days ago
 - The admin clerk will then draw all the folders of these patients and together with the nurse, verify whether the patient has truly missed their appointment
 - If the patient is on the list due to a delay in capturing, the admin clerk will update the capturing on PHCIS and later files the patient folder
 - If the patient has truly missed the appointment, the admin clerk will first give the patient folder to the nurse who checks SPV
 - If SPV shows any reason for the missed appointment (e.g. hospital admission or silent transfer) the nurse documents this on the patient folder and gives feedback to the admin clerk
 - The admin clerk will then update PHCIS and later files the patient folder
 - Upon receiving feedback from the nurse, the admin clerk gives the contact details of the patients to the CHW within the facility
- The CHW then calls the patients as per the list
 - If the patient is found, the CHW will give feedback to the admin clerk
 - If no further follow-up is required (e.g. patient relocated) the admin clerk will update the patient's folder with this information and thereafter update PHCIS
 - **Note:** After 2 months, these patients are discharged as LTFU
 - If the patient has not come but further follow up is required, the patient will remain on the LTFU list
- If the CHW in the facility has tried to reach the patient with no success, this CHW will forward the patient details to the CHW in the field who will then attempt to trace the patient
 - The CHW in the field will provide feedback to the CHW in the facility either via phone call or WhatsApp Group
 - If the patient is not found but further follow-up is required, the CHW will keep following up that patient
 - **Note:** After 3 follow-up attempts, the CHW no longer follows up on the patient
 - The CHW within the facility will then inform the admin clerk of the follow-up outcome

