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VxDel Data Research:
Kenya Initial Insights

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Executive Summary

We are taking a **Human-Centered Design** approach to understand the **challenges with using data for decision-making in immunization programs** in three countries – Kenya, the DRC, and Mozambique.

We believe that by engaging with system actors as **individuals** and examining the program from their unique viewpoints, we will be able to offer **fresh perspectives on decades-old challenges.**

This report is a summary of initial findings from our conversations with nurses, EPI managers, and other decision-makers at all levels of the healthcare system **in Kenya.**

3 Counties / **12** Sub Counties / **13** Facilities / **84** participants

About Our Work

The Vaccine Data Discovery Research project, sponsored by the Bill & Melinda Gates Foundation (BMGF), is a joint effort between Sonder Collective and John Snow Inc. (JSI) and is being conducted in Kenya, the Democratic Republic of Congo, and Mozambique. We are taking a Human-Centered Design approach to uncover and prioritize data specific painpoints and challenges that healthcare workers and managers at all levels within a country encounter in delivering immunization services and monitoring progress.

In January and February of 2020, the team conducted in-depth, qualitative field research in Kenya. Our participants came from all levels of the health system and included decision-makers, data collectors and data users. We focused on three counties — Mombasa, Kiambu and Kakamega — to represent urban, per-urban and rural geographies.

By investigating the experiences, motivations, and painpoints of the individuals that make up the immunization data ecosystem, we gained grounded, specific insights and a better understanding of the root causes behind challenges. Our team conducted contextual interviews with participants in their place of work as well as more broad observations of immunization activities at the health facilities.

Our study was focused around five thematic areas, which have been generated based on secondary research and expert interviews into current knowledge gaps:

- **Day-to-day Experiences**
  Capture a wider backdrop against which the immunization work is happening. We aim to understand the daily activities, priorities, needs, obstacles and challenges of various players within the system..

- **Decision-making**
  Gain a better understanding of the decisions (both extrinsic and intrinsic) that are currently being made at all levels of the system. In addition to exploring what factors influence decision-making, our focus will be on understanding what information (both reported data as well as other, less formal information sources) is currently being used to make immunization decisions, what information might be currently inaccessible, not available at the right time, or missing entirely, and what information is currently being collected but not being used.

- **Motivation**
  Aim to better understand intrinsic and extrinsic drivers of behavior including financial and non-financial incentives that motivate health workers positively or negatively, barriers to following data-related protocols, desire and practice related to adaptation and problem solving, and other areas of behavior inherent in managing, reporting and using data for immunization programmes.

- **Data Culture and Value**
  Gain a greater understanding of participants' perceptions and attitudes towards data collection and use. In particular, we will explore how good quality data is defined and how much value is being placed on collecting and using good data for decision making. We also hope to gauge the confidence levels in the data for the various system actors and the various factors that influence how data is perceived.

- **Moments of Exchange**
  Capture the key interaction points across the different levels of the immunization system to better understand how actors at various levels are interacting with each other, what information (immunization data, feedback, requests etc) is being exchanged and under what circumstances. Additionally, we hope to explore how these interactions positively and negatively impact data collection and use at the various levels.

About This Report

This report is a documentation of the Initial Findings from the Kenya fieldwork. The emphasis of this report is to present the full breadth of the data collected during the research, rather than to focus on specific takeaways, in an effort to solicit feedback from key stakeholders on what information is of most interests. This will help inform subsequent drafts of the report, ensuring that it is as relevant to the Immunization Data community as possible. In addition to the Study Background, the report consists of three main sections, described on this page. The following pages are a summary of our key findings.

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Key Takeaways

A discussion of key findings and insights uncovered during this study, focusing specifically on three thematic areas: Health System, Tools and Protocols, and Actors.

4

System Overview

A detailed study of the Kenyan Immunization Program, organized around the different levels of the healthcare system – Community, Facility, Sub County, County, Regional, and National. This section profiles the key system actors, focusing specifically on their interactions, decisions, information and tools they used, as well as their biggest challenges.

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Workstream Journeys

A more in-depth look at seven core workstreams which make up the Immunization Program: Data Collection & Management, Immunization Program Performance Monitoring, Annual Target Setting & Forecasting, Stock Management, Outreach, Resource Allocation, Staff Engagement.

1 Executive Summary

Summary of Findings: Key Insights

Health system prioritizes client care, not data collection and use

The health sector has not yet made sufficient adjustments to staffing, training, and feedback mechanisms to support a healthy data culture. Under constant pressure and harsh constraints, delivering on core system needs is prioritized over data.

INSIGHTS

- Health workers motivated by helping others and tended to prioritize good service over good data.
- Most healthcare workers understood the importance of using data to guide decisions but struggled under the weight of their responsibilities. Delivering required data to Sub County was prioritized over using it to inform work.
- Key decision-makers at all levels tended to spend the majority of their time in meetings, they consumed data primarily through informal conversations and during meeting presentations.

- The County HIRO doesn't have enough time to review most of the data coming in. They tend to prioritize highly visible data–either associated with high-priority programs or directly tied to funding.
- While there was an appetite to use more data, most decision-makers don't have the required skills to access data directly. Most rely on the HIRO instead.
- Facility-level participants tended to view their relationship with data as very one sided. Data goes up, not much feeedback comes back down.

Protocols and tools are rigid and don't work well under pressure

Formal tools and protocols often fall short, especially when shortages of time, staff, and resources add additional pressure on the system. Healthcare workers tend to rely more on informal workarounds and quick judgments based on personal experience.

INSIGHTS

- Participants fluctuated between conducting unrealistic planning activities and making quick judgment calls in response to urgent needs.
- Current tools don't support decision-making at the facility level, causing some to create informal tools and workarounds .
- WhatsApp is a dominant communication channel, enabling communicate outside of the formal reporting structures.

- Trust in digital tools is low. Concern over losing access to data leads to duplicative efforts.
- Ability to compare performance against peers was valued more than reviewing targets
- Supervision visits enforce protocol and discourages individualism

Actors feel they have little agency or control over their work or decisions

Managers and health workers don't have a sense of control or agency over their work. Decisions feel inconsequential, not within their mandate, and disconnected from their responsibilities.

INSIGHTS

- Decision-making tended to be seen as a collective rather than an individual action, especially when the decision had broad impact.
- Despite routinely making decisions, many participants did not consider themselves to be decision-makers.
- National level sets the agenda but has no control over how it gets implemented.
- Most challenges result from decisions made by elected officials, rather than technical people.
- Discouraged by lack of basic resources, health workers prioritize well funded activities they have control over.

- Evaluated against unrealistic targets was a source of great frustration.
- Health workers felt most understood by peers, which motivated them to go the extra mile.
- Records Officers have outsize impact on data culture, but it's often hampered by airtime and transport cost.
- Home responsibilities may put women at a disadvantage, making overcoming system challenges more difficult.
- Getting respect from subordinates can be a challenging for younger staff.

1 Executive Summary

Summary of Findings: System Overview

This section examines each system level, identifying the various tools used and mapping actors and their interactions. For each key actor, a detailed profile highlights unique challenges, decisions, information used, as well as interactions with other actors.

National

The National level drives planning activities such as setting annual targets. They also take on a monitoring role, reviewing Sub County data for trends and performance, and are in charge of the vaccine supply chain (though all other commodities and expenses are handled by the County). Lastly, they work with Partners to secure funds and supplies.

Actors: National Manager for EPI, National Logistics Manager, National M&E, National Depot Manager

Tools: Aggregate & Report, Analyze, Act On

Regional

Regional activities are focused exclusively on managing the vaccine supply chain. The Regional Depot manages the storage and distribution of vaccines directly to the Sub County stores.

Actors: Regional Depot Manager

Tools: Generate, Analyze, Act On

County

County level supervises the proper capture and input of data into DHIS-2 at the Sub County level makes strategic decisions about the EPI program. Most funding decisions also happen at this level, but are mostly out of control of the technical immunization staff.

Actors: County Disease Surveillance Mgr, County EPI Mgr, County HRIO

Tools: Aggregate & Report, Manage, Analyze, Act On

Sub County

The Sub County has a very central role in the immunization program. All the Facility level data is digitized here. Easy and frequent access to the Facility In Charges makes the Sub County perfectly positioned to champion good data culture and course correct any undesirable practices. Additionally, this level also plays a key role in operationalizing the EPI policies put forth at the National and County levels.

Actors: Sub County MoH, Sub County Disease Surveillance Mgr, Sub County EPI Mgr, Sub County HRIO

Tools: Aggregate & Report, Manage, Analyze, Act On

Facility

The primary goal at the Facility level is to provide timely and quality immunization services to all clients that come on any particular day. Recording immunization data and reporting it to the Sub County also happens at this level, but it is considered a core function only as long as it can be tied back to the services the facility provides (ex. helping keep the vaccines in stock, ensuring all kids get vaccinated).

Actors: Facility In Charge, Immunization Nurse

Tools: Generate, Aggregate & Report, Act On

Community

At the Community level, the primary focus is on engaging community members, collecting relevant data to help the Facilities understand their catchment area better, as well as coordinating with the Facilities to implement outreach activities.

Actors: Field CHEW

Tools: Generate, Aggregate & Report, Analyze, Act On

Summary of Findings: Workstreams

This section outlines seven EPI workstreams, highlighting challenges, activities, key actors, decisions, tools, and information used in each. The figure below maps key activities to the system level and the workstream they are associated with.

WORKSTREAMS

A **Data Collection & Management**

This area covers collecting and managing data at all levels of the system, from daily recording of immunization numbers at the Facility level, entering data into DHIS-2 at the Sub County, to accessing the system at the National level.

B **EPI Performance Monitoring**

This workflow focuses on activities around monitoring the performance of the immunization program and the staff that works within it.

C **Target Setting & Forecasting**

This area's focuses on the target setting and forecasting activities that are conducted at the various levels of the system on an annual basis.

D **Stock Management**

This area focuses on the many activities related to managing the vaccine stock and cold chain. They range from recording, ordering and issuing stock, transporting stock from national through the various levels to the facility, as well as safely storing it.

E **Outreach**

Outreach activities are a mandated activity that is supposed to happen twice a month per facility. Outreach refers to the bringing of health services to the community, where they live, including immunization services.

F **Resource Allocation**

Resources for the immunization program such as funding and are allocated throughout the system by various users through a series of planning and budgeting activities.

G **Staff Engagement**

Users are engaged throughout the immunization program via differing activities and modes of communication including mentorship, training and learning modules either in person or via technology (phone and online).

KEY

- 🟠 Community level activities
- 🔵 County level activities
- 🟣 Regional level activities
- 🔴 Partner activities
- 🟡 Facility level activities
- 🟢 Sub County level activities
- 🟡(pink) National level activities
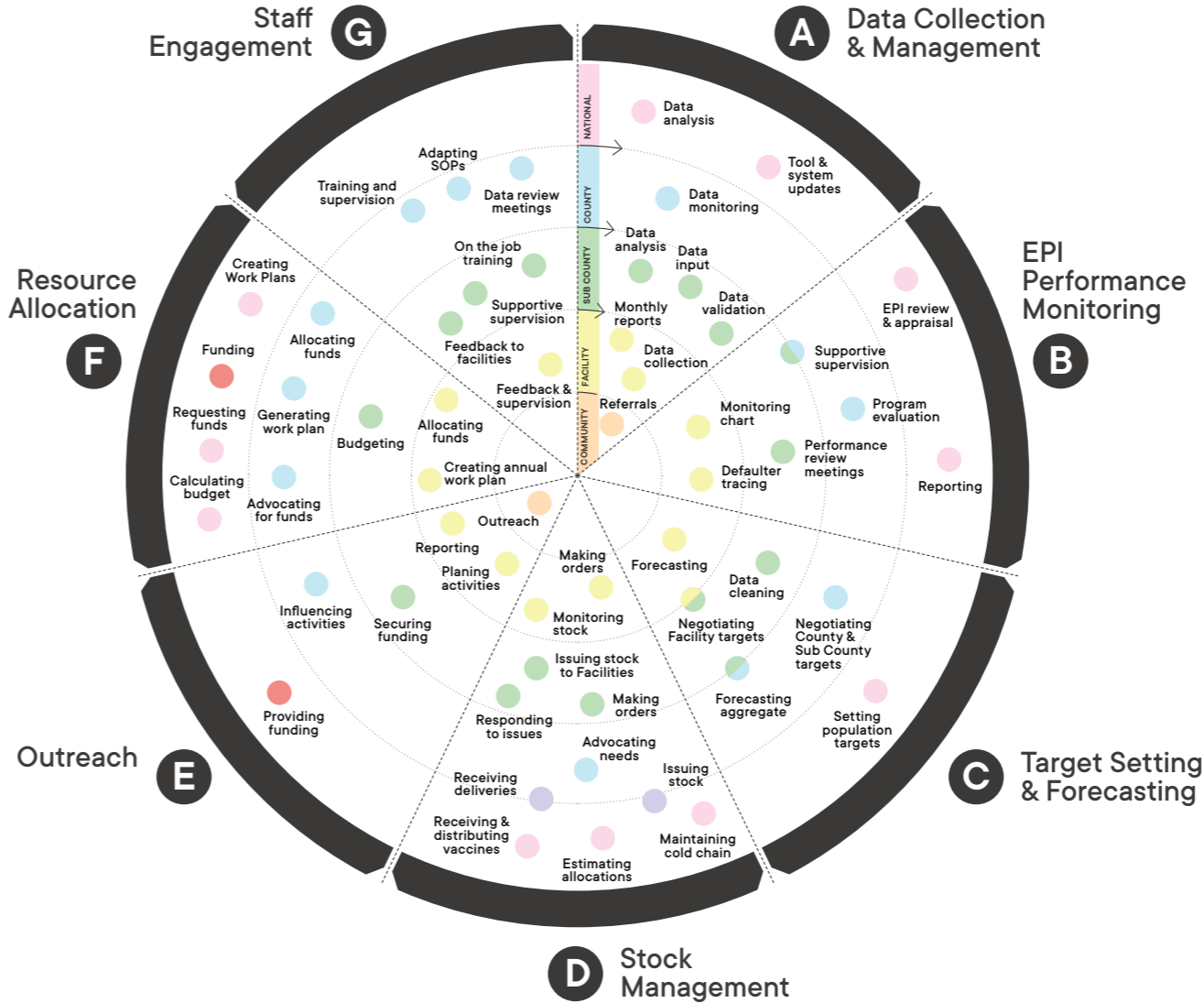
Summary of Findings: Challenges

A — Data Collection & Management

- Lack of reporting tools is demotivating and causes under-reporting
- Tools are rigid, require full attention to use, and fall apart under pressure
- Lack of training on data
- Shortage of staff & time
- Digital systems are not reliable, causing delays and duplicative work
- Lack of airtime and transport for follow-up with Facilities
- Inconsistencies between paper forms and DHIS-2 waste time and introduce inaccuracies
- Unreliable data sets (ex. stock data) are not used but still collected
- Few 'data-minded' people at all levels

B — EPI Performance Monitoring

- Population data is inaccurate, making coverage rates unreliable
- Lack of current targets or unreachable targets
- Not enough time to review and analyze data
- Time-consuming reporting process
- Lack of knowledge on how to access and interpret data
- Fragmented communication and feedback loops between system levels
- Too much partner influence on program decisions

C — Target Setting & Forecasting

- Population data is inaccurate, making targets not very useful for performance evaluation and forecasting
- Data cleaning is time consuming
- Workplans and forecasts rarely reflect the available resources, so planning feels like it's just a formality
- National stockouts frustrate efforts to reach targets
- Lack of funding for planning activities causes delays or excludes those unable to attend

D — Stock Management

- National vaccine stock doesn't meet country needs, causing stockouts and forcing managers to make hard choices on how to allocate what is available
- The stock data in CHANJO is not always up-to-date or accurate, which complicates decisions around stock distribution
- Adoption of digital stock systems is poor, causing parallel workflows
- Funds for basics such as sufficient fridge space are not always available, forcing managers to order based on capacity, not need, and frustrate efforts to manage the cold chain properly
- Because orders are rarely filled in full and on time, a lot of time is spent re-shuffling resources across Sub Counties and Facilities

E — Outreach

- Outreach activities are planned based more on who is funding them, rather than what I know about the community needs
- Because funding for EPI-specific outreach is rare, EPI data is not considered in the site selection
- Lack of outreach-specific reporting tools impacts the quality of data collected
- Traditional defaulter tracing does not work in a dynamic, urban setting where patients are moving in and out of facilities
- National stockouts undermine outreach efforts as facilities are forced to turn away clients
- CHVs are often responsible for much of the data recording but don't receive any training on how to do it.

F — Resource Allocation

- Funding allocations are largely driven by politics, with little input from technical people
- Actual funds released by County never match what's outlined in the work plans
- Without sufficient funds to meet even the most basic needs, managers are always in reactive mode
- Sub Counties don't have control over what resources get assigned to them (such as Nurses)
- Late reporting causes delays in the release of funds
- Incomplete or out of date documentation

G — Staff Engagement

- Training activities take away from work time, putting strain on the already understaffed system
- Who gets trained and when is not standardized, which opens the door for favoritism and creates critical knowledge gaps
- Funding for supportive supervision is insufficient
- Feedback is infrequent, and mostly focused on error-correction

2 | Study Background

Project Background

Understanding data specific painpoints and challenges that healthcare workers and managers at all levels encounter in delivering immunization services in Kenya.

The Vaccine Data Discovery Research project, sponsored by the Bill & Melinda Gates Foundation (BMGF), is a joint effort between Sonder Collective and John Snow Inc. (JSI) and is being conducted in Kenya, the Democratic Republic of Congo (DRC) and Mozambique. We are taking a Human-Centered Design (HCD) approach to uncover and prioritize data specific painpoints and challenges that healthcare workers and managers at all levels within a country encounter in delivering immunization services and monitoring progress.

Problem Statement and Rationale

High-quality and timely immunization data are vital to inform decisions at the local, national, and global levels. This includes decisions about how to better reach children, successfully introduce new vaccines, document impact, monitor and improve immunization system program performance, prioritize resources and activities, and engage in performance improvement (IDEA,

2019; SAGE, 2019). Recently, the WHO Strategic Advisory Group of Experts (SAGE) on immunization highlighted the importance of the availability and use of high quality data for performance improvement and monitoring; data helps managers and HCW to take timely actions to optimize the performance and impact of programs (SAGE, 2019).

Global stakeholders and national governments openly acknowledge that routine immunization and new vaccine introductions still face strong challenges related to collecting and using quality data for planning, management, and performance improvement, yet few can identify which barriers matter most, or the scope of the problem within a particular country (Akhlaq et al., 2016; Doughtery et al., 2014). A recent review of key studies and gray literature on the collection and use of data in immunization programs reveals that there is in-depth understanding of barriers and drivers of data quality and use related to health system, information system design and management, and organizational context but very limited understanding of these barriers and drivers from the perspective of immunization program managers and healthcare workers at the district, sub-district and facility level (IDEA, 2019). In order to devise strategies to improve data management and use in immunization programs, there is a need to document and explore the experience of health managers and workers and understand their perspective on key data-related practices.

This specific effort initiates a broad user-centered study that will uncover and prioritize data specific painpoints and challenges that health managers and healthcare workers encounter in delivering immunization services.