2. HIV LTFU Process

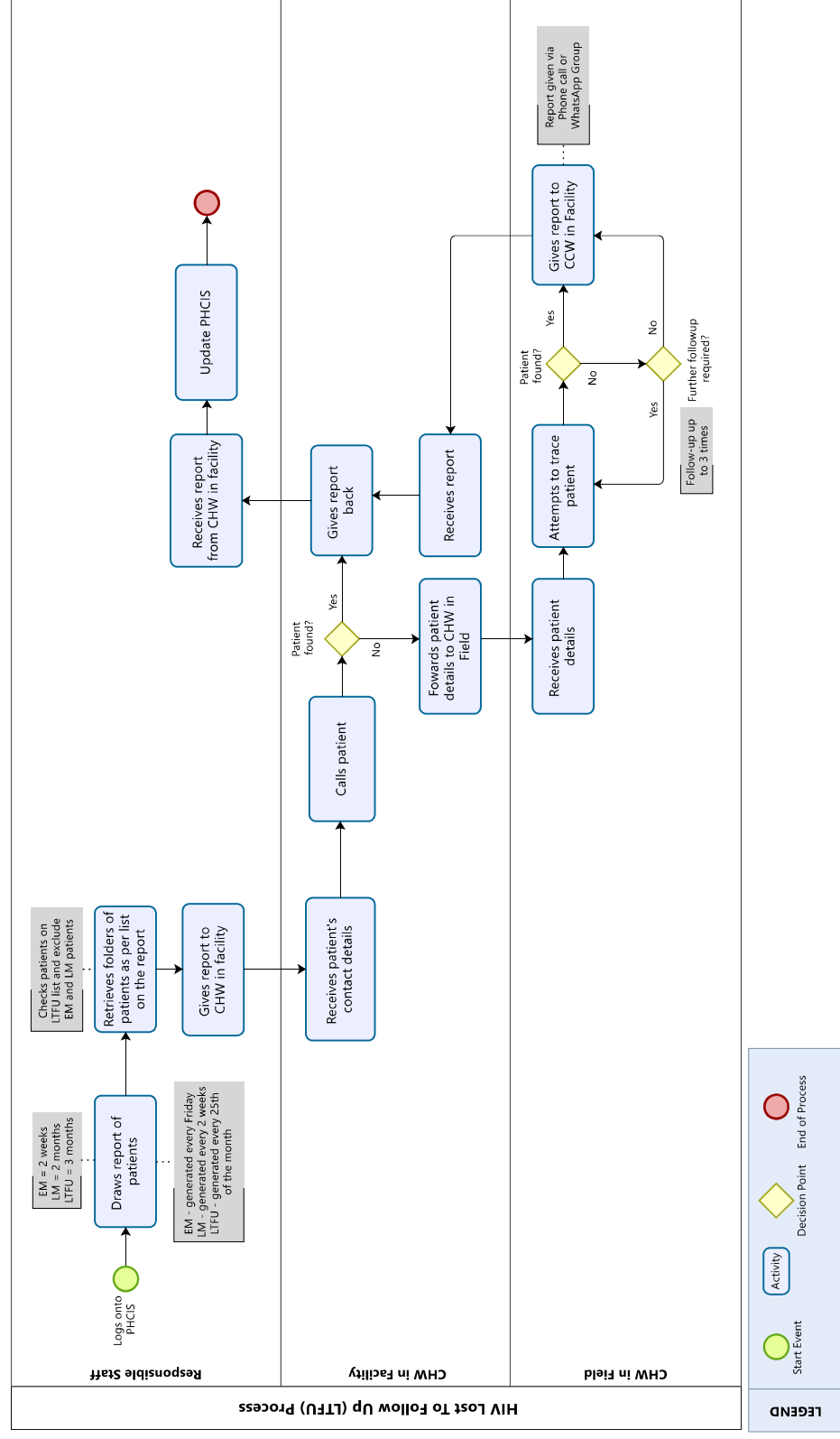


Figure 5. HIV LTFU Process

HIV LTFU Process Narrative

For HIV, there is an early missed appointment, late missed appointment and an LTFU list. Facility staff and NPO partner staff are allocated responsibility for each list- this varies by facility. The responsible staff member logs onto PHCIS and generates the reports of the early missed (2 weeks after the appointment date), late missed (2 months after the appointment date) and LTFU (3 months after the appointment date). The early missed appointment list is generated every Friday, the late missed appointment list is generated every 2 weeks and the LTFU list is generated on the 25th of each month.

- The responsible staff member draws the folders of each of the patients on the list and verifies that they have truly missed their appointment
- If the patient has truly missed the appointment, the responsible staff member hands the list to the CHW within the facility
- The CHW in the facility then calls the patients on the list
 - o If the patient is found, the CHW will provide feedback
 - o If the CHW in the facility has tried to reach the patient with no success, this CHW will forward the patient details to the CHW in the field who will then attempt to trace the patient and will provide feedback to the CHW in the facility either via phone call or WhatsApp Group
 - o If the patient is not found but further follow up is required, the patient will remain on the early or late missed appointment list
 - o **Note:** After 3 follow-up attempts, no further follow up is done on the patient
 - o The CHW within the facility will then inform the responsible staff of the follow-up outcome

3. Immunisation LTFU Process

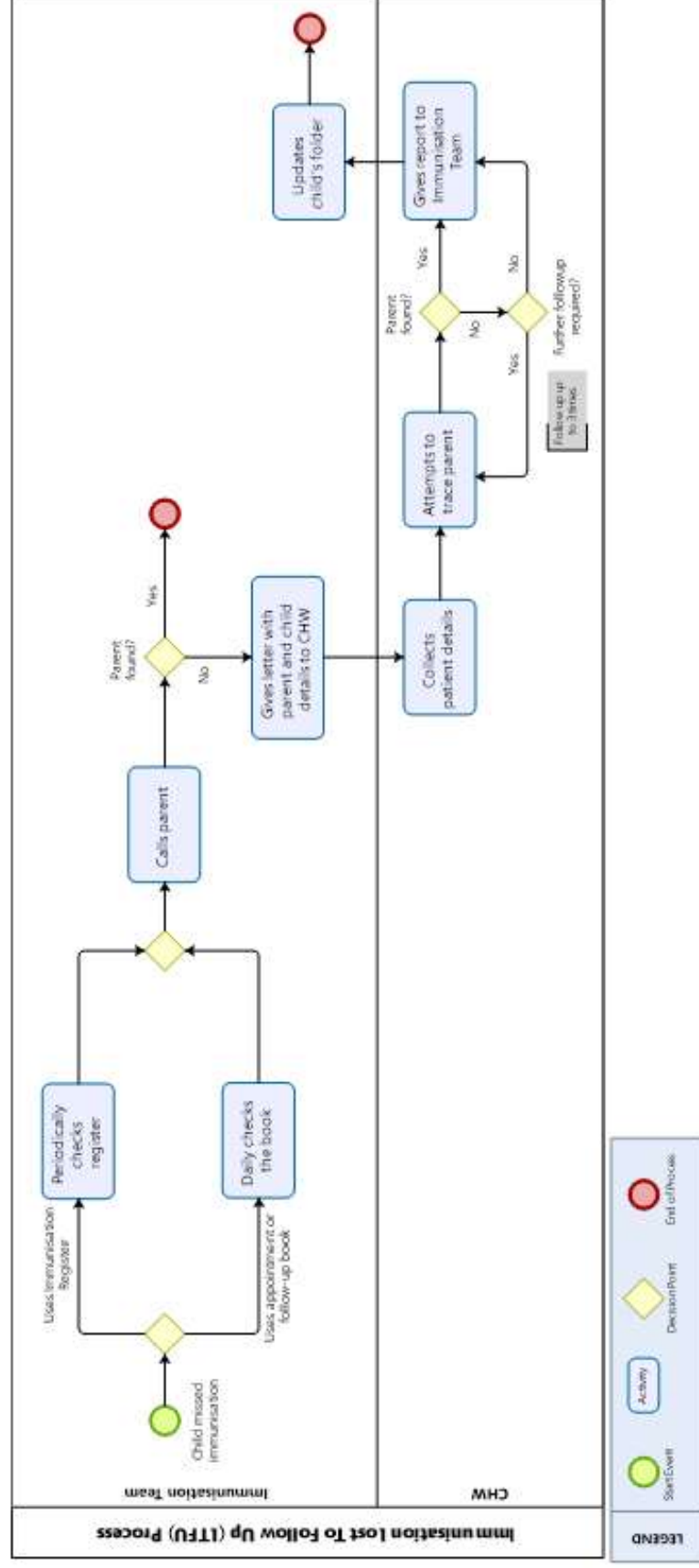


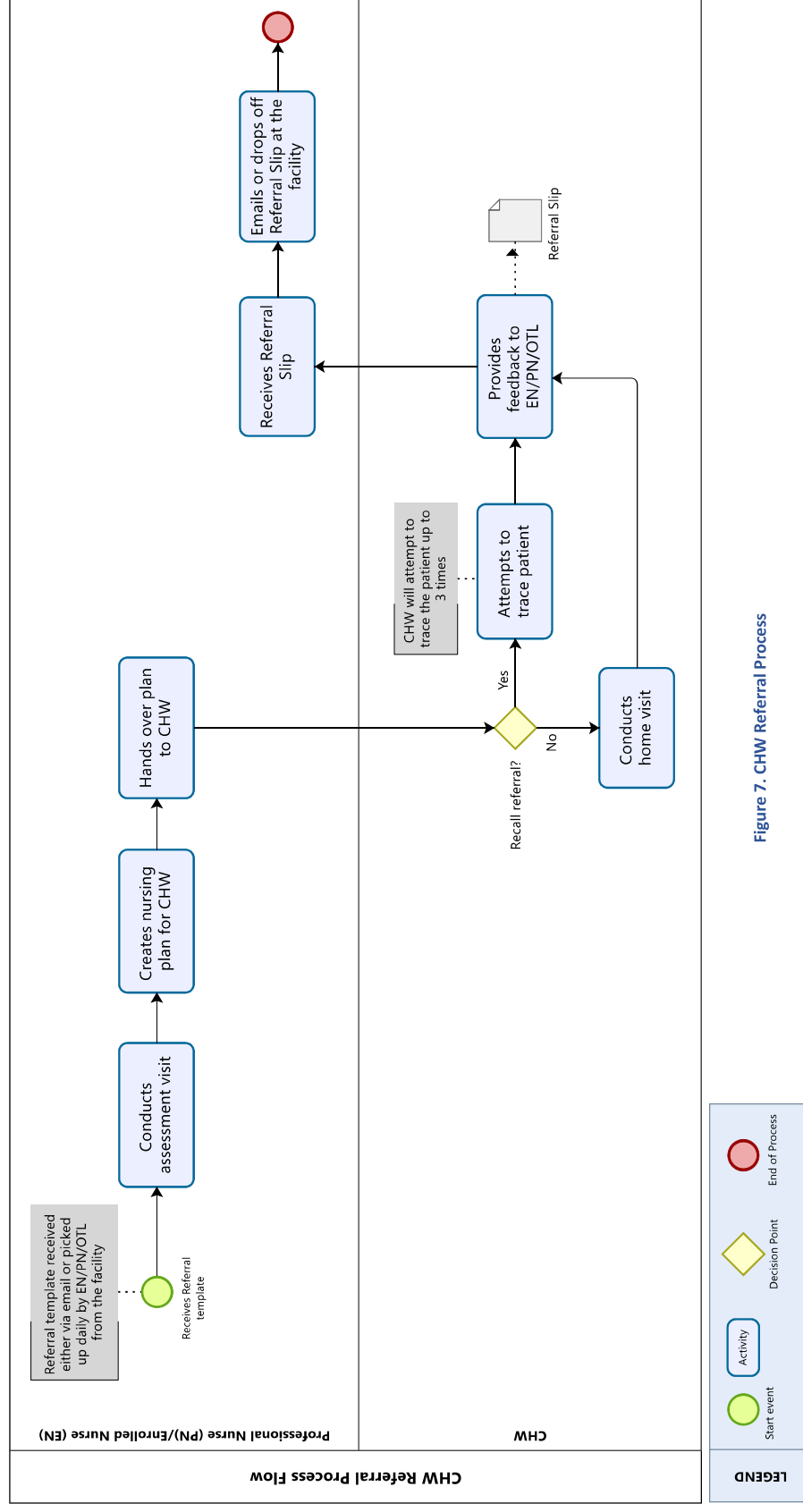
Figure 6. Immunisation LTFU Process

Immunisation LTFU Process Narrative

The Immunisation LTFU process differs from facility to facility. All facilities utilise an Immunisation Register on which they record details of patients that have been immunised. In some facilities, staff use the register to periodically identify children that are due for immunisation. In other facilities, staff utilise other means of identifying children that are due for immunisation e.g. a book in which future appointments are recorded. The process is described below.

- Identifying patients that are due for immunisation:
 - o In facilities that are only using the Immunisation Register, staff periodically check the register to identify patients that are due for immunisation
 - o In facilities that use alternate means e.g. an appointment or follow-up book, staff check the book daily to identify patients that have missed their appointment
- Tracing patients that are due for immunisation:
 - o Staff call the parent and inform them of the missed appointment
 - o If the parent is not reached, the staff will then refer to a CHW using a Recall slip (CHWs collect the slips daily)
 - o The CHW attempts to trace the parent
 - o If the parent is not found the CCW will keep following up the parent
 - o **Note:** After 3 follow-up attempts, no further follow up is done

4. CHW Referral Process



CHW Referral Process Narrative

- The facility refers to CHWs using a referral template – either sent via email or picked up daily from the facility by the Professional Nurse/Enrolled Nurse or Outreach Team Leader (OTL)
- The PN/EN/OTL conduct an assessment visit and create a nursing plan for the CHW to follow
- **Note:** For recalls, the CHW will try 3 times to reach the patient
- After the recall or home visit, the CHW will provide written feedback on the referral slip
- The PN/EN/OTL will then email or drop off this feedback at the facility
 - Feedback is also provided at the weekly MDT (multi-disciplinary team) meetings at the PHC facilities

Challenges to LTFU

- Staff must draw the patients' folders to confirm that the patients are LTFU. This can be a time-consuming process.