For this project, we will focus on health systems and actors at the national, subnational and facility levels in Kenya, Mozambique and the DRC. They are all countries that have well-established

national immunization programs, but who are still working diligently to improve the quality of services provided to program clients and to reach every woman and child with life-saving vaccines. The results of this study will be of value to all level actors in the national immunization program for designing innovative interventions to address behavioral and systemic challenges to effective data collection, management and use for improving service delivery and health outcomes.

Timeline & Activities

The project consists of four key phases: (1) Planning, (2) Discovery, (3) Field Research & Documentation and (4) Synthesis & Dissemination. The initial Planning Phase gave the project team an opportunity to engage key stakeholders and align on study objectives.

The Discovery Phase consisted of literature and landscape reviews to uncover, synthesize, and document the existing body of knowledge around immunization program data usage and collection, with a special emphasis on how data is being used for decision-making by various actors at all levels of the health system. Additionally, expert interviews have been conducted to better understand and prioritize knowledge gaps. The data and insights uncovered through these activities served as the foundation for the study and was used to generate field research tools.

During the Field Research & Documentation Phase in Kenya, the team executed in-depth qualitative research. At the end of the field research, we held an in-country synthesis workshop with key stakeholders. This report is a documentation of the initial findings from this phase.

During the Synthesis & Dissemination Phase, once the field work has been completed in the DRC and Mozambique, we will hold a regional synthesis workshop with key stakeholders from each country. The team will identify overarching themes and global-level insights. These insights will then be broadly disseminated.

Methodology

Human-Centered Design allows for an empathetic perspective of the world, where people act as both the central source of direction and the key benchmark for the viability of a solution.

In this study, taking an HCD approach, is seeking to understand the problem by requiring actual contact with the people involved in the challenge, to understand their behaviors, motivations and hurdles. Ultimately, to be human-centered is to consider complex systems from the perspective of the people who will use or be affected by them. It also requires a collaborative approach, which is why the Sonder Collective, JSI, the National Immunization Programs and the Bill & Melinda Gates Foundation are working together to contribute to the design and implementation of this contextual research – so that all voices are heard, understood and represented.

By investigating the experiences, motivations, and painpoints of the individuals that make up the immunization data ecosystem,

we hoped to gain grounded, specific insights and understand the root causes behind challenges. Over a two-month period in Kenya, we conducted contextual and observational research activities at all levels of the system.

Contextual interviews

We conducted one-to-one in-depth interviews with members of our target audience. These interviews were conducted at the participant's primary place of work. For healthcare workers, it was the health facility and for senior decision makers at their office at the Sub County, County or National Ministry of Health offices. These interviews helped us to understand participants' needs, emotions, expectations, and environment, but also to reveal formal and informal networks and hidden motivators of specific actors.

Observation

In some contexts, research participants might not always give complete interview responses. This can be due to the cultural sensitivity of certain topics. More often than not, participants may not be able to articulate their challenges, but can show you by completing their day to day activities. Observation is the unique opportunity to cross check a participant's words versus actions within a system. Therefore, in order to validate the findings from our interviews, we conducted shadowing and observation of participants within their work environment for several hours to half day at a time. This was done during immunization clinics or by scenario recreation using data tools and activities.

Data Processing and Analysis

During our interviews, observation, and interactive activities we collected data via voice/audio recorder (given the participant's written or verbal consent), and note taking, as well as through visual research tools.

This data was rigorously analyzed through a technique called 'insight generation'. This is a HCD approach to data analysis, bringing together researchers and stakeholders to gain deeper meaning to the data that has been collected. This analysis is an interactive process where the relevant team members met to consolidate the raw data into meaningful insights. From this analysis emerged patterns and themes.

Study Sites & Participants

We conducted research in three Counties, 12 Sub Counties, and 13 Facilities with 84 participants across the health system. The study was conducted at all levels within the health system in Kenya including the National, County, Sub County and Facility levels. We focused on three counties — Mombasa, Kiambu and Kakamega — to

represent urban, peri–urban and rural geographies.

Mombasa County:
Predominantly Urban

Mombasa County is located in the South Eastern part of the Coastal region of Kenya. It borders Kilifi County to the North, Kwale County to the South West and the Indian Ocean to the East. It also enjoys proximity to an expansive water mass as it borders the Exclusive Economic Zone of the Indian Ocean to the East. The total population of the county in 2009 was 939,370.

Mombasa is part of the Jumuiya ya Kaunti za Pwani (JKP), an economic bloc formed in 2015, which brings together the six coast counties in Kenya (Mombasa, Kwale, Taita-Taveta, Kilifi, Lamu and Tana River) to tackle socio-economic challenges facing the region, including strengthening health systems.

The County is home to the Coast General Level Five Hospital, which is a referral facility serving the entire coast region, as well as several large private hospitals, such as the Aga Khan Hospital, the Mombasa Hospital and Pandya Memorial Hospital. Immunization coverage in the County stands at 73% and is attributed to the high number of deliveries attended to by trained personnel. Efforts are being put in place to further raise the number of deliveries attended to by trained personnel as well as increase community awareness to ensure that even those who are assisted by Traditional Birth Attendants (TBAs) get access to immunization. The construction of additional health facilities under the Economic Stimulus Program (ESP), the Local Authority Transfer Fund and local Sub County Development Funds has enhanced accessibility of immunization services and this is expected to raise the coverage.

Kiambu County:
Peri-Urban

Kiambu County is in the Central region, bordering Nairobi County to the south. According to the 2009 Kenya Population and Housing Census, Kiambu County population stood at 1,623,282.

The County has a large percentage of private health facilities. Among the 505 facilities, 108 are public, 64 are faith-based and 333 are private. The County is served by a good road network, making most facilities easy to access, with the average of 7 km to a facility.

The level of unemployment in Kiambu County is quite high, estimated at 60%. Most of the employees in Kiambu are wage earners, and 75% of them are employed in the tea and coffee estates and horticulture. Most of the wage earners are illiterate. The seasonal migration patterns related to the tea plantations have a large effect on the immunization program, particularly in terms of defaulter tracking.

In 2016, the County had immunization coverage of 89% (51,419) among children under one years old. However, this number is thought to be an overestimation due to an inaccurate denominator, with many facilities reporting coverage rates over 100%.

Kakamega County:
Predominantly Rural

Kakamega County is located in the Western part of Kenya. It is the second most populous County behind Nairobi, with the largest rural population. County population based on the

2009 Kenya Population and Housing Census was projected at 2,078,327.

Agriculture is the backbone of the county's economy and employs over 80% of the population. Most wage earners are in the environmental protection, water, housing, energy, infrastructure and Information, and communications technology sectors.

Free maternity services are offered in all County hospitals. In partnership with UNICEF, 43,563 mothers have been able to access safe delivery and full vaccination cycle through the Imarisha Afya ya Mama na Mtoto (Oparanyacare) Program and a total of 53,110 mothers went through the ANC. SInce the 2008/2009 Demographic and Health Survey, maternal mortality rate has been reduced from 880 to 316 per 100,000 live births (2014 Kenya Demographic and Health Survey).

Kakamega County has a County General Hospital, but no referral hospital. 16.7% of the population is less than a km away from the nearest health facility. 32.2% of the population is between 1.1 and 4.9 km away, while the remaining half is about 5 km away from their nearest health center.

According to the Kenya Demographic and Health Survey of 2014 about 62% of the children in Kakamega County aged between a year and 23 months were fully immunized.

Geography and Facility Selection Factors

- Urbanization numbers: to make sure that the breadth of the population is accounted for

- High and low volume representation: to include facilities

that may have more volume and account for that in our findings

- No other current research in the Counties and Sub Counties: to ensure we do not add any unnecessary workload to over researched Counties
- State of digitization: to get a breadth of counties, that have an analog recording and use, versus those with a more digitized tool usage
- Performance representation: facilities interviewed reflected high, medium and low performing facilities based on coverage numbers in DHIS2 as well as anecdotal guidance provided by county EPIs in the study.
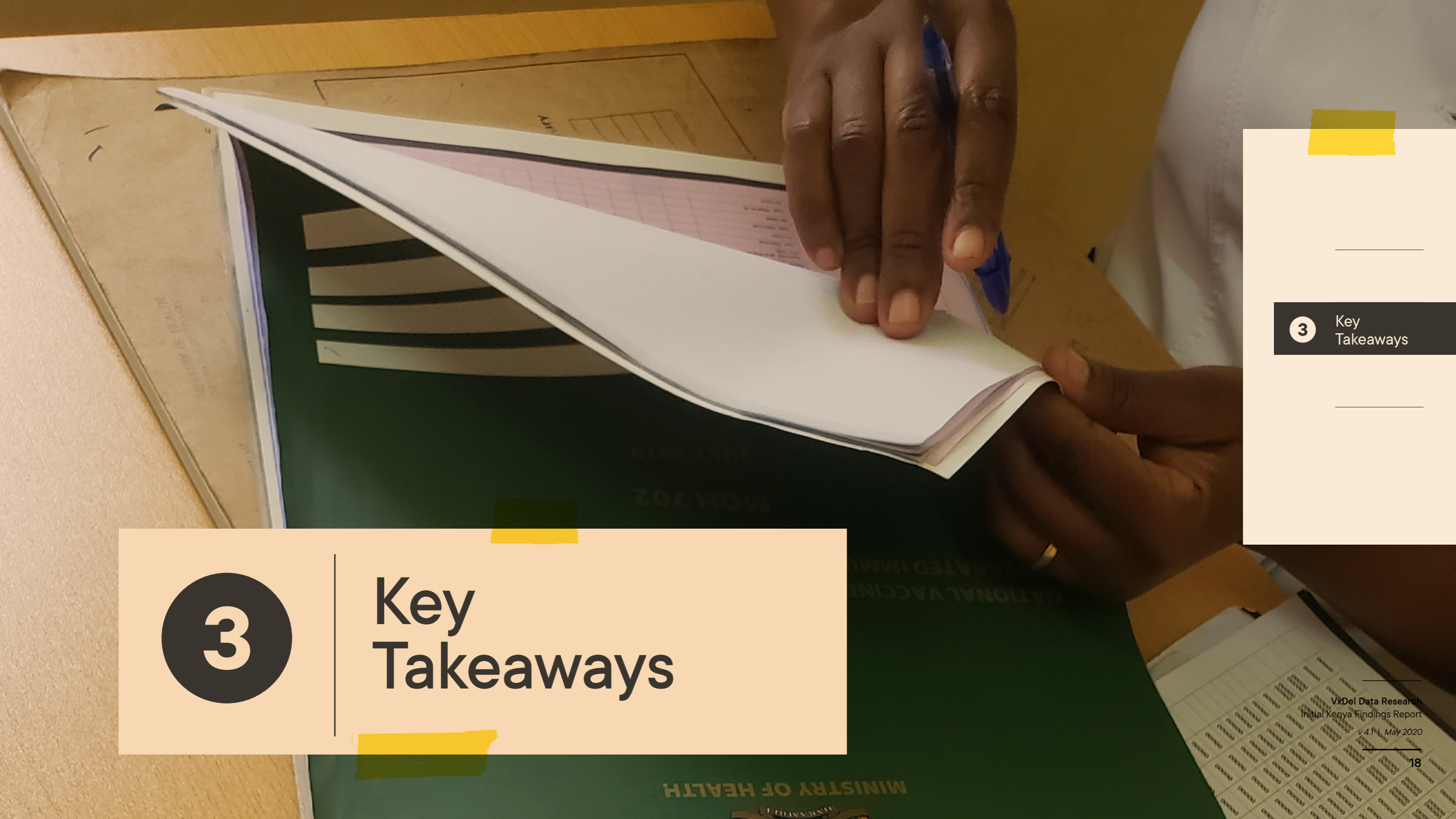
Study Participants

We included decision makers, data collectors and data users, including health system leaders, managers and service providers linked to the national immunization program during the study. The following are the roles we interviewed during this study:

National level: The National Depot Manager, The EPI National Logistics Manager, and The National Strategic Planning and Communications Manager

Regional level: Depot Manager

County level: EPI/Logistician, Deputy EPI/Logistician, Director of Medical Services, Acting Director Public Health, Disease Surveillance Officer, Health Records and Information Officer (HRIO), Health Promotion Officers, Medical Officer of Health (MoH), and the Monitoring and Evaluation Manager (M&E Manager)

Sub County level: EPI/Logistician, Public Health Nurse, Disease Surveillance Officer, Health Records and Information Officer

(HRIO), Health Promotion Officer, Community Strategy Focal Person, Public Health Officer, and the Director of Nursing

Facility level: Facility In Charge, Nurse In Charge, MCH In Charge, Health Records and Information Officer (HRIO), Immunization Nurse, and a Nursing Services Coordinator.

Research Themes

Based on the secondary research and expert interviews, we have focused our research objectives to the following thematic areas:

Day-to-day experiences

Generate rich portraits of health care workers and managers at all levels of the system to understand their background, their daily activities, priorities, needs, obstacles and challenges. These will help us to understand the wider backdrop against which the immunization work is happening and help provide additional insight into the thematic areas below.

Decision making

Get a better understanding of the decisions (both extrinsic and intrinsic) that are currently being made at all levels of the system. In addition to exploring what factors influence decision-making, our focus will be on understanding what information (both reported data as well as other, less formal information sources) is currently being used to make immunization decisions, what information might be currently inaccessible, not available at the

right time, or missing entirely, and what information is currently being collected but not being used.

Moments of exchange

Capture the key interaction points across the different levels of the immunization system to better understand how actors at various levels are interacting with each other, what information (immunization data, feedback, requests etc) is being exchanged and under what circumstances. Additionally, we hope to explore how these interactions positively and negatively impact data collection and use at the various levels.

Data culture and value

Gain a greater understanding of participants' perceptions and attitudes towards data collection and use. In particular, we will explore how good quality data is defined and how much value is being placed on collecting and using good data for decision making. We also hope to gauge the confidence levels in the data for the various system actors and the various factors that influence how data is perceived.

Motivation

Aim to better understand intrinsic and extrinsic drivers of behavior including financial and non-financial incentives that motivate health workers positively or negatively, barriers to following data-related protocols, desire and practice related to adaptation and problem solving, and other areas of behavior inherent in managing, reporting and using data for immunization programmes.

3 | Key Takeaways

Health system prioritizes client care, not data collection and use

The health sector has not yet made sufficient adjustments to staffing, training, and feedback mechanisms to support a healthy data culture. Under constant pressure and harsh constraints, delivering on core system needs is prioritized over data.

"We are so focused on offering services we forget to fill in the data. When it comes to employing health workers, we are very quick to determine that we need nurses and doctors. We forget the data people, yet they are very important."

County EPI Manager

"One nurse has to do all the services in the facility. That nurse needs to look at the pregnant mothers, do deliveries in the facility, look at the sick children and also immunize. Each of those has its own documentation, so they become overwhelmed and forget to tally or record."

County EPI Manager

3 Key Takeaways

Health system *cont.*

As a Nurse, my biggest motivation for showing up to work is seeing a smile on a patient's face. I will always prioritize good service over my admin responsibilities

Health workers were driven to work in healthcare by a desire to serve and improve wellbeing. Many nurses emphasized the gratification they get when they provide good service to a patient. They are proud of the work they do and cherish keeping tabs on the kids they delivered or immunized. Seeing sick family members as a child often inspired them to work in the healthcare sector in the first place.

OPPORTUNITIES

- Nurses might be forced to make difficult trade-offs between serving all the clients and fully recording data. Help them make tangible connections between "the paperwork" and the wellbeing of the patient. Make more direct linkages between good data and its impact on patient care.
- Streamline data collection tools and processes to create more time for patient care.
- Use the MCH Card to create a relationship with caregiver as an educational tool and a data collection tool.
- Use PATH's "Nurturing Carer Model," which could link care and attention to the baby to the immunization schedule.
- Create stronger feedback loops around data and performance, especially demonstrating impact on patients' wellbeing.

As a Nurse, I already struggle to keep up with all the data I'm required to report to others. Reviewing it to inform my own work rarely happens

Most healthcare workers understood the importance of collecting and using data to guide decisions. At the same time, they struggled under the weight of their responsibilities, largely prioritizing delivering required reports over pouring over data to inform their own work.

OPPORTUNITIES

- Based on the existing workload and skill level, relying on the Nurses to do data analysis may not be feasible. To promote data use, especially in higher volume dispensaries and health centers, consider outsourcing the task to a data specialist. This could be a keen facility staff member who undergoes additional training and dedicates more of their time to data at the facility.
- Reshape what data review means and looks like by helping nurses prioritize what pieces of data may help to inform their work, so they can treat patients and use data. Create a simplified review process that can be done bi-weekly or monthly with a more intense review quarterly.
- Foster a further enabling environment for data sharing and feedback processes - including funding for basic needs like phone minutes/airtime for data feedback (for HW and supervisor) and dedicating time to data analysis and exchange (e.g. a standing 30 minute discussion in monthly review meetings)

As a decision-maker, I'm actually too busy to look at data. I get all of my data through meetings and conversations with staff

Key decision-makers, at all levels of the system, tended to spend the majority of their time in meetings or addressing emergencies. They consumed data primarily through informal conversations with their staff and during data presentations in meetings. Sometimes, formal data sets are not yet available when they need them to make a decision, so they use meetings, phone calls, WhatsApp, or in person conversations to get the information they need quickly.

OPPORTUNITIES

- Prioritize and present the data that is most useful for decision makers. Present the data to the key decision maker in a way that makes it easily accessible/in a format they are able to absorb. Examples could be visualization of the data they like/need and data that is already analyzed for consumption. Make meetings more targeted for this prioritized data review. Find different and engaging ways to share important data or insights.
- Task the HRIO to provide insights in addition to the data while first reviewing with "data owners" (i.e., immunization nurse) and then share with decision makers to streamline the decision making process. This involves engaging staff who are directly involved in program activities to analyze together with the HRIO (the champion of data) to then present to the decision maker.

Health system *cont.*

At the County level, I can't review all the data coming in. I make judgment calls on which data are a priority, mostly guided by visibility

The County HIRO role overlaps many verticals, meaning they tend to spend the majority of their time in meetings rather than pouring over data in the DHIS-2. Because they don't have enough time to review everything, they are forced to make judgment calls on which data to review and which to ignore. They tend to prioritize highly visible data–either associated with high-priority programs or directly tied to funding. They also tend to ignore data which is already known to be of low quality, potentially exacerbating the divide between good and bad data.

OPPORTUNITIES

- Streamline data review and prioritize the basics. This can be done in tiers - data visible with high-priority programs; data linked directly to funding; and then data that would most help with real time decision making/adjustments to improve the program
- Streamline (and/or visualize) data to make it user friendly and digestible for decision makers
- Decrease amount of data collection tools (digital and paper), so that HCWs would have had more time to fill out correctly and accurately, thereby increasing the trust in quality of data
- Identify the very basic key data points to raise visibility on those; don't worry about all data points. This would require an overhaul of the entire set of indicators to make sure they are relevant and needed to the current context.

Since I'm not a "data person", I'm not trained on DHIS-2. I rely on the HIRO for all my data needs, which limits what data I use and how often

While there was an appetite to use more data for decision-making, most decision-makers don't have the required skills to access data directly. Most participants were not comfortable using the DHIS-2 system and had not received training. In most Sub Counties, only a few individuals had login rights. Because of this lack of training and access, data mining and analysis were seen as the HRIO's purview. This added to their already heavy workload and limits other's ability to interact with data.