- "Silent transfers" (i.e. patients who have visited a different facility for care without following a transfer out process) and hospitalised patients are included in the currently utilised LTFU lists (Tier and PHCIS) and add unnecessarily to the LTFU burden.
- For TB, in addition to lists drawn from PHCIS there are lists from the NICD/NHLS sent out by sub-structure coordinators. These lists include patients with positive Xpert results including hospital diagnosed patients.
- For Immunisations in particular, the process is manual (paper-based) and tedious.
- CHW referral is inefficient due to manual processes for referral and feedback.
- Tracing patients is a challenge due to incorrect/outdated contact numbers and addresses.
- Reliance on NPO support in some facilities

Recommendations

1. Improve the management of LTFU by making use of PHDC action lists which integrate data sources to provide a more accurate LTFU list
2. Consolidate the different lists (e.g. NICD/NHLS, PHCIS, PHDC) to minimise duplication and provide a single actionable list for facilities.
3. Encourage the use of SPV for follow-up of patients via text message or phone call.
4. Promote regular update of patient contact information at facility-level.
5. Encourage patients to take ownership of their treatment journey. Advise patients to provide their preferred contact number and inform them that communication with regards to their treatment will be sent to that number.

6. Adoption of SMS notifications informing or reminding patients of their appointment date.
7. Implement electronic referral to CHWs to trace patients and provide feedback.
8. Improve the utilisation of PHCIS to generate missed appointment lists for immunisation visits and develop an integrated view of immunisations across the public sector facilities to identify immunisation visits at other facilities

Linkage between Facilities

Linkage between facilities is a concern related to Loss to Follow Up. This was a concern articulated particularly for patients diagnosed with TB at hospitals and requiring linkage with a PHC facility for continuity of care. However, the problem of linkage between facilities is not isolated to patients diagnosed with TB and is multi-directional.