OPPORTUNITIES

- Create targeted training based on what people really need to know for their jobs. Target different decisions at different levels and identify what data do they need to know to be able to make those decisions.
- Introduce 'cascade learning' on data tools. Foster staff's basic competencies and their valuing of data, so that every person is involved in the data process, even if they haven't been formally trained.
- Decrease the amount of data collection tools (digital and paper), so that HCWs would have had more time for them to fill it out correctly and accurately, thereby increasing the trust in quality of data through all levels of the system.
- Identify the minimum amount of data needed for actual use; prioritize what a HCW actually needs for daily decisions and session management.
- Data is currently considered a specialty few should dabble in. To change this perception, conducting DHIS-2 training for all program managers at the Sub County and County level should be standard and frequent.
- "Demystify" the use of data and remove the notion that If you are not trained, you are not knowledgeable.

We keep sending information every month, but we hardly ever hear anything back

Facility-level participants tended to view their relationship with data as very one sided–data goes up, not much comes back down. For most, the monthly Sub County meetings are the only opportunity to receive feedback on how they are doing in relationship to other facilities.

OPPORTUNITIES

- Determine with the different actors how they would best receive feedback and how they would best like to provide it. Find a place to meet in the middle that would be productive and useful for everyone involved in the "feedback loop". Put special emphasis in ensuring information is passed back down to the Facility level.
- Reshape supervision and feedback to respond to HCW needs and interest and motivations. This could be by creating question and answer forums that have access to all levels within the system.
- Create reports that can be "shared" (like google docs) to read feedback without need for added meetings.

3 Key Takeaways

Protocols and tools are rigid and don't work well under pressure

Formal tools and protocols often fall short, especially when shortages of time, staff, and resources add additional pressure on the system. Healthcare workers tend to rely more on informal workarounds and quick judgments based on personal experience.

"The new MOH 710, that is the immunization tool, has gaps. It is not user friendly."

Sub County HRIO

"When the system is slow, you cannot fail to issue vaccine. So you issue and record on paper."

Regional Depot Manager

3 Key Takeaways

Protocols & tools *cont.*

We fluctuate between conducting unrealistic planning activities and making quick judgment calls in response to urgent needs

At the Sub County and County level, decisions fell into two distinct modes. Much effort was dedicated towards official, formulaic, data-based planning procedures such as annual target setting or generating workplans aimed at deciding about the use of resources and policies for the immunization program. While such activities were very strategic and relied heavily on data, they often failed to reflect the reality on the ground. The data used was widely seen as inaccurate, making targets and projections unrealistic. To compound this, the funds and resources that the planning depended on hardly materialized on time or in full. As a result, the primary way in which decisions were actually made was through a reactive response to a problem at hand, such as dealing with shortages, stockouts, or issues at the facility. Such decisions were often made very quickly and relied mostly on personal experience, rather than any formal data sets.

OPPORTUNITIES

- Push for more realistic planning at the top, allowing for planning activities down the chain to be done with certainty
- Cross-check the national population numbers with a community-driven census of Sub Counties
- Conduct analysis of true planning and funding flow issues (i.e., always run out of funds in December). Design program based on reality, and allow for flexible planning to accommodate the flux and flow of finances
- Shift stock planning to a combination of consumption-based forecasting and target population to more accurately estimate vaccine need at facility level (and without the politics of changing target population numbers)
- Develop tools and processes to support impromptu decisions such as vaccine reallocation based on low stock or drastically inaccurate denominators.

Current tools don't support decision-making at the facility level, which leads me to create workarounds

Some facilities found the official tools and protocols for managing the immunization program inadequate for their needs. They created workarounds and informal tools to aid their decision-making. Such tools, even when more effective, are rarely recognized or scaled up to other facilities.

OPPORTUNITIES

- Systematize user workarounds and provide recognition of these solutions. Allow space for innovation and for workarounds to be adopted by others, 'approved' by the system, and allow for it to be recognized so that it can be helpful to others.
- Evidence and data-based decision-making requires competency building, particularly when this has not been covered in pre-service education and most health facility staff have medical training, not management training. Facility level nurses and managers need help (and competency building) to move away from data being predominantly the work of a 'data specialist' to something that has relevance to them also for their job performance and use.
- Redefine expectations of data use by frontline healthcare workers. They provide clinical care so often are not data people; so what is the bare minimum of data use that is helpful for them to do their jobs? *
- Seek user input into tool design so there is clarity on objectives i.e. tools for reporting, tools for EPI program management and strengthen continuous learning and support to user when tools are finally introduced or redesigned e.g user manuals, guidelines, peer support etc.

WhatsApp is the main way we get information. It frees us to communicate outside of the formal reporting structures

WhatsApp is a primary channel for communication, information sharing, feedback and skills building throughout the system. The use of WhatsApp was universal across urban and rural settings, levels of the system, and age groups. As an added benefit, with the availability of discounted social media data bundles, it tends to be more affordable than any other form of communication. It allowed participants to have access to real time data and information that wasn't possible through formal modes of communication such as email. It seems to foster a stronger sense of community.

OPPORTUNITIES

- Use this channel to further strengthen feedback loops, supercharge peer-to-peer learning, and re-imagine formal processes such as the annual target setting or supportive supervision. Use it to encourage learning exchanges within counties highlighting exceptional leaders in EPI and flatten the hierarchy through peer-to-peer supervision.
- Build on JSI learning on data analyses and review via WhatsApp (article and report)
- Create short locally made training videos on various data challenges found in this report, that can be shared over WhatsApp

Protocols & tools *cont.*

Digital tools are supposed to save me time, but I end up doing double the work

There was a lack of trust in digital tools, causing most data to also be stored on paper as backup. This was largely based on negative first person experiences such as disappearing data and extended network down times. Participants' lack of confidence in their ability to use technology was also a contributing factor. When given an option, some chose to abandon tools such as CHANJO and stick entirely with the paper alternatives for ordering vaccines.

OPPORTUNITIES

- Carefully consider the reliability of digital tools before introducing them into the system. Assume that in the short and near term, these tools will be used in conjunction with, not instead of, traditional paper tools. Account for addition-al staff time accordingly. \
- Drastically decrease the amount of data collection tools and indicators with a shift away from digital.

The way I am currently being evaluated doesn't work for me. Comparing myself against peers is more valuable than reviewing targets

The way participants are evaluated and motivated doesn't take into consideration the complex nature of their roles. Because coverage rates are not reliable, participants tended to value comparing themselves to their peers over reviewing targets. Opportunities to interact with peers, see how they stacked up, and hear about innovative ways to overcome similar challenges were thought of as universally positive. Supervisors also reported friendly competitions and awards as the best way to motivate. Funding for such activities, however, was inconsistent and relied on partner activities.

OPPORTUNITIES

- Regular updates across all counties/sub-counties that share progress/cover-age for comparison. It could also include other indicators that are important to users and use informal data sharing mechanisms (i.e., WhatsApp) to share and compare. Maximizing existing platforms (such as WhatsApp groups and annual planning meetings) should be prioritized. Prioritize sustainable, long term approaches over one-off events.
- Revamp EPI review meetings – less data review and more peer sharing. Highlight the value and openness that can come through peer learning and exchange with a friendly, and non-judgmental, qualified mentor.
- Create a gaming app to reinforce learning based on specific issues coming out of data review and use competing against others as an incentive
- Create safe spaces for crossing sharing,comparison and support amongst peers such as the approach used in "Centering pregnancy"

Supervision visits enforce protocol and discourages individualism

Supportive supervision activities are seen as an assessment of the facility and the staff, and not as an opportunity for staff to receive training and advice from supervisors. Decisions and workarounds that aren't in line with protocol are not supported, leaving little room for innovation and scaling of good ideas.

OPPORTUNITIES

- Institutionalize adaptive leadership that instills empathy and support rather than top-down evaluation and criticism. This can also include recognition of best practices and innovations to adapt and opportunities to scale it to other facilities and levels
- Institute and foster a "feedback culture" where performance is peer reviewed and anonymous

Actors feel they have little agency or control over their work or decisions

Managers and health workers don't have a sense of control or agency over their work. Decisions feel inconsequential, not within their mandate, and disconnected from their responsibilities.

"We have a vision. This is what I want us to do and this the direction I want us to go. But the power is not within me... because of the procedures and protocols that we have to follow. It's a system based thing, it may not be within my reach."

Facility in Charge

"Last year we were given kids under 1 as 660. But when they went to the community, the data they got was around 530. So even if you complain, you are told this is from the national government, there's nothing they can do. We found out we are not achieving because it is not even the right target, but nothing we can do."

Immunization Nurse

3 Key Takeaways

Actors *cont.*

Important decisions should be made collectively

Decision-making tended to be seen as a collective rather than an individual action, especially when the decision had broad impact or severity. Collective decisions might be made in an informal meeting or as part of more official committees and technical working groups. Individuals made decisions independently only when mandated, making everyday choices to implement set policies, or in an emergency. In most cases, the HRIO served a key role in pulling, analyzing, and presenting data to the team.

OPPORTUNITIES

- Leverage and support collective decision making points by including frontline workers in higher up decision making points and by supporting with resources to follow up on action items, or training in design processes (prototyping, testing etc)
- Re-orient supervisors and management to appreciate the innovativeness of frontline health workers and allow health workers leeway for some decisions at local level and support those decisions.
- Create tailored collective decision making teams including: right team size, right roles, providing separate input then they share perspectives, and communicate what, why and how they helped.

I don't consider myself to be a decision-maker

At the Facility level, most nurses we spoke with did not consider themselves to be decision-makers, despite the fact that they routinely made decisions that impacted the immunization program. They thought of themselves as implementers, while the decision-makers were understood to be the National level team setting policies. When pressed about everyday choices they make, they were often more comfortable listing their tasks and responsibilities. Some nurses perceive a decision as a deviation from the protocol, something they would get reprimanded for.

OPPORTUNITIES

- Allow for ad hoc approaches to be systematized and acknowledged by the system and capacity build actors responsible for mentoring and supervision in supporting these ad hoc approaches should they achieve the right outcome. Ultimately, you will re-frame the definition of success (set by training and supportive supervision) away from perfect execution of protocol, towards achieving the right outcome
- Learn from and document ad hoc approaches in order to be adapted more broadly. This could be furthered by linking this shift in thinking to a new or existing national role in the devolved system.
- Design management training for health workers to increase awareness that their management decisions are as important as their clinical decisions.

At the National level, we set the agenda but have no control over how it gets implemented

With the 2010 devolution, all health functions (vaccine procurement excluded) were transferred from National level over to the Counties, which now determine how to allocate resources depending on their unique needs. This has complicated how strategies are implemented. Those running the program at the National level have no direct oversight over the activities or utilization of resources at the Counties, leaving them with little control over how their policies are actually implemented.

OPPORTUNITIES

- Run a best practice / innovation showcase annually in country and/or at county or sub-county level to highlight facility level innovations that can be adapted by other facilities that are run by the National level with the aim of having all levels contribute to their future strategies. This can also be an opportunity to actively engage resource allocators and raise their awareness of the immunization program and share analysis of data that can inform their thinking.
- Shift the national level role and perception of their role into more learning and sharing to contribute to national level policies and guidance, understanding that sub-national level is still respectful of national level guidance. Find the benefit of the new role of national level under devolution. Using process indicators and qualitative to revise and update learning agenda, policies and priorities to strengthen the technical role of national and less emphasis on national as management.

3 Key Takeaways

Actors *cont.*

Most of our challenges result from decisions made by elected officials, rather than technical people

Decisions on how resources are allocated is at the root of some of the most pressing challenges which are currently undermining the immunization program. National vaccine stockouts, lack of reporting tools, lack of airtime and transport for follow-up and supervision are rooted in decisions made either by elected or appointed officials with little insight into how the immunization program operates or access to the data that could help them make these decisions more strategically.

OPPORTUNITIES

- Support engagement of decision-makers in EPI reviews (or other existing mechanisms where they can see their role in supporting the program through resource allocation)
- Actively engage with these decision makers to understand their processes and what they need to make the decisions that will result in better resource allocation. This could be done by inviting them (i.e., administrators, finance decision makers) to participate in an EPI Quarterly Review meeting.

I get discouraged when I don't have basic resources to perform my duties. I prioritize activities with resources and factors I can control

The chronic shortages of commodities, tools, human resources, funding, fuel, airtime, and transport throughout the system were a major demotivating factor for participants at all levels. The ongoing vaccine stockout as well as frequent shortages of reporting tools were consistently listed as top challenges for participants. Out of a desire to perform well, participants tended to prioritize properly funded activities and initiatives, where they were likely to achieve results, over those experiencing shortages of resources. Uneven resource distribution signals that some activities are more important and are therefore more deserving of time and scrutiny. This can have a lasting effect on performance.

OPPORTUNITIES

- Re-orient planning and budgeting activities towards the truly necessary requirements of a program i.e., ensure data collection tools, vaccines and supplies are always available.
- Institute contingency planning training so actors in the system are armed with knowledge to be able to act when things don't go to plan and allows them the flexibility to respond to changing realities
- Identify the data use champions in the system and fully understand the characteristics that lead to this behaviour. Use these insights to create new education and training modules throughout the system.
- Shifting the responsibility of who is providing the tools to where the facility is given permission to create their own tools, as long the required information is included
- Provide guidance on how to move away from data consolidation and analysis as something that is done only at the end of month or 'when there is time' to daily/weekly to reduce stress at end of month. Create easy-to-use data visuals, dashboards, and job aids (along with Data Triangulation at HFs)
- Ensure adequate and consistent funding of routine activities and consider carefully the effect new initiatives have on program priorities.

Being evaluated against targets that I know are unrealistic is frustrating. I know I'm doing a good job, yet I'm constantly being reprimanded

National population data was universally considered to be unreliable. Some Facilities/Sub Counties knew this from anecdotal evidence, others had actual survey data demonstrating the discrepancies. Wrong coverage numbers, against which the targets are set, acted as a constant demotivator. It also seemed to impact which activities facilities prioritized. The facilities we visited with artificially high coverage rates, compared to those with artificially low coverage rates, seemed to spend significantly less effort on defaulter tracing and outreach.

OPPORTUNITIES

- Use alternative target population numbers using the option from WHO. NVIP would need to set up a system the Sub County determines or compares different population sources and aggregates it by sub-county so it still matches at national level.
- When available, consider supplementing National numbers with Sub County and Facility-level data on population size, adding flexibility and increasing the local autonomy to help make the data and immunization targets more accurate. It is important to de-link it to the funding and resource allocation mechanism currently in place.

Actors *cont.*

At the facility level, we feel understood by our peers. Less so with supervisors

HCWs feel like they can explain themselves to peers. There is a sense of camaraderie and not waiting to let your peers down. For some health workers, especially in facilities with regular rotating stations, this is a strong motivation to fill in reporting and data gaps for others. Supervisors, on the other hand, are often percieved as out of touch.

OPPORTUNITIES

- Institute peer mechanism where peers can be accountable to each other in a peer learning and evaluation loop. Leverage this peer mechanism as an element of career development - e.g. 'newer' staff (such as KMTC trainees or those who just graduated) may be motivated to learn how to input and use data to hone their skills.
- Increase and allow for feedback loops using trusted channels with an emphasis on positive feedback and quick information sharing.
- Increasing feedback, especially amongst levels that may not usually connect (e.g. National to Facility) may break down hierarchical barriers for instant information access and sharing, making people feel heard.
- Instill and encourage adaptive leadership to instill empathy away from criticism and evaluation towards being more supportive and collaborative. This could be done through "rotating positions" where supervisors must spend significant time working at the facility and walk a mile in their shoes.

As a Records Officer, I set the tone for how the system interacts with data. Unfortunately, I'm frequently hampered by airtime and transport cost

Sub County HIROs held an enormous amount of sway over the data culture, from the quality of what is collected to how it is used for decision-making. At their best, their interactions with Facility staff helped fill skill gaps and enforce quality standards. With their Sub County peers, they helped to pull and analyse data to inform key decisions and alert the team about relevant trends. Sadly, the HIRO's efforts were frequently undermined by lack of basic resources such as airtime and transport leaving them with limited control over results.

OPPORTUNITIES

- Provide guidance for HRIOs to build the culture of data use as a benefit, job aid, and performance improvement measure – rather than a hierarchical requirement or something imposed by the system. Encourage them to take a lead role in peer-to-peer exchange (rather than supervision, top-down).
- Create a system that allows HRIOs to provide remote/virtual check-ins possibly through WhatsApp
- Leverage the HRIOs ability to influence data use by identifying what data really needs to have in-depth review, by whom and at what level.
- Airtime and transport cost for the HIROs is money well spent and should be considered a priority.

As a woman, I am treated as an equal at work. However, my home responsibilities sometimes put me at a disadvantage

Women were found to hold quite a number of senior roles and gender did not appear to be a major factor in regards to challenges in the system. However, married women with kids were significantly less flexible in terms of how they were able to respond to the existing challenges. While their male counterparts routinely took work home on evenings and weekends (when DHIS-2 is faster due to fewer users) women's time outside of regular office hours is limited by their need to cook, clean, and take care of their children.

OPPORTUNITIES

- Technical challenges may have a disproportionate impact on young women with many responsibilities at home. Ensuring proper internet access at work and systems working reliably during regular business hours may go a long way towards minimizing such inequalities.

3 Key Takeaways

Actors *cont.*

It is hard to get respect as a young person, especially if those reporting to you are older

Nurses tend to stay in their position rather than advancing into management positions and, as a result, they tend to be significantly older than their supervisors and Sub County staff. Culturally, it is difficult for young people to get respect and be in a place of authority. Sub County staff also had a mix of older and younger staff, which introduced similar challenges.

OPPORTUNITIES

- Consider how age dynamics affect the decision-making processes. Use of data to backup decisions could possibly alleviate some of these tensions.

3 Key Takeaways

4 | System Overview

Note on Devolution

The Constitution of Kenya, promulgated in 2010, created a decentralized system of government wherein two of the three arms of government the legislature and the executive) were devolved to 47 political and administrative counties. The primary objective of decentralization is to devolve power, resources and representation down to the local level.

Health functions were fully devolved to the counties which now determine how to allocate resources depending on their unique needs and aspirations.. Counties have engaged in building and improving facilities for the provision of medical care. In some instances, extra staff have been hired in order to boost the workforce. However, increasing strikes by health workers have been experienced since devolution was implemented. The is trikes are mainly due to delayed salaries, lack of promotion, poor pay and poor working conditions including lack of supplies.

While counties have invested in improving medical care facilities, funding for public health interventions, including immunization, have been minimal. This has led to counties failing to meet their obligation for immunization services. While the national government is responsible for procurement of vaccines, counties are responsible for procurement of the non-vaccine supplies (syringes, safety boxes and documentation tools) and provision of operational funds to run the immunization services.

In most counties, inadequate funds have been allocated for these items greatly affecting immunization service delivery due to stock out of supplies and less frequent outreaches.

Community

At the Community level, the primary focus is on engaging community members, collecting relevant data to help the Facilities understand their catchment area better, as well as coordinating with the Facilities to implement outreach activities.

"When you call [facility staff], 'Have you gone for this outreach?' the staff sometimes refuses to go because they do not have money for the transport to go there. You could be sometimes very low and have nothing in the pocket."

Generate

CHVs and Field CHEWs collect household level information in tools such as the Household Registry.