We aimed to describe current efforts at linkage between facilities using TB as a tracer condition. We included linkage between facilities as a discussion point in our engagement with PHC facilities and acute hospitals.

The following are key points were identified:

- The hospital discharge process is often reliant on junior doctors (e.g. interns) who frequently rotate between departments and facilities
- At hospital level, there is a poor understanding of the sub-structure coordinators and links which if used effectively could support linkage between facilities
- TB Linkage nurses have been employed by TB/HIV Care to fulfil the linkage role. The extent of successful integration with sub-structure teams and processes is not known.
- At primary health care level, there is no structured method to identify patients who have been referred to the facility for follow-up from the hospital. The process relies on the patient attending the facility and therefore patients who do not attend cannot be traced.
- In some cases, hospital staff contact the primary health care facility telephonically to inform the facility about patient's that have been referred or to enquire about a particular patient. This process is largely unstructured, and the feedback attempts are not routinely documented.

Recommendations

1. There should be an automated referral process on discharge. Existing systems such as eCCR could be utilised. This would require widespread adoption of eCCR as a mandatory component of the discharge process. It would allow primary health care facilities to view a list of patients referred to their facility.

2. The referral process should also allow for feedback to referring facilities for continuity of care and improved communication between facilities.

DATA ROLES AND RESPONSIBILITIES

Clarity around roles and responsibilities pertaining to data has been highlighted as a key concern impacting data access and use. We analysed the key informant discussions to identify discussion points relating to data roles and responsibilities. The following themes were identified.

Findings

1. Whose responsibility is data?

In theory, the idea that data is everyone's responsibility appears to be widely held. However, in practice the lines of responsibility need to be clearly defined. It is important to define individual roles and responsibilities in relation to data to promote accountability.

2. Route to access data/information

Most clinicians and managers that we engaged with did not access information systems themselves and relied on Information Management staff in their teams to provide them with data. The reasons for not directly accessing the source systems included passwords continually expiring, not being comfortable with the information systems and not fully understanding the data flow.

The advantage of this data access route is that there is a gatekeeper to prevent data being drawn incorrectly or misinterpreted. Additionally, the training requirement is reduced. However, the disadvantages of this access route for data are that there may be a delay in accessing data, other Information Management priorities may be sidelined and there may be missed opportunities to upskill staff.

3. Data Related Key Performance Indicators and metrics

Most roles include some data-related activities. These may include data capture (on paper or electronic systems), data manipulation, data analysis or data interpretation. It is unclear, particularly, for clinical roles whether these data-related activities routinely feature among the individual's Key Performance Indicators (KPIs).

Where data-related activities are included in KPIs, there is insufficient guidance in terms of how to develop and/or access metrics that align to these KPIs. For example, if accurate data

capture is an indicator of performance for a particular role, the performance review should be supported by metrics which relate to data capturing.

4. Alignment of Data Skills with Roles

The data skills that are required for each role should be identified in order to formulate appropriate individual skills development plans. These skills may include data capture, analysis, interpretation etc. It is important to align training plans with an individual's role, KPIs and metrics that will be used to monitor progress over time.

Recommendations

1. Roles and responsibilities in relation to data should be clearly defined to promote accountability
2. Access to routine data should be facilitated using dashboards that are easily accessible and user-friendly. This will reduce the reliance on Information Management staff for routine data requests and will promote the use of data by clinicians and managers
3. The data skills required for each role should be identified and linked to the individual's skills development plans.
4. Guidance should be provided to staff and line managers in terms of accessing and/or developing metrics for monitoring data-related KPIs.

IT INFRASTRUCTURE

IT infrastructure has been identified as one of the barriers to data access and use. According to an analysis undertaken for the Tech Refresh project in the province, devices in the metro were categorised in to 3 priority groups:

Priority 1: Older than 5 years, end of life and poses high operational risk: 172 devices

Priority 2: Older than 5 years but not end of life: 44 devices

Priority 3: Capacity Expansion: 7 devices

There are three connectivity projects currently underway in the province. Two of these (the Broadband Connectivity Project and the Public Wifi Hotspot project) are managed by the Department of the Premier. The third, (the Internal Wifi Project) is managed by the Department of Health.

The Broadband Connectivity Project includes upgrading broadband speeds to 10Mbps or higher at public sites e.g. schools, libraries and health facilities. In the province, a total of 1339 sites were upgraded by 31 March 2021. Of 79 metro sites, 40 were at 1 Gbps, 34 at 100 Mbps and 5 at 10Mbps speeds as at 31 March 2021. Additional sites have been identified for upgrade in the 2022 calendar.

The Public Wifi Hotspot project aims to expand the number of limited free Public Wifi hotspots at 1600 government buildings by 01 October 2021. 248 health sites have been nominated in the province and 116 (47%) are already live. Of the 79 metro sites, public wifi is installed at 56 sites currently.

The Scaling Data Use grant incorporates an IT audit which will be conducted in order to identify and address the IT gaps at a local level

The main IT challenges that we identified are highlighted below.

1. **Connectivity**

- Unstable network connection
- Limited access to wifi in clinical areas
- Unstable wifi connection
- Insufficient network points

2. **Hardware**

- Outdated hardware
- Hardware not working
- No backups to replace faulty hardware

3. **Support**

- Poor turnaround times for hardware concerns
- Insufficient IT support to manage the information systems

QUALITY IMPROVEMENT

Introduction

Quality Improvement is a key component of the Scaling Data Use grant. The Quality Improvement approach is viewed as a lever to improve data utilisation and drive continuous improvement. Therefore, one of the objectives of the grant is to entrench data- driven, continuous quality improvement (QI) methods to improve health outcomes at facility, sub-district, district, and provincial levels.

Aim

The situational analysis aimed to describe the QI landscape in the MHS in terms of:

- Current initiatives
- Methodology/approach employed
- Meeting and governance structures
- Training

We took a broad approach to Quality Improvement and included both clinical and operational QI perspectives in our situational analysis.

Methods

We collected data using the following methods:

Key Informant Interviews

We included Quality Improvement as a component of the discussion in our situational analysis meetings and facility visits. However, we were unable to discuss QI in some of these sessions due to time constraints.

Online Survey

We developed an online survey using Google Forms. (Annexure) The survey link was sent out via the MHS Chief Directors office to each of the sub-structure directors and to primary health care facility and hospital managers. We requested each facility to provide a single response to the survey – reflecting the facility perspective rather than an individual one. Respondents were allowed a 2-week period to submit their responses and 2 reminder emails were sent during this period. We also distributed the link via a meeting of QA managers in the Metro Health Services. We received responses from 20 facilities (6 PHCs, 13 Acute Hospitals and MHS CD Office)

Findings

The findings are categorized into the following 4 components reflecting the key points emerging from the discussions and the survey:

- Perspectives on Quality improvement
- QI structures
- QI Training
- Challenges with QI implementation

1. Perspectives on Quality improvement

Quality improvement is viewed as a continuous process to monitor progress and improve service delivery and health outcomes. It is about identifying gaps and or areas of non-compliance and developing response strategies. The key components of quality improvement are articulated as: the continuous identification of service gaps, development of a QI plan, implementation of activity plans and measuring progress against standards or indicators to track improvement.

While there appears to be a clear distinction between Quality Assurance and Quality Improvement, there is an appreciation for the link between the two concepts. The link appears to be stronger in relation to operational quality improvement (often tied to the Ideal Facility audit process) than with clinical quality improvement. Clinical audits and subsequent clinical Quality Improvement activities fall under the responsibility of Comprehensive Health while the Ideal Facility audits and QI plans are driven by Quality Assurance. In some cases, there does appear to be collaboration between these groups.

a. QI Activities

The general perception across the MHS District is that the Ideal Clinic or Ideal hospital compliance is the main key QI activity that facilities are engaged in with specific workplans in place. The Ideal Clinic assessments have a QA focus and leads to the development of a QI plan. This process was commonly identified as a ready example of Quality Improvement activities at the facility-level. We acknowledge that some of the survey responses may have been led by QA managers, biasing the responses to a QA perspective. However, other QI activities/ initiatives cited by respondents were:

- Client/Patient satisfaction survey
- Complaints and compliments
- The **Office of Health Standards Compliance (OHSC)** annual frameworks and audit tools

- Bi-annual staff satisfaction survey - identify what is contributing to employee stress and burnout and find ways to address the challenges.
- **Patient waiting times** – assessment of patient waiting time and doctor consultation time in a primary healthcare clinic and to formulate strategies for improvement.
- **Equipment improvement**- address multiple risks related to the management of equipment life cycles, procurement, storage, maintenance, and availability of clinical equipment.
- **Reduction of Falls**

These initiatives/ projects were driven by a range of staff including facility managers, QA managers, clinicians, directors and hospital CEOs.

b. QI Methodologies



In some instances, respondents indicated that no specific QI methodology was employed for Quality Improvement initiatives. Others reported that they were unaware of QI methodologies, and a few reported using improvement cycles, PDSA (Plan Do Study Act) cycles, process mapping, performance benchmarking and six sigma. Others included surveys and audits among the list of methodologies employed for QI.