Aggregate & Report

CHVs and Field CHEWs compile monthly reports and pass them to the Facility to help them better understand their community.

Analyze

Collected information about the community is reviewed to better understand the community needs.

Act On

Community data is used for planning and implementing specific outreach activities.

Community-level Actors

Immunization Nurse

MCH In Charge

Facility CHEW

Defaulters traced, population under 1 year, number of unvaccinated children *(Defaulter list, CHV referral form, MOH 513, Chalkboard)*

Defaulter tracing, planning for outreach *(Defaulter list)*

Number of children not immunized, immunization coverage *(MOH 516)*

Vaccines given; Return date; Observations, height & weight *(MCH Booklet and Vaccination Card)*

AEFI *(observations)*

Field CHEW

Parent / Guardian

Community Health Volunteer (CHV)

Monthly activity log, household registrations *(MOH 514, MOH 513)*

Community Dialogues

Chief Barazas

Community-level Tools

Referral Forms *(MOH 100)*
Used by CHV to refer clients to hospital. Contains data on immunization and recommendations on next immunizations.

Household Register (MOH 513)
Indicates the number of children under 1 year in each household and when they get vaccinated.
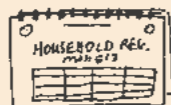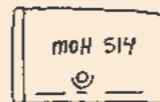
MOH 514 *(CHV Logbook)*
A detailed record of activities conducted by CHV. The CHV records their activities such as visits, to whom and what activity was conducted (such as referrals, commodity distribution, health promotion, hand washing demonstrations etc)

Monthly Summary (MOH 515)
A monthly summary of the household registers, submitted to the sub-county.

Chalkboard *(MOH 516)*
Summary of performance on all key indicators. Kept at the community or facility. Used during dialogue days with the community.

Defaulter Tracking book/list
At the facility level, some facilities create a defaulter tracking list by going through their permanent registers and identifying which patients have not come back for their follow up vaccinations. This list is either shared with the relevant CHVs for follow up or the patient is directly called by the facility.

4 System Overview

OUTREACH *(informal)*

Appointment Diary
A list of children to be immunized on a particular day. The nurse can quickly know how many children to expect for immunization on any given day. Once a child is vaccinated, he/she is marked and listed on the next appointment dates. At the end of the session, the nurse identifies those who missed and using the child number, gets the child's name from the immunization register.

Key Actors: Field CHEW

My main goal is to ensure my community gets proper health services.
I am responsible for supervising the Community Health Volunteers (CHVs) and to make the link between my community and the health facility. I make sure all children who are missing vaccines are followed up on by CHV, either through outreach or referral to the facility.

Generate · Aggregate & Report · Manage · Analyze · Act On
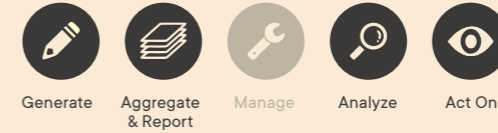
CHALLENGES

- We use **makeshift tools during community engagements**, which ultimately reduces our data quality

- Our outreach activities are **planned based more on who is funding them**, rather than what I know about the community needs

DECISION-MAKING

I decide on my own:
- What children the CHV should follow up on to ensure all children have all vaccines.

I decide as part of a group:
- What data to analyze and how to review it to monitor progress on coverage, outreach, and drop-outs with Facility CHEW and CHVs.
- What interventions to improve coverage and reduce the number of drop-outs with Facility CHEW and CHVs.

Out of my control:
Funds for the subsidies for the CHVs, when available, are usually allocated by partners. That impacts CHVs performance and their commitment to the community. I also do not get to decide on outreach locations, which may mean we don't reach our target populations and impact the effectiveness of our activities.

Information I use:
- Household Register to track children who have missed vaccines
- Monthly Summary for household tracking
- The Chalkboard to provide an overview of performance of the immunization program
- EPI Appointment Book (informal) helps us to track children in the community.

INTERACTIONS

CHVs
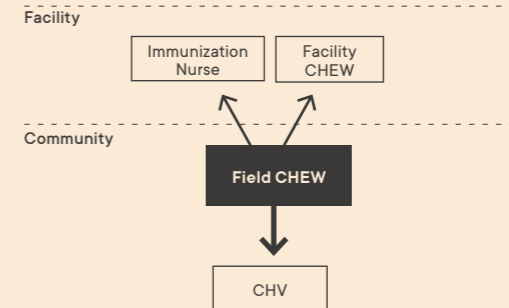Track monthly reports and review household registration.

Immunization Nurse
I provide updates on children who have been reached by the CHVs, and to identify children that still need to be reached by the CHVs.

Facility CHEW
I report progress on reaching children for immunization and outreach for other program/health areas.

Facility

| Immunization Nurse | Facility CHEW |

Community

Field CHEW

CHV

Facility

The primary goal at the Facility level is to provide timely and quality immunization services to all clients that come on any particular day. Recording immunization data and reporting it to the Sub County also happens at this level, but it is considered a core function only as long as it can be tied back to the services the facility provides (ex. helping keep the vaccines in stock, ensuring all kids get vaccinated).

Generate
Various paper tools are used capture detailed information about the services provided at the Facility on a daily basis.

Aggregate & Report
Daily reports are aggregated into weekly and monthly summaries, which are submitted to the Sub County.

Act On
The Facility mostly relies on the Sub County to analyze data, which is occasionally presented back along with specific recommendations

"It's not about decisions, I think it's about routine."

"I think generally the mere fact that at the end of the day I will leave a smile on somebody's face, I think that's my motivation. You'll find somebody distressed, at the end of the day you leave them better than they came."

"When somebody has so many patients to attend to, they'll concentrate on the patients and not capturing the data."

"Decisions are made [at] the top. We don't make them here. We're just given protocols to follow."
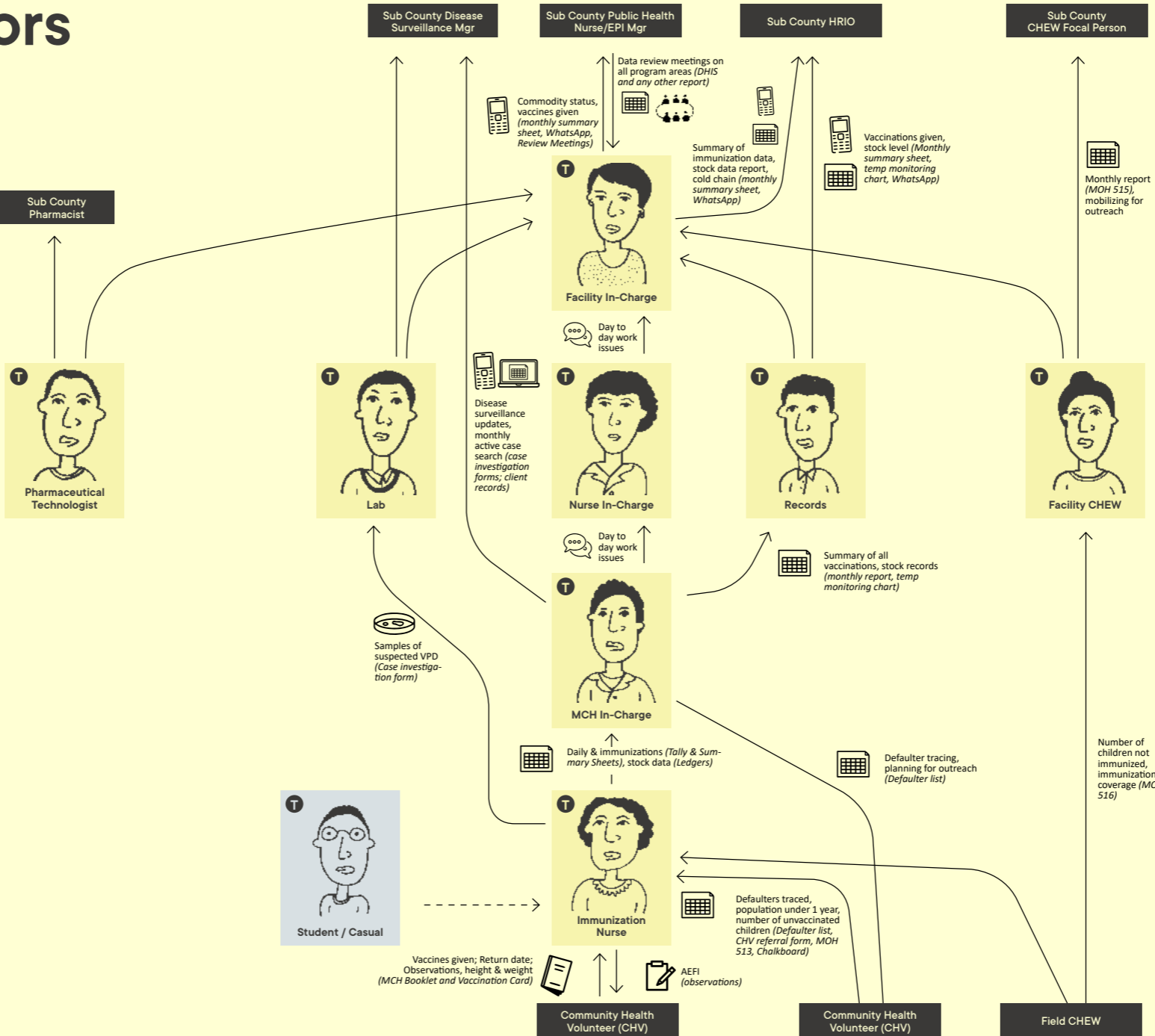
"[Stockouts make] me feel bad because measles is a deadly disease which we have really tried to eradicate. Yet you do not see any effort from the County to bring us the vaccine up to now."

"Now everybody is on your toes, 'Why are you not performing?' But I'm always at peace because I know I've done my best. I've gone to the outreaches, There are no defaulters."

Facility-level Actors

Sub County Disease Surveillance Mgr

Sub County Public Health Nurse/EPI Mgr

Sub County HRIO

Sub County CHEW Focal Person

Data review meetings on all program areas *(DHIS and any other report)*

Commodity status, vaccines given *(monthly summary sheet, WhatsApp, Review Meetings)*

Summary of immunization data, stock data report, cold chain *(monthly summary sheet, WhatsApp)*

Vaccinations given, stock level *(Monthly summary sheet, temp monitoring chart, WhatsApp)*

Monthly report *(MOH 515)*, mobilizing for outreach

Sub County Pharmacist

Facility In-Charge

Day to day work issues

Pharmaceutical Technologist

Facility data review meetings: All program people, lead by facility in charge.

Disease surveillance updates, monthly active case search *(case investigation forms; client records)*

Lab

Nurse In-Charge

Records

Facility CHEW

Day to day work issues

Summary of all vaccinations, stock records *(monthly report, temp monitoring chart)*

Samples of suspected VPD *(Case investigation form)*

MCH In-Charge

Daily & immunizations *(Tally & Summary Sheets)*, stock data *(Ledgers)*

Defaulter tracing, planning for outreach *(Defaulter list)*

Number of children not immunized, immunization coverage *(MOH 516)*

Student / Casual

Immunization Nurse

Defaulters traced, population under 1 year, number of unvaccinated children *(Defaulter list, CHV referral form, MOH 513, Chalkboard)*

Vaccines given; Return date; Observations, height & weight *(MCH Booklet and Vaccination Card)*

AEFI *(observations)*

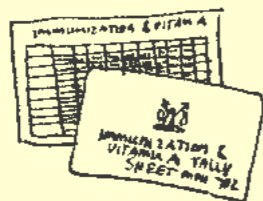Community Health Volunteer (CHV)

Community Health Volunteer (CHV)

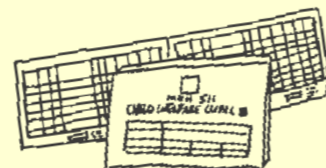Field CHEW

Facility-level Tools

MCH Booklet
(Mother Child Booklet)

A record of all immunizations given to a child kept by the parent/guardian. Updated by facility staff during each visit.

Tally Sheet *(MOH 702)*

A count of daily immunizations per vaccine, to be completed by facility staff as immunizations are administered.

Daily Register *(MOH 511)*

A register documenting every child served on a given day. TO be filled during or immediately after the visit. Each page includes a tally at the bottom to help with reporting.

Permanent/Immunization Register *(MOH 510)*

A record with details of all children immunized at a facility. To be updated with each vaccine. Page number for this entry is often noted in the MCH Booklet to make it easier to find.

HPV Vaccine Card

It is a card given to a patient when they have started their immunizations for the HPV vaccine and is used to record their vaccines. The patient keeps it with them and presents it at the health facility when they come for their next dose.

HPV Vaccine Register *(MOH 413)*

A register used specifically for the HPV vaccine program. Includes additional information about the girls' school name and class.

Malaria Vaccine Tally Sheet

A register used specifically for the Malaria vaccine program. Currently in pilot phase, only used in select areas.

Monthly Summary Sheet *(MOH 710)*

A summation of all immunizations given at the facility in a particular month. Daily totals are meant to be filled at the close of the day. Monthly total is added up at the end of the month.

Integrated Report *(MOH 711)*

A monthly report aggregating various information sources, meant to be filled out monthly at the facility. Covers ANC, PNC, Family Planning, Maternity & delivery, Child Health & Nutrition amongst others.

Photocopies & Improvised Notebooks

When data recording tools are not available, facilities are advised to make photocopies (at own expense). They may also resort to using blank notebooks (a practice that often leads to increased errors and data gaps).

Hand Notes

When official registers are temporarily unavailable, or staff is too busy to make a formal entry, numbers might be quickly scribbled on a palm or a slip of paper (ex. number of vaccines removed from fridge) and entered into the records at the end of day.

Slips of Paper

Slips of paper might also be used more strategically during busy times. A child's weight might be measured, recorded on a slip, and handed to the mother. Though the wait time has not been reduced, the mother feels attended to and is less likely to leave. The weight is later copied to the registers.

④ System Overview

Facility-level Tools *cont.*

DATA COLLECTION *(informal) cont.*

Register Margins

Busy facility staff might also resort to only filling one register at the time of vaccination, noting any additional required data in the margins. They will then use the "master register" to update all the others at the end of the day.
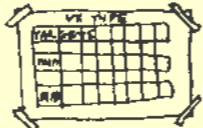

PNC Immunization Book

A register used to track vaccinations completed in the PNC. It is used to update the Daily Register and Tally.

STOCK MANAGEMENT

Vaccine Ledger

An inventory of vaccines (usually one ledger per vaccine) at the facility. Used to record any antigens removed in the morning, returned at night, and added to the fridge.

Forecast Sheet

Shows, based on facility targets, what the minimum and maximum number of antigens the facility should have in stock to avoid stockouts and wastage. Ideally, it is compared against stock at the end of the day and used to order antigens monthly.

Temperature Monitoring Chart

Record of temperature readings for each equipment (fridge or freezer). Meant to be completed in the morning and evening seven days a week. Also records any actions taken in the event there was heat or cold alarm.

Ordering Sheet

Used to order antigens monthly or as needed (in case a minimum amount is reached).

STOCK MANAGEMENT *(informal)*

Antigen dilution and expiry time records book

Additional records kept by some facilities to track wastage and when a vial was opened.

PERFORMANCE MONITORING

Monitoring Chart

A wall chart, to be filled by the facility based on the Monthly Summary Sheet, graphing immunization trends of key vaccines (Penta 1, Penta 3 and Measles) against the set targets. Also shows the cases of vaccine preventable diseases occurring within the month.

(informal)

Charts on manila paper

A hand drawn bar chart monitoring performance at facility, used when official monitoring charts are not available.

OUTREACH *(informal)*

Appointment Diary

A list of children to be immunized on a particular day. The nurse can quickly know how many children to expect for immunization on any given day. Once a child is vaccinated, he/she is marked and listed on the next appointment dates. At the end of the session, the nurse identifies those who missed and using the child number, gets the child's name from the immunization register.

**Defaulter Tracking book /list**

At the facility level, a Counter book is used to create a defaulter list. The list is created by going through their permanent registers and identifying which patients have not come back for their follow up vaccinations. This list is either shared with the relevant CHVs for follow up or the patient is directly called by the facility.

Key Actors: Immunization Nurse

My main goal is to provide timely, quality service to the clients. I manage the immunization sessions, educate moms, and administer the vaccines. I am also responsible for data collection and reporting. I record information and compile it into monthly reports. I also often monitor cold chain temperatures and track stock used for vaccines and consumables.

Generate   Aggregate & Report   Manage   Analyze   Act On
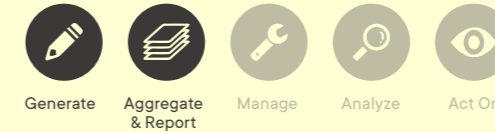
CHALLENGES

- I am expected to make reporting a priority, but those at the top don't ensure I have **basic tools to do the job**

- The **reporting tools** work well under ideal circumstances, but the system quickly disintegrates when I'm under pressure

- The way we **trace defaulters and monitor performance** does not work in a dynamic, urban setting where patients are moving in and out of our facility

- I understand the importance of good data, but I didn't go to nursing school to do reporting. **I don't have the proper training or passion for numbers**

- The **feedback I get is infrequent**, and mostly focused on what I did wrong

DECISION-MAKING

I decide on my own:
- How to manage and run an immunization session, which entails deciding on the quantity of vaccines to pull out of the refrigerator and into a vaccine carrier for use during the day, organizing the flow of children for vaccine administration, and process for updating data collection forms.
- When to check and record fridge temperatures.

I decide as part of a group:
- What activities to prioritize across the facility with facility health management team
- How and when to to develop the annual workplan with facility health management team

Out of my control:
Where and when to do outreach is usually decided by either the Facility In-Charge or the Sub County level. Immunization data is rarely used to make these decisions, so my efforts are not as effective as I would like.

Information I use:
- Daily tools: MCH Booklet, Tally Sheet, Daily Register, Permanent/Immunization Register, Vaccine Ledger, and Temperature Monitoring Chart.
- Monthly tools: Monthly Summary Sheet
- In some cases, I have developed different data collection tools that help me in my work. For example, a notebook for tracking BCG that is administered in the maternity to make sure that information is then included in our overall immunization reporting.

INTERACTIONS

Parent/Guardian
I educate them on vaccines and nutrition.

CHEW & CHV
Review dropouts and identify children who need follow-up.

Student/Casual Worker
They help collect data during immunization sessions. I review data to ensure consistency and accuracy.

MCH In-Charge
I provide updates on the immunization program and identification of drop-outs. I receive feedback on my performance and guidance best practices.

Other facility staff
Coordinate with other facility staff on day to day facility business.
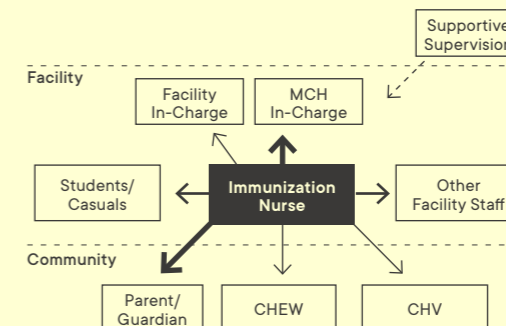
Key Actors: Facility In-Charge

My main goal is to ensure my facility is running soothly and we are delivering on our targets. I am responsible for overseeing all activities in my facility, moving staff around to fill in gaps if necessary, and reporting to the Sub County on all health programs. I oversee the immunization program and make sure no child misses a vaccine.

Generate   Aggregate & Report   Manage   Analyze   Act On
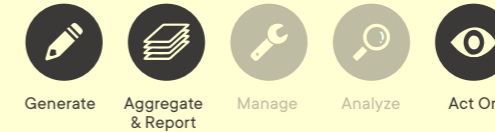
CHALLENGES

- National **stockouts undermine our planning** and outreach efforts

- I'm given **unrealistic targets** based on numbers **that I know are not correct**

- I do my best to **determine what the facility will need**, but ultimately I'm just **making due with what I get** from above

- There is **no time designated for compiling and reviewing the monthly reports**, so we squeeze a full day's worth of work into our regular schedule

DECISION-MAKING

I decide on my own:
- Reporting and records-keeping practices at the facility.
- Identify program activities such as health education for mothers and which children need attention if they are missing vaccines.
- Review and amend staffing allocations

I decide as part of a group:
- How best to track dropouts and ensure they get vaccinated *(with Immunization Nurse and CHEW)*
- When to order vaccines if it falls between the typical monthly collection of vaccines *(with Immunization Nurse)*
- Identify staff engagement and training needs

Out of my control:
Although the sub-county asks us to set our target population, it is largely determined by higher levels. It greatly impacts my work as often the target population is not accurate, which influences our coverage reporting.

Information I use:
- I get my information (specifically related to the immunization program) from the Ledger and the physical count of vaccines for decisions related to stock;
- I review the Permanent Register to identify any drop-outs and Monthly Reports to understand the overall performance of the immunization program.
- I also act based on Monthly Updates and Quarterly Data Reviews I attend at the Sub County to understand how my facility is doing compared to others in terms of performance and coverage.

INTERACTIONS

Immunization Nurse/ MCH In-Charge
I get information on the immunization program.

Facility Records
If my facility has one, we work together to monitor reports.
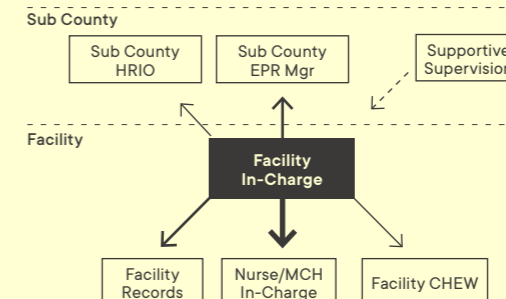
Facility CHEW
I receive updates on links to the community.

Sub County EPI Mgr
At the higher levels of the system, I review program performance.

Sub County HRIO
I review and validate monthly reports and performance monitoring before submission.

4 System Overview

VxDel Data Research
Initial Kenya Findings Report

v 4.1 | May 2020

41

Sub County

The Sub County has a very central role in the immunization program. All the Facility level data is digitized here. Easy and frequent access to the Facility In-Charges makes the Sub County perfectly positioned to champion good data culture and course correct any undesirable practices. Additionally, this level also plays a key role in operationalizing the EPI policies put forth at the National and County levels.

Aggregate & Report

CHVs and Field CHEWs compile monthly reports and pass them to the Facility to help them better understand their community.

Manage

Facility level data is validated, and entered into the DHIS-2 system by the HIROs.

Analyze

Once the data is entered into the system, it is analyzed for performance, trends, and any possible red flags.

Act On

When trends or red flags are identified, the Health Management Team usually sits together to identify next steps.

"Making a work plan is one thing, getting the money is another. This annual year, we are supposed to get 100 vaccine couriers. We are already through half of the year, nothing has come."

—

"[DHIS-2] system is failing us. We have sometimes gone in, found that there's no report and you have done your report. And from your heart, you know you did the work."

—

"It's good to fill the hard copy and soft copy because this is electronic and at times it can go off. There was a time it went off for two weeks."

"At times when we do orders, they don't come in the amounts we had ordered so we usually have to make some adjustments."

—

"The immunization program is going down but there is no funding. You cannot move out [due to lack of transport], you cannot carry out your activities."

—

"Most of [the politicians] I see coming in when we have outbreaks because they see most of their community members are affected so they usually mobilize."

Sub County-level Actors

County Dir. Nursing Services

County Director of Public Health

County EPI Manager /Logistician

County HRIO

County Health Promotion Officer

County Comm. Health Strategy Focal Person

Monthly immunization summary, program implementation, supervision, training, HR *(DHIS, anecdote)*

Follow up on any program update, monthly reviews, quarterly reviews, data tools, target setting, upcoming activities, follow up on data quality issues. *(DHIS, review meetings, WhatsApp)*

A — Sub County Health Admin Officer

T — Sub County Health Management Team

T — Monthly Report Meetings: Facilities and Sub-County team

T — Sub County Pharmacist

T — Sub County Public Health Officer

T — Sub County Medical Officer of Health (MoH)

VPD status, outbreaks, plan for campaign *(Weekly report, outbreak report)*

T — Sub County Disease Surveillance Mgr

T — Sub County Public Health Nurse/EPI Mgr

Program performance *(monthly summary, DHIS)*

T — Sub County HRIO

T — Sub County Health Promotion Officer

T — Sub County CHEW Focal Person

Data review meetings on all program areas *(DHIS and any other report)*

Summary of immunization data, stock data report, cold chain *(monthly summary sheet, WhatsApp)*

Vaccinations given, stock level *(Monthly summary sheet, temp monitoring chart, WhatsApp)*

Monthly report *(MOH 515),* mobilizing for outreach

Pharmaceutical Technologist

Lab

MCH In-Charge

Facility In-Charge

Facility Records

Facility CHEW

Sub County-level Tools

DATA COLLECTION & MANAGEMENT

Monthly Facility Reports

Paper reports from facilities are delivered to the Sub County by the 5th of each month. This data is validated and keyed into the DHIS2 system. The paper forms are archived and stored at the Sub County for several years.

DHIS-2

Electronic database of all facility-level data. Data is keyed in by Sub County HRIO and accessible to anyone with a login. Number of logins at Sub County is often limited. Access is also limited by ability to use the system.
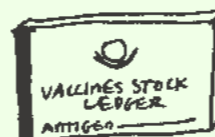
(informal)

Report Checklist

A tracker to ensure all facilities have submitted all the necessary monthly forms. It is common for a facility to deliver incomplete submissions (esp. small facilities which might have had no vaccinations that month).

STOCK MANAGEMENT

Stock Ledgers

Monthly stocks of received and issued vaccines at the Sub County Store. There is a separate ledger for each vaccine.

Temperature Monitoring Charts

A record of the daily temperatures for cold chain equipment (such as fridges and freezers) at the Sub County Store.

Vaccine Forecasting Tools

Used to forecast the doses of vaccines for the year and month. Compiled using the population and wastage rate data.

STOCK MANAGEMENT *cont.*

Vaccine Ordering Sheets

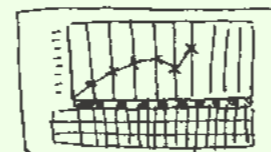Used to order vaccines from the regional depot.

CHANJO

An online system (eLMIS), used for ordering and issuing vaccines. Also records stock levels at the Sub County level.

PERFORMANCE MONITORING

Monthly Summary

An aggregate of facility summary sheets. Includes a summary of all immunizations given, monthly stock record and cold chain data.

Monitoring Charts

Monitors monthly data on selected antigens and monthly vaccine preventable occurrences.

4 System Overview

Key Actors: Sub County HRIO

My main goal is to ensure complete and accurate data is entered into the DHIS-2 on time. I am responsible for **verifying and keying in the data** from all facilities and **following up** about missing reports, data gaps, or inaccuracies. I also **analyze data and share any insights** with relevant Sub County staff.

Generate | Aggregate & Report | Manage | Analyze | Act On
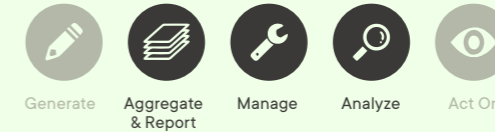
CHALLENGES

- **Lack of reporting tools demotivates the facilities** and makes it difficult for me to ensure completeness & quality

- Facilities regularly submit incomplete, late, or inaccurate reports. **I'm responsible for fixing these issues, but lack the airtime & transport** to follow up

- **DHIS-2 is unreliable**, making it difficult for me to key in data

- **Inconsistencies between paper forms and DHIS-2** take up time and introduce inaccuracies in data

DECISION-MAKING

I decide on my own:
- What feedback to provide to different programs
- How to distribute/re-distribute reporting tools to facilities
- Quality standards for data keyed into DHIS-2

I decide as part of a group:
- What is the target population for the Sub County and catchment population for facilities *(as part of Management Team)*
- What data and reports to present during the monthly review meetings and inform agenda *(as part of Management Team)*
- Which facilities need supervision, training or support to improve data quality or performance *(with EPI Manager)*

Out of my control:
- My role of inputting data into DHIS-2 largely depends on the facilities to send in their monthly reports. The quality and timeliness of those reports can greatly vary depending on the facility.
- Printing timing and quantities for reporting tools *(decided at County level)*
- Tool & DHIS-2 redesigns *(decided at National level)*

Information I use:
- Monthly Reports from facilities, DHIS-2, Target population as provided by the statistics department

INTERACTIONS

Facility Records
I supervise keying in of data into DHIS-2.

Facility In-Charge
I review facility reports and contribute to annual target setting & planning activities such as outreach.

Immunization Nurse
I provide training in response to data issues.

Sub County EPI Manager and MoH
I report on program activities and identify areas that need support.

Other Staff
Work as part of the Sub County Health Management Team. I share my insights, pull specific data, and help generate custom reports.

Sub County: Sub County MoH, Sub County Health Mgmt Team, Sub County EPI Mgr, **Sub County HRIO**, Other SC Staff

Facility: Facility Records, Facility In-Charges, Immunization Nurses
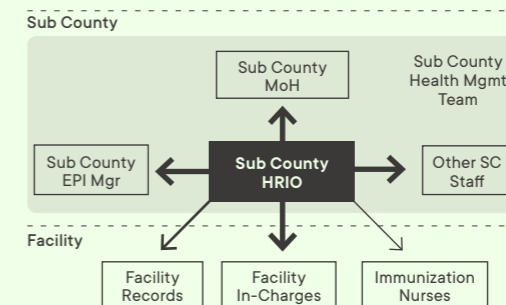
Key Actors: Sub County EPI Manager

**My main goal is to ensure the EPI program is running smoothly in my Sub County.** I am responsible for immunization activities at the facilities. I review the monthly reports and address gaps in coverage or activities. I am also responsible for managing vaccine stock to ensure all facilities have the quantities they need.

Generate   Aggregate & Report   Manage   Analyze   Act On

4 System Overview
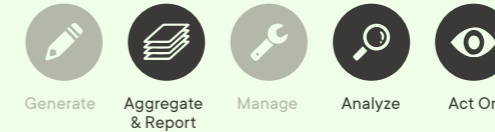
CHALLENGES

- Our planning is based on **unreliable data**

- **Workplans and forecasts rarely reflect the resources I actually get**, so I just go through the motions, knowing I will have to improvise later

- **National stockouts** frustrate our efforts to reach targets

- Basics such as sufficient fridge space are not always available, **forcing me to order based on capacity, not need**

- **Outreach** planning is often **driven by other programs' priorities**

DECISION-MAKING

I decide on my own:
- Solutions to everyday stock management challenges
- What quantities of vaccines to issue to facilities
- Where to re-allocate stock when there are vaccine shortages
- Identify and direct which facilities can immunize

I decide as part of a group:
- Setting annual targets for facilities in order to allocate the population across the Sub County
- Plan when and where outreach should be conducted, based on the reports, missed opportunities to vaccinate as well as other efforts happening in the area
- Best course of action for staffing issues and which facility may need additional nurses with Health Management Team

Out of my control:
- Although we work together to set targets, we only have a small influence over what the overall target population is for our Sub County.

Information I use:
- I use the Monthly Reports from the facilities to track immunization performance.
- I use stock information from CHANJO to decide on vaccine quantities to distribute.
- Funding availability is another influencer for decisions.

INTERACTIONS

Facility In-Charge
I receive updates on immunization activities.

Sub County HRIO
I receive updates on program performance and if any intervention needs to be introduced in any Facilities.
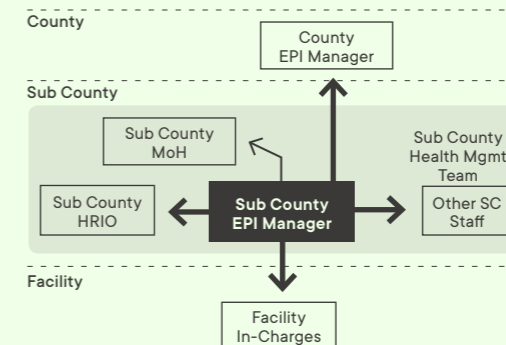
Other Staff
Work as part of the Sub County Health Management Team.

Sub County MoH
I report and share the details of the EPI program.

County HRIO
I track progress on the immunization program.

County
County EPI Manager

Sub County
Sub County MoH
Sub County HRIO
Sub County EPI Manager
Sub County Health Mgmt Team
Other SC Staff

Facility
Facility In-Charges

# Key Actors: Sub County Disease Surveillance Mgr.

My main goal is to ensure we are tracking infectious diseases and responding to outbreaks in a timely manner. I am responsible for active and passive surveillance. I receive and analyze data on preventable diseases. If I find inconsistencies, I follow up and forward to County for action. I collect samples for analysis.

Generate   Aggregate & Report   Manage   Analyze   Act On
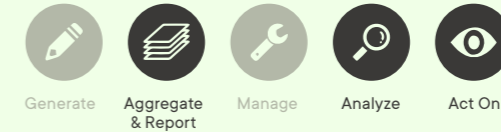
CHALLENGES

- **Lack of transport** for active case searches and per diem for surveillance

- **Limited or no airtime** provided by County which would help me to call people and verify data or to check in on an existing active case search

- **Delayed reports** from facilities which means less time to check for data quality and data with errors is submitted to the next level

- **Poor quality of data**

- ODK form uploading can be a challenge due to slow internet

DECISION-MAKING

I decide on my own:
- Review the data and decide when to raise the alarm if the data is indicating an active case or an outbreak.

I decide as part of a group:
- We make decisions about intervening just in case we find out a problem.
- We mobilize to do active case search

Out of my control:
- The reports from the facilities
- The poor quality of data
- The resources allocated to surveillance activities
- The outbreak response from higher levels. Sometimes they are not prepared which means we have insufficient personnel to go to the site to verify data, no transport or per diem for personnel to be able to do a site visit.

Information I use:
- The weekly reports from facilities.
- Other reports that come in sporadically like an outbreak report or suspected measles cases or acute flaccid paralysis in which case I'll fill the investigation form and inform the county disease surveillance coordinator. I'll collect the specimen and forward it to KEMRI for analysis.

INTERACTIONS

Disease surveillance focal persons at facilities

Facility In-Charge, Immunization nurse, HIRO, Nursing Service Manager

MCH In-Charge
In the event of an outbreak, during the management of a response, I work closely with the medical officer of health and sub county health nurse.

County
- County Surveillance

Sub County
- Sub County MoH
- Sub County HRIO
- **Sub County Surveillance**
- Sub County Health Mgmt Team
- Other SC Staff

Facility
- Facility In-Charges
- Immunization Nurse
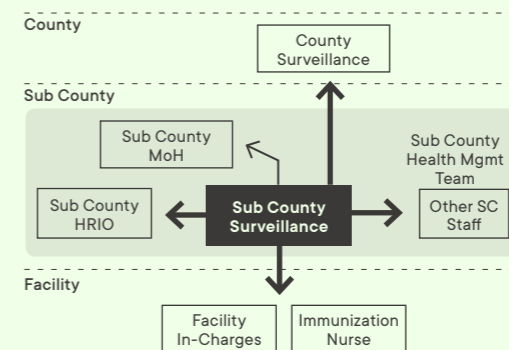
Key Actors: Sub County MoH

I spend most of my time in meetings and putting out fires. I am responsible for coordinating across all programs. I try to address staff shortages and identify program areas that need support. I often perform a dual role, with other full time responsibilities as a Physician, a Sub County Pharmacist, or a Facility In Charge.

Generate   Aggregate & Report   Manage   **Analyze**   **Act On**
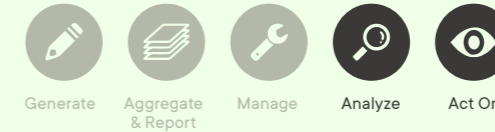
CHALLENGES

- **Work plans are not always realistic**, meaning we scramble to pay for needs as they arise

- Nurses are assigned to us, **I have no control over who gets hired**

- I'm always in meetings or putting out fires, **I have no time to sit down and look at data**. I rely on others to escalate to me

DECISION-MAKING

I decide on my own:
- Staffing decisions for program areas that need more support, including filling in gaps
- Put out fires at the facilities (ex. fridge not working due to unpaid electricity bill).

I decide as part of a group:
- Monitor Immunization program performance and devise interventions to ensure we are reaching all children
- Identification of facilities, prioritization and planning for outreach
- Prioritizing supervision visits to facilities that need additional support
- Provide input into the development of the annual plan and budget
- Prioritize expenses during the year based on what funds are available

Out of my control:

We submit annual workplans and budgets, but then we don't get any confirmation of the budget amounts until the money is made available, we plan and prioritize immediate needs.

Information I use:
- DHIS-2 for program monitoring (rarely access this info for myself, might ask HRIO to pull it for me)
- I use information from the CHEW for outreach planning and prioritizing
- Verbal information from program leads
- Presentations during meeting

INTERACTIONS

Facility In-Charges

I address any issues they many be facing.

Sub County Program Managers

I receive updates on program performance.

Sub County Health Admin Officer

I coordinate on administrative responsibilities.