2. QI Structures

a. Meetings

It was reported that there are various QI meetings or spaces where engagement on quality improvement transpires either at team level, facility level and or organizational level. Such meetings include:

- Facility quality assurance (QA) meeting with the purpose of analysing data trends, improvement as well as collaboration with different stakeholders in developing

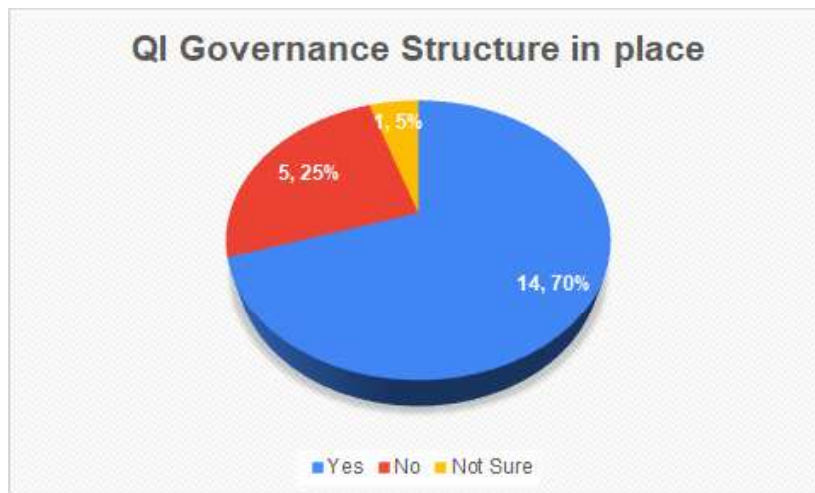
strategies to achieve organisational goals. This meeting is usually attended by Quality Assurance Managers.

- Sub structure Quality Assurance meetings attended by CEOs, Facility Managers, and Quality Assurance Managers, QA champions and sub structure service support representatives monthly.
- Quarterly Provincial QA meetings attended by the Provincial QA managers to facilitate coordination of quality assurance activities at provincial level.
- Quality Assurance Forum is coordinated by the sub- district QA coordinator and held quarterly at sub-district level. This meeting is attended by PHC Facility Managers to discuss QI Ideal Clinic status, audits and QI plans and QA elements (complaints, compliments, suggestions, surveys) .
- Occupational Health Services (OHS) meeting for OHS representatives, clinicians, facility managers, Family Physician and Head of departments to identify OHS related challenges and addressing of concerns.
- Weekly clinical governance meeting attended by clinical staff, allied staff, HODs (Heads of Departments), family physicians, admin officers, pharmacists, operational managers to discuss clinical outcome measurements.
- Monthly Pharmacy Therapeutic Committee (PTC) meeting attended by pharmacists to discuss QI initiatives.
- Other meetings alluded to where performance issues are discussed include Budget monitoring instrument (BMI) to discuss budget, TB/HIV 90-90-90 targets, strategic review, Integrated Management Labour Committee (IMLC), data sign off, Morbidity and mortality(M&M).

It is important to note that involvement in QI meetings/initiatives does not only include QA managers but also depends on the various task team/committee composition for specific issues that needs to be addressed at a particular time.

b. QI Governance Structure

Mixed responses were received when it came to the presence of QI governance structures within facilities and or at sub structure level.



Of the 20 facilities that responded to the survey, the majority 14 (70%) indicated that they did have QI governance structures in place while five (25%) did not and one (5%) was unsure. From the 14 respondents who indicated that they have governance structures in place, 6 were PHCs, 7 were acute hospitals and 1 response was from the MHS Chief Directorate's office. All "no" (5) responses were from acute or specialised hospitals.

Facilities that indicated that they did have a governance structure in place described this structure as the presence of QI policies and guidelines and having an identified quality assurance (QA) manager at both facility and sub structure levels taking responsibility for all QI activities. Further engagements with the key informants specified that at PHC level, there are QA managers at sub structure level who reports to the Facility manager or the Deputy Director Professional Support Services who then reports to the Executive Committee (EXCO).