County Director of Public Health

I report up on program performance.
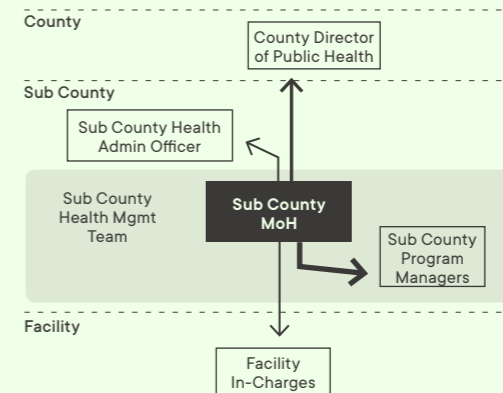
County

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County Director
of Public Health
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Sub County

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Sub County Health
Admin Officer

Sub County          Sub County          Sub County
Health Mgmt            MoH               Program
Team                                     Managers
```

Facility

```
Facility
In-Charges
```

County

County level supervises the proper capture and input of data into DHIS-2 at the Sub County level makes strategic decisions about the EPI program. Most funding decisions also happen at this level, but are mostly out of control of the technical immunization staff.

Aggregate & Report
Generate reports on the performance of all of the Sub Counties. This data is shared back with the Sub Counties during quarterly data reviews.

Manage
County level staff has additional DHIS-2 permissions and might occasionally get involved in resolving issues in the system.

Analyze
Data is analyzed at regularly scheduled intervals (quarterly data review) as well as on a more ad hoc basis, where a program manager might request a specialized report.

Act On
The EPI Manger also routinely reviews data and makes strategic and logistical decisions based on it.

"You find that the denominators are higher than what is on the ground… Sub Counties may not be able to perform because the children are not there."

"When we go for data reviews we are always crucified that you people are not doing much and the immunization program is going down but there is no funding you cannot carry out your activities."

"One of the biggest challenge is trying to convene these meetings for three days. It's not very cheap so sometimes we lack the funds to bring the Facilities and Sub Counties together."

"Some of these decisions are made at the National level. The government holds discussions then the information is rolled down to the County level."

"We have 12 Sub Counties… they also measure their colleagues and every one is alert because they know if they don't perform, they will be pulling their other colleagues down. It keeps them alert and of course no one wants to be reminded of what they are supposed to be doing because this is routine work."

"You find that whoever you had trained is no longer working with that organization. There is a newcomer who does not know the system. Turnover [at Facilities] is one of the main issues."

County-level Actors

Cold Chain Program Officer

National Logistics Manager

National EPI M&E

Issues with cold chain

Stock data, performance, any other update on program implementation, target setting, vaccine forecast. *(CHANJO, DHIS, vaccine forecasting tool, other program reports, population figures)*

County Assembly

County Executive Committee

County Executive Committee Member for Health (CEC Health)

County Chief Officer of Health (COH)

County Director of Public Health

Resource allocation, staffing, program implementation & workplans (tools: budget, annual workplan, staff status reports

County HRIO & EPI & Country Director: Data review meetings with sub-county HRIO, EPI manager and disease surveillance *(DHIS)*

CountyM&E

County Disease Surveillance Mgr

County Dir. Nursing Services

County HRIO

County Health Promotion Officer

County Comm. Health Strategy Focal Person

County EPI Manager /Logistician

Target setting, coverage and performance *(quarterly review meetings, DHIS)*

County HMIS

Sub County Medical Officer of Health (MoH)

Sub County Public Health Officer

Sub County Public Health Nurse/EPI Mgr

Sub County HRIO

Sub County Health Promotion Officer

Sub County CHEW Focal Person

County-level Tools

DATA COLLECTION & MGMT

DHIS-2
Electronic database of all facility-level data. Data is keyed at Sub County level and monitored by the County HIRO for timely completeness, major gaps, and glaring inconsistencies.

STOCK MANAGEMENT

CHANJO
An online system (eLMIS), used for ordering and issuing vaccines. Also records stock levels at the Sub County level. Used for visualizing and monitoring stocks.

RESOURCE ALLOCATION

Strategic Plan
The strategic plan is focused on the plan for health at the County level and is focused on 5 year intervals. It outlines the goals and milestones that the county wants to reach within this time. The strategic plan feeds into the annual workplan.

Annual Workplan
The Annual Workplan lists the key activities, people responsible and resources needed to reach the goals outline in the Strategic Plan and the CIDP. This is reviewed on a yearly basis.

County Integrated Development Plan *(CIDP)*
This is a 5 year rolling plan for all sectors within the County including health. The strategic plan feeds into the MOH's contribution into the CIDP.

Annual Development Plan
The ADP is the single year extract from the County Integrated Development Plan allowing for updates responding to current emerging issues in the economy. There is no legal obligation for these two plans to match, but logically, the CIDP being a 5-year plan should guide the annual plans.

RESOURCE ALLOCATION *cont.*

Sector Working Group Report
A three year rolling plan and budget that charts out what the sector has done in previous years and what they intend to do in next three years including the current financial year. Managers bring their reports and look at interventions, targets, allocations we review results and challenges.

Authority to Incur Expenditure
This authorizes spending on services or goods

Key Actors: County HRIO

My main goal is to ensure complete and timely data for my County in the DHIS-2. I am responsible for coordinating health information services, ensuring the collection of routine data from Facilities and input into DHIS-2 at the Sub County level. I provide feedback to program managers on performance and issues that may need to be addressed.

Generate   Aggregate & Report   Manage   Analyze   Act On
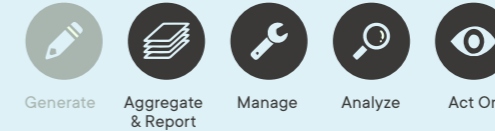
CHALLENGES

- **Lack of reporting tools** for the County demotivates my staff

- I spend most of my time going from one meeting to another. **I don't have enough time to fully monitor data quality.** I check highly visible data points and largely ignore the rest

- Some of the **data is "too far gone"** to be useful, it would take an initiative to fix it

- **DHIS-2 is very buggy,** making retrieving some data a challenge

- I don't get feedback from National, making it hard to know how my County is doing compared to others

DECISION-MAKING

I decide on my own:
- When data quality checks should be carried out, although this depends on funds availability to actually implement
- Identify which facilities need additional supervision, staffing or training based on drop-outs, coverage rates and any staffing overload
- Identification of Sub County HRIOs that may be delayed in reporting and need follow up
- Selection of indicators and specific reports to review because time does not allow me to review of all records

I decide as part of a group:
- Along with the County EPI:
- Identification of any discrepancies in data and how to address them before being able to submit the final reports
- What feedback to provide to which Sub Counties to resolve any data quality issues or address any program performance issues
- Identification, analysis and visualization of data sets for annual target setting planning.

Out of my control:
I don't have much influence over when reporting tools are printed and distributed. I can advise on training and supportive supervision, but the decision is based on funding availability.

Information I use:
- DHIS-2
- CHANJO to triangulate data in the DHIS-2

INTERACTIONS

Sub County HRIOs
I review reports and data in DHIS-2.

County Program Managers
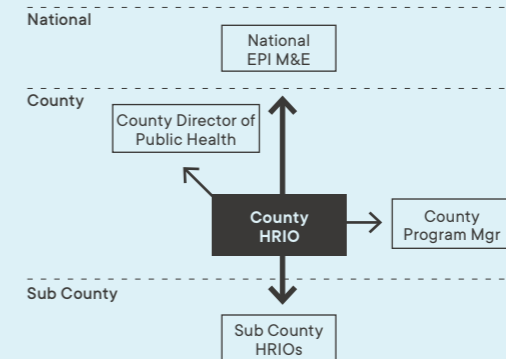I provide feedback on progress and performance.

County Director of Public Health
I report on program review and performance.

National EPI M&E
I interact directly with the National EPI M&E to track progress on immunization program.

National

County

Sub County

National EPI M&E

County Director of Public Health

County HRIO

County Program Mgr

Sub County HRIOs

Key Actors: County EPI

My main goal is to ensure the immunization program runs smoothly in my County. I oversee all immunization activities in my County. I track performance and coverage and decide which areas need additional supervision, training or support. I oversee stock management, although I don't manage any stock specifically at my level.

Generate   Aggregate & Report   Manage   **Analyze**   **Act On**
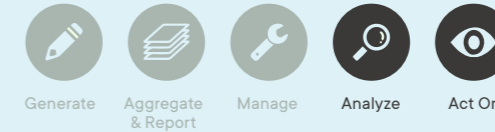
CHALLENGES

- **So much of the planning work I do feels in vain.** Our targets are based on inaccurate data. We do our best to forecast our needs, but Regional rarely fills our orders as we placed them.

- Because orders are rarely filled in full and on time, **I spend a lot of time re-shuffling resources around the County** and dealing with last minute logistics

- **National stockouts** frustrate our efforts to reach targets.

- **I depend on partners for much of my funding**, meaning I'm often not the one deciding how it gets spent

DECISION-MAKING

I decide on my own:
- Identify which Sub Counties have low coverage or many drop-outs and choose how to provide additional support i.e training or supervision
- Track stock data and decide if stock needs to be moved around from one Sub County to another if there are in under or overstock situations

I decide as part of a group:
- With the County Health Management Team:
- How to coordinate immunization services across the County and particularly for outreach efforts.
- Track indicators, noting which facilities and Sub Counties may have performance issues and how to support those facilities as a team
- Resolution mechanisms for staffing gaps and issues within the County

Out of my control:
Although I have some influence over target setting, we are provided numbers from the national level and they may not be totally accurate.

Information I use:
- DHIS
- CHANJO
- Anecdotal evidence on facility capacity regarding staff issues

INTERACTIONS

Sub County EPI Manager
I receive updates on immunization program performance.

County HRIO
I review program performance and monthly reports.

National Cold Chain Officer
I report any cold chain maintenance requirements

National Logistics Manager
I report stock data, performance, any other update on program implementation.

National
| National Cold Chain Officer | National Logistics Manager |

County
| County Director of Nursing Services | County HRIO |

County EPI
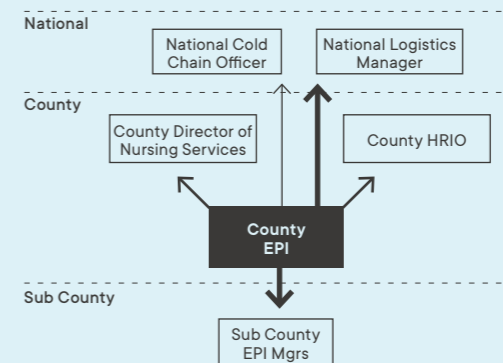
Sub County
Sub County EPI Mgrs

Key Actors: County Disease Surveillance Mgr.

My main goal is to coordinate disease surveillance and response. I lead the surveillance teams and review data to identify potential outbreaks. I also coordinate with Sub County and sometimes, facility level surveillance officers. If I discover an outbreak I communicate immediately with my team.

Generate · Aggregate & Report · Manage · **Analyze** · **Act On**
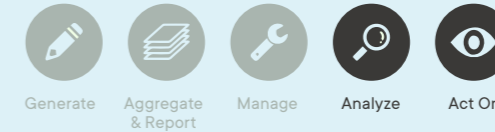
CHALLENGES

- Receive outbreak alerts late sometimes

- The county emergency rapid response team is not as prepared as it should be to recognize the urgency of an outbreak and act on it.

- People are not comfortable making decisions and rely on me to make the ones they should be making or want to escalate to the national level when somethings can be solved at the county level

- Poor quality of data from facilities and Sub Counties

- Specimen transport is a challenge. Sometimes we use vaccine carriers.

- Limited skills on how to respond to an outbreak, collect and transport specimens and limited laboratory capacity

DECISION-MAKING

I decide on my own:
- If I hear about suspected cases, I validate the data to confirm the case. I conduct interviews and gather as much information as possible to make sure I know everything related to the outbreak.
- Once I validate I can design the interventions to stop or control the outbreak.

I decide as part of a group:
At the county level, we have the Sub County Disease Surveillance coordinator, the lab technician, someone from the EPI department who handles commodities. So it is a combination of people who come together to coordinate a response to an outbreak because everyone has a role to play.

Out of my control:
- The reports from the facilities
- The poor quality of data
- The resources allocated to surveillance activities

Information I use:
- Data in the DHIS-2 to look at data
- WHO website to understand the latest recommendations about specific outbreaks.
- Social media is an informal source of information
- Telephone calls from staff about potential case

INTERACTIONS

Director of Public Health

Director of Planning and Administration

County Director of Health

Sub County surveillance officer

County

Director of Planning and Administration	County Director of Public Health

County Disease Surveillance → County Program Managers

Sub County

Sub County Surveillance Mgr

Regional

Regional activities are focused exclusively on managing the vaccine supply chain. The Regional Depot manages the storage and distribution of vaccines directly to the Sub County stores.

"When the system is slow, you cannot fail to issue vaccine to a Sub County, so you record on paper. At times you issue on paper and forget to update the system. Or when you are feeding in the numbers you may have errors. That is why we end up doing a physical count every month to ensure what we have is what is reflected in the system."

Generate

The Regional Depot generates data around stock and cold chain management.

Analyze

The Regional Depot needs to review and analyze data from the Sub Counties to be able to properly manage stock levels.

Act On

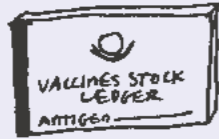Uses stock and cold chain data from the Regional level and below to submit orders, fulfill orders, and make logistical decisions.

Regional-level Tools

CHANJO

An online system (eLMIS), used for ordering and issuing vaccines. Also records stock levels at the Sub County level. Used for visualizing and monitoring stocks.

Vaccine Stock Ledger

This is a stock ledger by antigen that is used to record stock entering into the Regional Depot and how much is issued and to whom.

Vaccine Ordering Sheet

This is a physical sheet that is given to the Regional Depot so that they are able to be issued with vaccines. This is supposed to be done through CHANJO, however if the Sub County is unable, the back end in CHANJO will be updated by the Regional Depot Manager.

Temperature Monitoring Chart

This is used to record the temperature of the stock fridges on a daily basis.

Temperature Data Logger *(such as FridgeTag)*

The Data Lodger is a digital tool that is linked to the fridges. The fridges have sensors that send an alert to the unit if the temperature is too high. The unit sounds an alarm if there is a fault or failure in the equipment. It is supposed to be linked to the emails and personal numbers of Depot staff.

Excel Spreadsheet with Stock Levels

This is to supplement the use of CHANJO when it can't be used. It contains the Sub County, the antigens and the balance left at each Sub County. It is used to report to the County and National Levels when CHANJO is not in use.

4 System Overview

STOCK MGMT *(informal) cont.*

Excel Spreadsheet

With the numbers of vaccines arriving at the Regional Depot lower than what was requested by the counties, the County EPI and/or the Regional Depot Manager may recalculate and record amounts that need to be distributed into an excel spreadsheet detailing redistribution numbers.

Key Actors: Regional Store Manager Mgr.
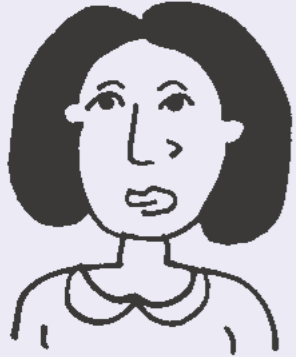
I am responsible for managing stock to ensure Sub Counties have sufficient amounts of vaccines for their activities. I manage staff for the loading and unloading of deliveries. I complete reports and vaccine orders to the National level for our quarterly supplies of vaccines. I also reallocate stock between Sub Counties if there is overstock or understock.

Generate   Aggregate & Report   Manage   Analyze   Act On
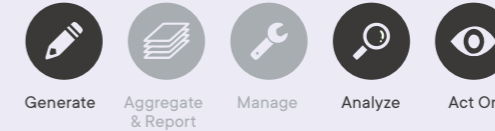
CHALLENGES

- I usually **don't have enough stock** and have to make hard choices on how to fill in the orders

- Because the **digital system is not reliable, I end up also using paper as a failsafe**. This doubles my work

- **Inadequate funds for daily operations** make it difficult for me to ensure cold chain is maintained

DECISION-MAKING

I decide on my own:
- Where to issue stock to ensure it is distributed equitably
- Daily operational decisions of the regional
- store including placement of vaccines, hiring of staff and quantity of staff for offloading
- vaccines
- When to update CHANJO based on the information information received
- What days/when Sub Counties come to the Depot to pick up supplies
- The content of requests to the National Depot

I decide as part of a group:
- Along with staff at Regional Depot, identify who will participate in trainings based on equity, experience and need

Out of my control:
The target population of the counties in my region is given to me by the EPI Coordinator so I can plan the quantities of vaccines needed, but that number is not always accurate.