At Hospital level, QI governance functioned slightly different from that at PHC level, QA is part of the allied health Directorate within the hospital. The QA manager reports to the Deputy Director of allied health services. However, QA forms part of the EXCO body of the hospital, and this is where quality improvement strategies, compliance audits and reports are presented and approved before disseminating to relevant stakeholders within the hospital. The stakeholders comprise of nursing managers, allied health HOD's and medical consultants and specialists.

3. QI Training



Seven (7) out of 20 survey respondents reported that they have received training on QI methodologies - mostly facilitated by either the provincial or national Department of Health. Other training facilitators included the Office of Health Standards and Compliance (OHSC), Institute for Healthcare Improvement (IHI) and Best Care Always. Quality Improvement training was also listed in workplans of externally funded NPOs. Training had taken place between 2011 and 2021 with the latest training reported in May and June 2021. The length of training varied from 2 to 5-day training sessions.

Quality Improvement training has been undertaken sporadically often with training of select groups and sometimes with a focus on a particular tool or disease area. There is a need to harmonise the training approach and provide opportunities for refresher training.

a. QI Methodologies taught

Survey respondents indicated that the following QI Methodologies were taught at the training sessions attended. While responses such as “PDSA cycles”, “run charts” and “Lean” are expected, it is unclear what is meant by responses such as “sustainability” and “measurements”. From our engagement with stakeholders, it was clear that the IHI model for improvement which makes use of PDSA cycles and tools such as run charts was the most common methodology that staff had been exposed to.

QI Methodology	Frequency of Occurrence
PDSA cycle	3
Ideal Clinic	1
OHSC tool	1
Change Management	1

Run Charts	1
Safety Cross	1
Lean	1
Group	1
Sustainability	1
Measurements	1

4. Challenges with QI implementation

The greatest challenges to initiating and sustaining Quality Improvement initiatives are indicated below:

- **Poorly defined Quality Improvement workplans:**
 - Quality Improvement plans are largely linked to Ideal Facility assessments. However, there does not appear to be a formal workplan or strategy around Quality Improvement projects. Most of the activities being done are erratic, short term and reactive. Quality Improvement training and activities that are done by external partners are narrow in their approach and scope. These activities are viewed as discrete projects rather than sustainable facility-led activities.
- **Unclear roles and responsibilities:**
 - In theory, it is clear that Quality Improvement is a shared responsibility however there is uncertainty around the roles and responsibilities of the different stakeholders.
 - A distinction is made between clinical and operational quality improvement activities. Quality Assurance managers play a key role in driving the Ideal Facility assessments which are viewed as a pre-cursor to the development of facility-level Quality Improvement plans. However, Quality Assurance managers are not usually involved in clinical quality improvement activities. These are viewed as clinical governance activities and are driven by Comprehensive Health managers and clinicians. The result is a siloed approach to quality improvement.
- **Training**
 - There is a need for training of key individuals on Quality Improvement approaches. These staff will need ongoing support to equip them to drive QI activities. Skills such as data interpretation and change management are also needed.

- **COVID-19 Impact**

- The emergence of COVID-19 has been reported to have impacted the implementation of QI initiatives, meetings and platforms for exchange and learning. Most activities have currently been halted and priority is given to the COVID-19 response and vaccination programme.

Recommendations

A Quality Improvement strategy should be articulated for the MHS. This should include:

- Facilitated conversations about how the organisation views Quality Improvement, where QI fits and how it interacts with existing structures
- **Workplans:** Quality Improvement activities must align Quality Assurance, clinical governance, and external partner activities
- **Governance and reporting structures:** These structures need attention to assist employees and all relevant stakeholders to understand their role in relation to Quality Improvement functions and their accountability within the organisational structure with regards to QI
- **Clarity around roles and responsibilities:** Develop job roles/descriptions with clear objectives that are understood and with Key Performance Indicators (KPIs) on how they will be measured. This will also assist with improved process management, enhanced operational performance and overall improvement in patient health outcomes
- **Training:** Identification of key staff to be trained to ensure efficiency and productivity in leading and implementation of successful QI interventions
- **Support:** Appointment of staff with both QI and QA knowledge and skills to undertake the role of clinical and operational QI implementation.
- **Data:** Availability of data that is timely, accurate, and is able measure intended outcomes
- **Updated frameworks and guidelines:** To ensure continued relevance of QI processes and interventions