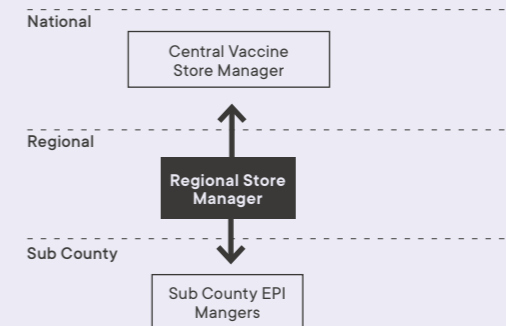
Information I use:
- CHANJO

INTERACTIONS

Sub County EPI Mangers
I inform on stock availability and any changes to their order.

Central Vaccine Store Manager
I inform about issues of stock orders, emergency orders or issues between quarterly deliveries.

National

Central Vaccine Store Manager

Regional

Regional Store Manager

Sub County

Sub County EPI Mangers

National

The National level drives planning activities such as setting annual targets. They also take on a monitoring role, reviewing Sub County data for trends and performance, and are in charge of the vaccine supply chain (though all other commodities and expenses are handled by the County). Lastly, they work with Partners to secure funds and supplies.

Aggregate & Report

Many reports are compiled at the National level. These reports are usually intended for senior leadership, Partners, or international stakeholders.

Analyze

DHIS-2 and CHANJO data is reviewed at the National level to monitor the performance of the immunization program. Data is also scanned for quality issues.

Act On

The National level mainly uses data to change National policies (such as what data is collected), set new policies and protocols, and to manage the vaccine supply chain.

"The target population keeps changing, so you'll find that of for instance they've been having a coverage of 70% from February to March, then all of a sudden the coverage goes to 130%. So either it's the denominator or the data that was entered was incorrect."

"Before a partner comes to a specify County, he'll want to know the target population because most them want to fund each activity per child. So the more children you have, the more money you're going to get. So at times [Sub Counties] like playing with the numbers. Currently what we are doing is, after every three months, they lock the population so it becomes very hard to change."

"You have someone crying that they don't have vaccines in their Depot. When you open the system, it tells you that they have 1000s of vaccines so you are like... 'But I see from your CHANJO'. That's when someone will say 'NO! NO! NO. That has not been updated, my so and so is on leave.'"

"Of course you'd like it to be real time, but usually you''ll find it's for the previous month. People will take time to upload. And then the issue of accuracy, we find that there are some fields that are not filled and they auto calculate in the DHIS, you start getting negative values."

National-level Actors

Director General

Dir. Preventive & Promotive Health

Head of Dep. National Strat Program

National Pharmacy & Poisons Board (PPB)

National M&E HMIS

National Dis. Surveillance Unit

National Manager for EPI

Performance, coverage *(DHIS, review meetings)*

Stock status, vaccine ordering, informing about vaccine arrival, cold chain status. *(CHANJO, review meetings)*

Partner

National Logistics Technical Working Group: National Logistician and Partners *(CHANJO)*

National ACSM Officer

National Training Coordinator

National EPI M&E

Central Vaccine Store Manager

National Logistics Manager

Nat. Vaccine Safety Program Office

Stock status, vaccine ordering, informing about vaccine arrival, cold chain status. *(CHANJO, vaccine ordering form, WhatsApp, temperature charts)*

National Store Manager

Cold Chain Program Officer

Performance, coverage *(DHIS, WhatsApp, review meetings)*

County EPI Manager

Regional Depot Manager

County EPI Manager

County HRIO

National-level Tools

DATA COLLECTION & MGMT

DHIS-2
Electronic database of all facility-level data. Data is keyed at Sub County level. Monitored at the National level for trends, major gaps, and red flags. Data is pulled to generate various National-level reports. Also accessible to partners and donors.

STOCK MANAGEMENT

Vaccine Arrival Reports *(VAR)*
Documents the arrival of vaccines into the country.

CHANJO
An online system (eLMIS), used for ordering and issuing vaccines. Also records stock levels at the Sub County level. Used for visualizing and monitoring stocks.

Stock Ledgers
Records the issuing of stocks to regional depots. There is a separate ledger for each vaccine.

Effective Vaccine Management Assessment
Assessment performed every 3 years or so. Evaluates vaccine management practices.

PERFORMANCE MONITORING

Joint Reporting Form
Annual report of vaccine coverage and annual occurrences of vaccine preventable diseases (VPD). Shared with WHO, UNICEF.

PERFORMANCE MONITORING *cont.*

Quarterly Bulletin
Summary of program performance in a given quarter.

Joint Appraisal Report
Annual program performance report. All partners contribute to this report. Submitted to GAVI.

Immunization Scorecard
Ranks countries using selected indicators. Shared with all counties.

Mid-Term Expenditure Framework
Used for 3-year expenditure planning; contains outcome criteria on performance monitoring.

TARGET SETTING & FORECASTING
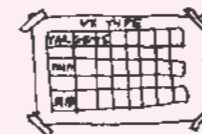
National Vaccine Forecasting Sheet
Yearly estimates of vaccine needs including performance targets and number of vaccines needed. Demographic Data from KNRS and WHO Wastage Rates are used.

Comprehensive Multi-Year Plan
Provides national goals, objectives and strategies for 3-5 years; links to other programs and includes financial sustainability plans

4 System Overview

Key Actors: National Depot Manager

I am responsible for managing the national depot and stock distribution to the regional warehouses. This involves analyzing the data in CHANJO and responding to quarterly orders from the regions. I am also responsible for annual forecasting and ordering for the entire program, and responding to vaccine arrivals at the port.

Generate   Aggregate & Report   Manage   **Analyze**   **Act On**

CHALLENGES

- If there is not enough stock, we are **forced to decide how to best and most equitably distribute the vaccines**.

- The stock data in **CHANJO is not always up-to-date or accurate,** which complicates decisions around stock distribution.

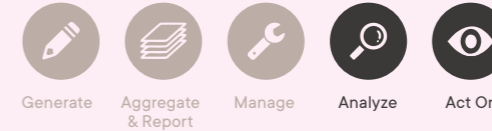- **I can't communicate directly** to those that I need to be able to troubleshoot or clarify/ solve data issues

DECISION-MAKING

I decide on my own:
- Identify what quantities of stock to distribute to the regional stores
- How to address bottlenecks in the supply chain such as arranging a vehicle or shifting stock from one region to another in case of overstock or understock
- When and how to conduct a physical stock count
- Make a call on what the short shipment and emergency stock needs are from UNICEF

I decide as part of a group:
- Along with the National Logistics Manager:
- Devision of operational strategies for the supply chain based on review and analysis of reports
- Identify and put forward recommendations for the redesign of CHANJO
- Coordinating with UNICEF, planning and executing what logistics, transport and approvals are needed for vaccine arrivals in the country

Out of my control:
I can identify training needs for staff across the health system, but but don't have control over the funding availability, so implementation is a bit out of my control.

Information I use:
- CHANJO provides stock information at each level
- Regional stores also submit orders through CHANJO
- I use DHIS-2 for program evaluation to track coverage but not very much.

INTERACTIONS

Regional Store Managers
I inform of vaccine availability and when they can fulfill their orders.

National Logistics Manager
We work closely on the procurement, shipment planning and financing for vaccines

National Store Manager
Submit reports and review performance on stock management, distribution planning and stock shipments

National

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                  ┌──────────────┐
                  │ National EPI │
                  └──────────────┘
                         ▲
                         │
┌───────────┐      ┌──────────────┐      ┌───────────┐
│ National  │      │ National     │      │ National  │
│ Logistics │◀────▶│ Depot        │◀────▶│ Store     │
│ Manager   │      │ Manager      │      │ Manager   │
└───────────┘      └──────────────┘      └───────────┘
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Regional
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                  ┌──────────────┐
                  │ Regional Store│
                  │ Managers     │
                  └──────────────┘
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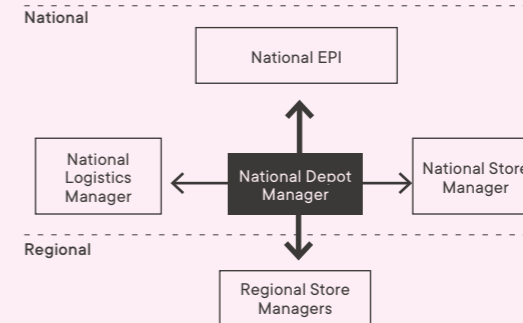
Key Actors: National Logistics Manager
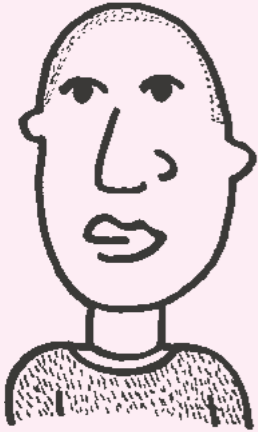
I am responsible for the supply chain and vaccine distribution for the overall immunization program. I am responsible for annual forecasting & procurement and coordinating with partner (UNICEF) for planning shipment arrivals as well as deciding on quantities of vaccines to send to the regional stores.

Generate   Aggregate   Manage   **Analyze**   **Act On**
            & Report
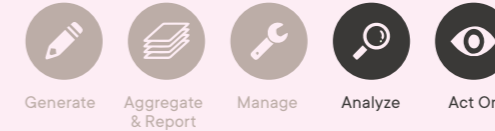
CHALLENGES

- The stock data in CHANJO is not always up-to-date or accurate, which complicates decisions around stock distribution.

- National stockouts are disruptive and mostly out of my control

DECISION-MAKING

What I decide on my own:
- Where to distribute vaccines based on orders and stock levels
- Prioritize activities based on plans from the Sub County levels
- How to move stock from one regional store to another if there is over or under-stock in one place or another.

I decide as part of a group:
- Along with the National Depot Manager and the National Manager M&E:
- Identify and set annual targets and determine forecasting needs of the country
- Plan budget allocations for vaccine procurement, although the timeliness of funds availability is out of my control
- Along with the National Depot Manager only:
- Where to distribute vaccines through best use of resources such as trucks and fuel
- How to redistribute vaccine stock with any out-of-the ordinary measures in terms of shifting quantities of stock from one place to another
- Along with the Cold Chain Program Officers:
- Plan for new cold chain equipment

Out of my control
While we develop a budget and workplan together, we have no control of the timelines of payment or the availability of funds. This has most recently led to a stockout which greatly undermines my performance. I also can decide what training topics are necessary and who should participate, but the actual implementation of the training depends on other resources and funds availability.

Information I use:
- DHIS
- CHANJO

INTERACTIONS

National Logistics Manager and the National EPI M&E
We make programmatic decisions.

Head of the Department of Strategic Programs
I report on program decisions.

Partners
Externally, I interact with partners supporting immunization activities and donors such as GAVI.

National Depot Manager
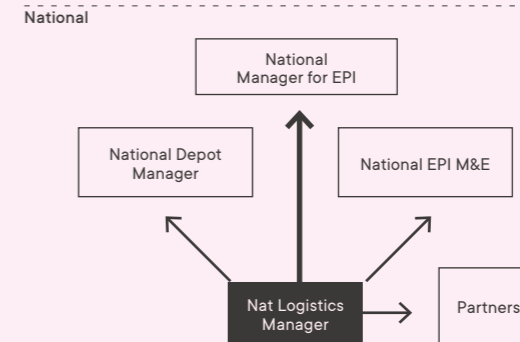We work closely on the procurement, shipment planning and financing for vaccines

National

National Manager for EPI

National Depot Manager

National EPI M&E

Nat Logistics Manager

Partners

Key Actors: National M&E

I am responsible for monitoring performance of the immunization program and tracking coverage rates. I review reports to check for accuracy. I provide performance feedback to County and Sub County levels. I am also responsible for preparing reports and analysis for funders and MOH colleagues. I am a key part of the process for target setting.

Generate | Aggregate & Report | Manage | **Analyze** | **Act On**
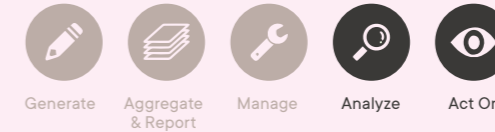
CHALLENGES

- Population figures provided by the county tend to be at odds with my numbers. I don't feel confident about coverage rate estimates.

- Filling out Partner data takes a lot of time and requires a lot of clarification if I don't do it right

DECISION-MAKING

What I decide on my own:
- What M&E activities that I need to undertake
- What metrics I will use to monitor performance of the 47 counties
- How and when to analyze data to identify trends and who to give feedback to and about what
- Identification of what data tools to review and reformat
- What feedback to provide to the Sub Counties and what support to provide such as supervision and training
- The establishment of standard operating procedures for data use and what is included in them

I decide as part of a group:
- Along with the National EPI and County EPIs and HRIOs:
- Identification and creation of the population
- numbers for the Country and for each County
- The annual target and performance coverage numbers for each County based on population numbers, feedback from Counties and Sub Counties and other factors
- Prioritize activities to be conducted during the year based on annual workplans and demonstrated need
- Identification of where supportive supervision should be conducted and what to focus on

Out of my control
I can identify which Counties or Sub Counties need additional support or supervision, but actually conducting supervision relies on funds availability, which is out of my hands to decide.

Information I use:
- DHIS-2
- Some information from CHANJO

INTERACTIONS

County HRIOs
I receive reports and provide feedback on performance.

National EPI Manager
I provide insight into immunization activities.

National

National EPI Manager

National M&E

County

County HRIOs
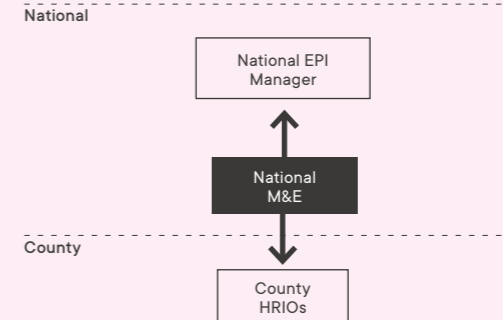
5 | Workstream Journeys

Workstreams

In our research, we identified the following 7 EPI workstreams: Data Collection & Management, EPI Performance Monitoring, Target Setting & Forecasting, Stock Management, Outreach, Resource Allocation, and Staff Engagement.

These workstreams were developed through a bottom up process of clustering the various activities, decisions, and processes discussed during interviews. It is important to note that the activities and decisions covered in this section are not intended to be exhaustive. Instead, they illustrate what the participants found important and key to their work in the EPI program.

The figure to the right maps the key activities according to the system level (starting with the Community in the center, National on the outside layer) as well as the workstream they are associated with. The following pages consider each workstream one by one, highlighting activities, key actors, decisions, tools & information used, as well as major challenges.
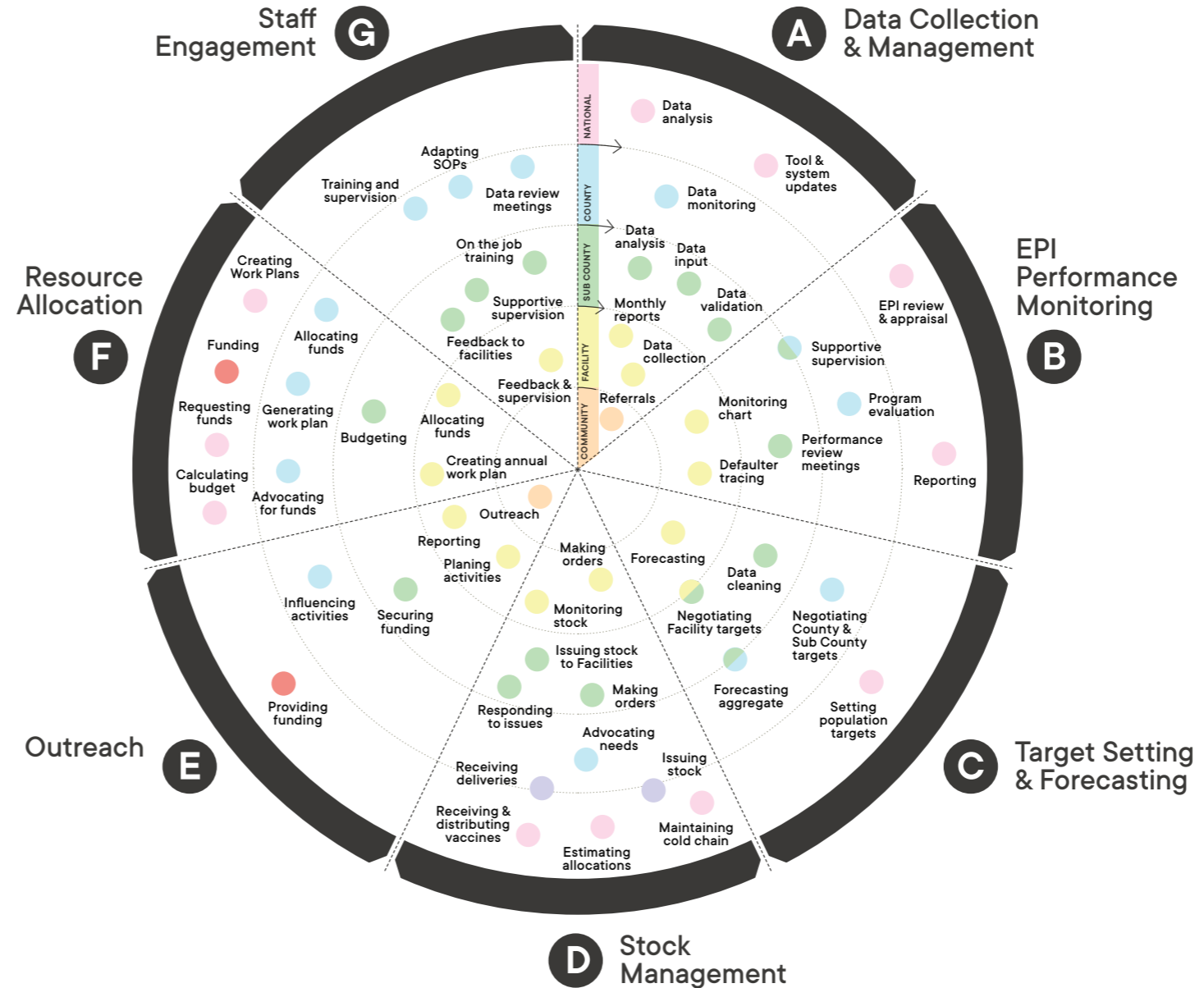
KEY

- Community level activities
- County level activities
- Regional level activities
- Partner activities
- Facility level activities
- Sub County level activities
- National level activities

A — Data Collection & Management

CHALLENGES

- Lack of reporting tools is demotivating and causes under-reporting
- Tools are rigid, require full attention to use, and fall apart under pressure
- Lack of training on data
- Shortage of staff & time
- Digital systems are not reliable, causing delays and duplicative work
- Lack of airtime and transport for follow-up with Facilities
- Inconsistencies between paper forms and DHIS-2 waste time and introduce inaccuracies
- Unreliable data sets (ex. stock data) are not used but still collected
- Few 'data-minded' people at all levels

ACTIVITIES

COMMUNITY / FACILITY / SUB COUNTY / COUNTY / NATIONAL

1. Referrals based on MCH booklet
2. Data collection during immunization
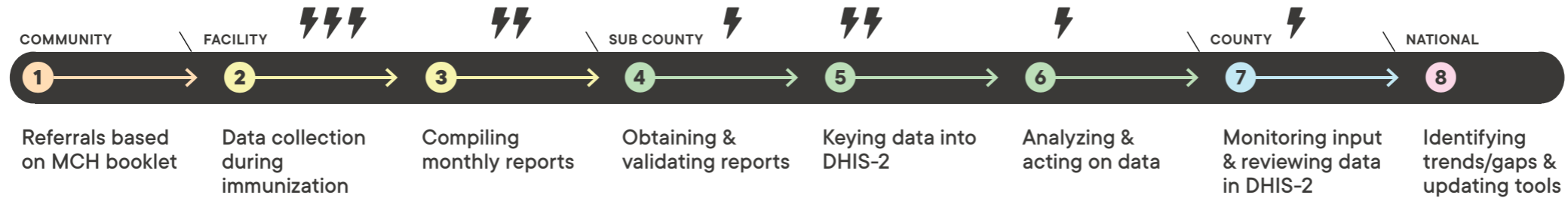3. Compiling monthly reports
4. Obtaining & validating reports
5. Keying data into DHIS-2
6. Analyzing & acting on data
7. Monitoring input & reviewing data in DHIS-2
8. Identifying trends/gaps & updating tools

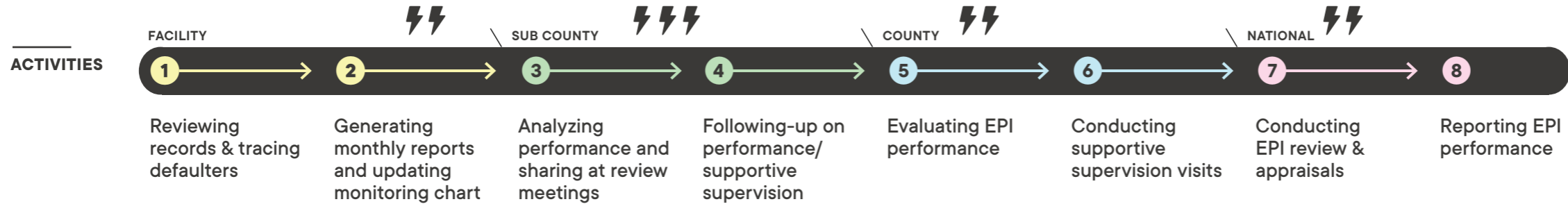| KEY ACTORS	Community Health Volunteer (CHV)	Immunization Nurse	Facility In-Charge	Sub County HRIO	County HRIO	National EPI M&E
DECISIONS	• Which community members to refer to the facility • Which communities to visit and when • Which households to track and follow up with	• How to manage and run an immunization session (number of vaccines to pull out of fridge, way in which children should we organized for vaccinations, and process for recording data) • When to check and record fridge temperatures	• What reporting and records-keeping practices to establish at the Facility (including monthly report standards) • When to follow up on data quality issues • Which activities to prioritize (ex. education, outreach, defaulter tracking)	• What quality standards to use for keying data into DHIS-2 and when to follow up with Facilities • What data to analyze and who to share insights with • What data to pull and how to present it in meetings • How to distribute/re-distribute reporting tools to minimize shortages	• When data quality checks should be carried out • Which Sub County HRIOs may have reporting issues and need follow-up • Which data points to review in my limited time	• How and when to review performance of counties against targets • How and when to share performance results with MOH officials • What are the standard operating procedures for data use
TOOLS & DATA SOURCES	*Referral book, Logbook, Household Register, Monthly Summary*	*MCH Booklet, Tally Sheet, Daily Register, Permanent Register, Vaccine Ledgers, Temperature Monitoring Chart, Monthly Summary Sheet, informal tools*	*Monthly data review meetings, Weekly Reports, Monthly Summary Sheet, Permanent Registers, Tally Sheets, WhatsApp*	*DHIS-2, Monthly Reports, Pivot tables, Graphs, WhatsApp*	*Monthly and Quarterly Data Review Meetings, DHIS-2, WhatsApp*	*Performance Briefs, KNBS Population data, Supervision Checklist, Tally sheets, Summary sheets, DHIS-2, Immunization registers, CHANJO, Temperature monitoring charts*

5 — EPI Workstreams

B EPI Performance Monitoring

- Population data is inaccurate, making coverage rates unreliable
- Lack of current targets or unreachable targets
- Not enough time to review and analyze data
- Time-consuming reporting process
- Lack of knowledge on how to access and interpret data
- Fragmented communication and feedback loops between system levels
- Too much partner influence on program decisions

ACTIVITIES

FACILITY | SUB COUNTY | COUNTY | NATIONAL

1	2	3	4	5	6	7	8
Reviewing records & tracing defaulters	Generating monthly reports and updating monitoring chart	Analyzing performance and sharing at review meetings	Following-up on performance/ supportive supervision	Evaluating EPI performance	Conducting supportive supervision visits	Conducting EPI review & appraisals	Reporting EPI performance

KEY ACTORS

Immunization Nurse	Facility In-Charge	Sub County EPI Manager	County M&E	County EPI Manager	National EPI M&E

5 EPI Workstreams

DECISIONS

• What activities to prioritize • When to update the monitoring chart and what data to update it with • When to create a defaulters list and what information to include	• How best to track & vaccinate dropouts • How facility is performing against performance targets	• How Facilities are performing against EPI targets • What performance challenges to highlight in monthly meetings • Who should receive feedback and technical advice based on performance • Where and how to conduct supportive supervision	• What data indicators to create an evaluation tool on • What insights to report based on program analysis	• What indicators to check, to identify EPI challenges • Which Sub Counties have performance issues and how to support them • Which Sub Counties will receive funding for supportive supervision • How to fund supportive supervision • Where and how to conduct supportive supervision	• What M&E activities to undertake • What metrics to use for performance monitoring • What feedback and support to provide to Counties • What documents and reports are needed for the Joint Appraisal • How to measure impact • When & how to conduct a comprehensive EPI Review

TOOLS & DATA SOURCES

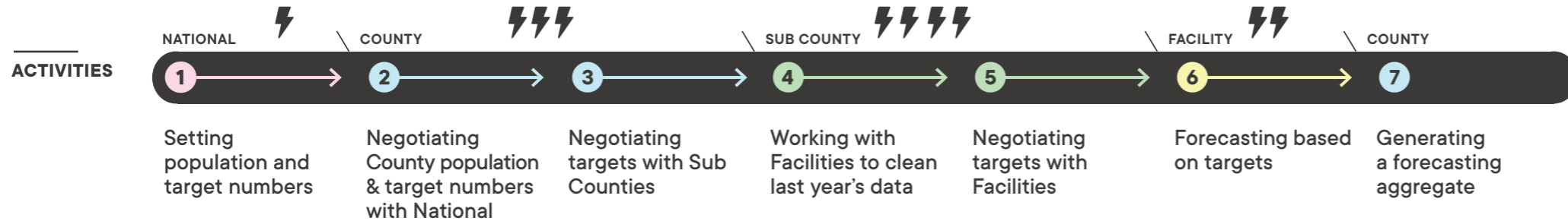|					
Meetings, Monitoring chart, Monthly Summary Sheet, Permanent Register	*Permanent Register and Monthly Reports, Performance Targets, Tally Sheets, Monitoring Charts*	*Monthly Reports, DHIS-2, Conversations with SCHMT, WhatsApp, Integrated, program-specific and national supportive supervision tools*	*Proxy Indicators, DHIS-2, Evaluation tool, Conversations with the County and Sub County*	*DHIS-2, WhatsApp, SCHMT meetings, CHMT meetings, Budget and Annual Workplan, Integrated, program-specific and national supportive supervision tools*	*Annual Workplan, Previous performance, DHIS-2, National EPI Meetings, National Supportive Supervision tool, Coverage, Budget/Funds Information, Planning processes, Challenges, Best practices, Any assessments*

Target Setting & Forecasting

CHALLENGES

- Population data is inaccurate, making targets not very useful for performance evaluation and forecasting
- Data cleaning is time consuming
- Workplans and forecasts rarely reflect the available resources, so planning feels like it's just a formality
- National stockouts frustrate efforts to reach targets
- Lack of funding for planning activities causes delays or excludes those unable to attend

ACTIVITIES

NATIONAL	COUNTY		SUB COUNTY		FACILITY	COUNTY
1 Setting population and target numbers	**2** Negotiating County population & target numbers with National	**3** Negotiating targets with Sub Counties	**4** Working with Facilities to clean last year's data	**5** Negotiating targets with Facilities	**6** Forecasting based on targets	**7** Generating a forecasting aggregate

KEY ACTORS

National EPI M&E	County HRIO	County EPI Manager	Sub County EPI Manager	Sub County HRIO	Facility In-Charge

DECISIONS

National EPI M&E	County HRIO	County EPI Manager	Sub County EPI Manager	Sub County HRIO	Facility In-Charge
• What the population numbers for the Country and each County are • What the annual target and performance coverage numbers for each County are	• What data sets to use for annual target setting • What insights from the data sets are relevant for annual target setting and planning • How to present data and insights for the annual targeting setting • What the population numbers for my County are • What County targets to agree to with National	• Whether the County population numbers from the HRIO are valid • What County targets to agree to with National • When target meetings should be held • How to distribute the targets across Sub Counties and their Facilities • What strategies and interventions to implement to help achieve targets	• What performance targets to agree to with County • How to distribute the targets across Facilities • When target meetings should be held	• What the target population is and what catchment target population to apportion to facilities • What the data quality standards are and what process to use for cleaning Facility data	• What performance targets to agree to with Sub County

TOOLS & DATA SOURCES

National EPI M&E	County HRIO	County EPI Manager	Sub County EPI Manager	Sub County HRIO	Facility In-Charge
Kenya Bureau of Statistics (KNBS) Census Figures, DHIS-2, WHO wastage rate recommendations, feedback from Counties and Sub Counties	*KNBS Figures, WHO wastage rate recommendations, DHIS-2, Performance Coverage, Meetings with CHMT, PowerPoint, Previous feedback, Facility-specific considerations*	*KNBS Figures, WHO wastage rate recommendations, DHIS-2, Facility-specific considerations, WhatsApp, Conversations, Meetings with SCHMT and CHMT, Global innovations, Peer-to peer learning*	*DHIS-2, Facility-specific considerations, WhatsApp, Conversations, Meetings with SCHMT and CHMT*	*KNBS Figures, DHIS-2, WHO wastage rate recommendations, DHIS-2, Facility-specific considerations. Summary Sheets, Tally Sheets*	*Summary Sheets, Tally Sheets, Staff, Workload, Performance, Coverage, Distance from another facility, Training, Available equipment, Cost dynamics, Quality of service (complaint mechanism, exit interviews)*

5 EPI Workstreams

Stock Management

D

- National vaccine stock doesn't meet country needs, causing stockouts and forcing managers to make hard choices on how to allocate what is available
- The stock data in CHANJO is not always up-to-date or accurate, which complicates decisions around stock distribution
- Adoption of digital stock systems is poor, causing parallel workflows

- Funds for basics such as sufficient fridge space are not always available, forcing managers to order based on capacity, not need, and frustrate efforts to manage the cold chain properly
- Because orders are rarely filled in full and on time, a lot of time is spent re-shuffling resources across Sub Counties and Facilities

ACTIVITIES

NATIONAL ⚡ ⚡⚡ | **REGIONAL** ⚡⚡⚡ | **COUNTY** ⚡⚡ | **SUB COUNTY** | ⚡ | **FACILITY**

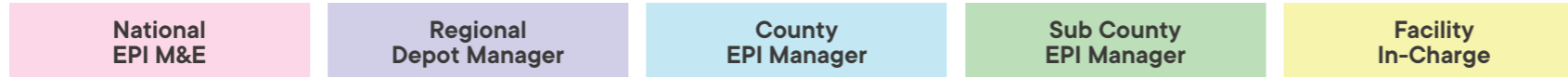| 1	2	3	4	5	6	7	8
Planning & responding to cold chain needs	Estimating allocations based on previous trends	Receiving vaccine shipments & distributing to Regional depots	Receiving delivery and issuing stock (re-allocating if needed)	Advocating to National and responding to cold chain needs	Making orders, picking them up, and issuing stock to Facilities	Cold chain maintenance & responding to issues	Monitoring stock, making orders, and picking them up

KEY ACTORS

National EPI M&E	Regional Depot Manager	County EPI Manager	Sub County EPI Manager	Facility In-Charge

DECISIONS ?

National EPI M&E	Regional Depot Manager	County EPI Manager	Sub County EPI Manager	Facility In-Charge
• What quantities of stock to distribute to Regional depots • When to notify depots that their order is on the way • How to address supply bottlenecks & respond to cold chain issues • When and how to conduct a physical stock count • What the short shipment & emergency stock needs are • What logistics & approvals are needed for vaccine arrivals in the country	• Where to issue or re-distribute stock to avoid stockouts • What staff to hire, when to hire them and how many to hire for offloading of stock • When to update CHANJO based on the information received • What is the pickup schedule • What the cold chain needs are and when to escalate them	• How to re-distribute stock to avoid stockouts • When to go to National to negotiate stock allocations • How to support Sub Counties during vaccine pickup (including transport and storage) • How to respond to cold chain issues such as equipment and transport challenges	• What amount of vaccines to order and when • What quantities of vaccines to issue to facilities • How to re-allocate stock when needed • Which facilities can conduct immunizations • How to address cold chain issues and when to conduct cold chain operational activities	• What amount of vaccines to order for Facility and when to make the order • When and what non-pharm to order (such as syringes) • How and when to pick up vaccines from Sub County • How to record vaccines that enter the facility • When to escalate cold chain issues to the Sub County

TOOLS & DATA SOURCES

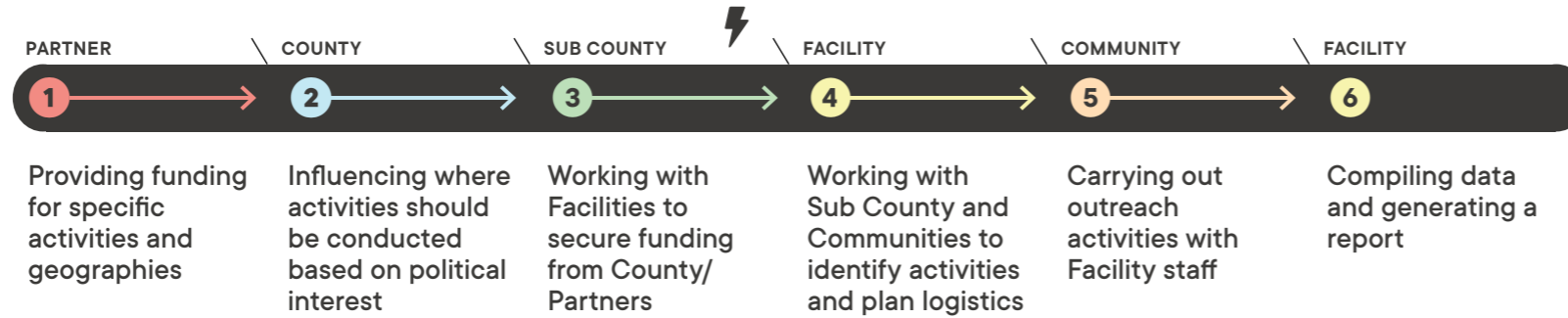| National EPI M&E	Regional Depot Manager	County EPI Manager	Sub County EPI Manager	Facility In-Charge
CHANJO, DHIS-2 and previous needs, Vaccine order sheets, Target populations, consumption data, meetings, Best Practices, Email, Phone, WhatsApp, Vaccine Arrivals Report, CCE Inventory and Gap Analysis, CCEOP ODP	*CHANJO, Vaccine Ledgers, (Informal) Excel Document: Stock, Balances in Sub Counties, Vaccine Ordering Sheet, Temperature Data Lodger, Cold Chain Best Practices*	*CHANJO, WhatsApp Groups, Vaccine Ledgers, Consumption, Target Population, Performance Coverage Targets, County Vaccine Forecasting Sheet, Monthly reports, Anecdotal information, RTM dashboard*	*CHANJO, WhatsApp Groups, Vaccine Ledgers, Performance Coverage, Quality of Service and Storage Capability, Vaccine order sheets, Wastage rates and Consumption, Monthly reports/ RTM dashboard, Phone requests*	*Summary sheet, Tally sheet, KEMSA Online Vaccine ledger, Vaccine order sheet, Order in duplicate form, Physical county of vaccines, KEMSA Online, S11, Stock Cards, FridgeTag, RTM, Reports via phone*

5 EPI Workstreams

E Outreach

Note: This project sought to understand the daily challenges with immunization data and our scope was mostly limited to routine immunization activities.

CHALLENGES

- Outreach activities are planned based more on who is funding them, rather than what I know about the community needs
- Because funding for EPI-specific outreach is rare, EPI data is not considered in the site selection
- Lack of outreach-specific reporting tools impacts the quality of data collected
- Traditional defaulter tracing does not work in a dynamic, urban setting where patients are moving in and out of facilities
- National stockouts undermine outreach efforts as facilities are forced to turn away clients
- CHVs are often responsible for much of the data recording but don't receive any training on how to do it.

ACTIVITIES

	PARTNER	COUNTY	SUB COUNTY	FACILITY	COMMUNITY	FACILITY
	1	**2**	**3**	**4**	**5**	**6**
	Providing funding for specific activities and geographies	Influencing where activities should be conducted based on political interest	Working with Facilities to secure funding from County/Partners	Working with Sub County and Communities to identify activities and plan logistics	Carrying out outreach activities with Facility staff	Compiling data and generating a report

KEY ACTORS

Partner	Political Appointee	Sub County CHEW Focal Person	Facility In-Charge	Immunization Nurse	Field CHEW

5 EPI Workstreams

DECISIONS ?

Partner	Political Appointee	Sub County CHEW Focal Person	Facility In-Charge	Immunization Nurse	Field CHEW
- What outreach activities to fund or provide tangible support for (cars, staff etc) - What was the return for my investment in the outreach activities	- What area outreach should be conducted in to benefit my political standing	- Where to find funding to help my facilities conduct outreach services and how much is needed - What populations and areas to conduct outreach in - How to support transport requirements from Facilities to conduct outreach - How the outreach activities should be performed	- When to reach out to the Sub County to request funding for outreaches - What transport and other logistics are needed for outreach - When to conduct outreach activities - What information to include in the outreach report	- What populations and areas to suggest for outreach activities - What amount of vaccines are needed for outreach - How to collect data while conducting outreach and with what tools	- Which children the CHV should follow up with - How to monitor progress on coverage, outreach, and drop-outs - How to raise money to support outreach services - What to communicate to Facility CHEW about community & its needs - How to mobilize the community and who to inform about outreach - How to record data

TOOLS & DATA SOURCES

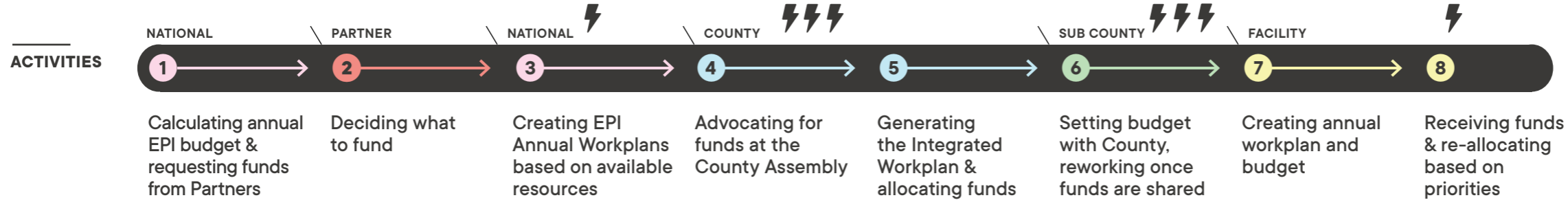| Partner	Political Appointee	Sub County CHEW Focal Person	Facility In-Charge	Immunization Nurse	Field CHEW
Partner's strategic plan, MOH Strategic Plan, Partner's Annual Workplan and Budget, Partner Outreach Report, Performance Coverage, DHIS-2	*Influential members of the community, conversations with the wider community and re-election cycles*	*Budgets, Annual Workplans, WhatsApp, Meetings with SCHMT and CHMT, Partner Discussions, DHIS-2, Partner requirements, Facility recommendations, Performance targets, Informal outreach reports, Report to Partner*	*Budgets, Annual Workplans and Performance Targets, Population numbers and staff availability, Annual Workplans, Performance targets, Summary Sheet, Informal Outreach Report*	*Defaulters lists, Community feedback, Population numbers, Current stock, Performance targets, Permanent register, SOPs, Tally Sheets, Summary Sheets and MCH Booklets, Informal recording tools*	*Household Registers, Monthly Summary, Chalkboards, EPI Appointment Book and Defaulters list, Monthly CHV meetings, Target population, Dialogue Days, WhatsApp, Tally Sheets*

F Resource Allocation

CHALLENGES

- Funding allocations are largely driven by politics, with little input from technical people
- Actual funds released by County never match what's outlined in the work plans
- Without sufficient funds to meet even the most basic needs, managers are always in reactive mode
- Sub Counties don't have control over what resources get assigned to them (such as Nurses)
- Late reporting causes delays in the release of funds
- Incomplete or out of date documentation

ACTIVITIES

NATIONAL	PARTNER	NATIONAL	COUNTY		SUB COUNTY	FACILITY	
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Calculating annual EPI budget & requesting funds from Partners	Deciding what to fund	Creating EPI Annual Workplans based on available resources	Advocating for funds at the County Assembly	Generating the Integrated Workplan & allocating funds	Setting budget with County, reworking once funds are shared	Creating annual workplan and budget	Receiving funds & re-allocating based on priorities

KEY ACTORS

National Manager for EPI	Partner	County Director of Public Health	Sub County MoH	Facility In-Charge

DECISIONS

• What EPI budget to share with planning unity of MOH • How to spend the received MOH budget • What proposals to send to UNICEF to gain access to GAVI funds • How the funds received from GAVI will be used • What to include in Annual Workplan	• What EPI program proposals to accept and to release funds for (as UNICEF on behalf of GAVI)	• What should be included in our Annual Workplan • When the technical units should create their budgets & which to approve • When to send budgets to the Assembly for approval • How to advocate for the EPI program during County Assembly sittings • How to allocate staff	• Where to place staff • What the needs, performance numbers and projected activities are for my Sub County as part of the Annual Workplan and Budget, which informs the County Integrated Workplan • How funds should be spent and what expenses to prioritize	• What to include in annual workplan and budget • How to spend the actual funds received from Sub County • When to review staffing allocations and request for additional staff

TOOLS & DATA SOURCES

National Vaccine Forecasting, EPI Program Budget, AIE, MTEF, Annual Budget, Annual Workplaces, Strategic Plan, GAVI Approval Letters, Proposal Templates, Comprehensive Multi Year Plan, Joint Appraisal Reports, Comprehensive EPI reviews, EVMA Reports, Post Introduction Evaluation reports	*GAVI Approval Letters, Completed Proposals from EPI Program*	*County Integrated Development Plan, County and Health Sector Strategic Plans, Annual Reports, County Assembly Sitting Schedules, CIDPs, Political Interests, Actual allocation of funds, Annual Workplans and Budgets, HR notes and staffing information*	*County Integrated Development Plan, Annual Reports, Sub County Annual Workplan, Budget, Performance Coverage, WhatsApp, Communications with Program leads, Meetings with SCHMT and Facilities, Actual funds received, Revised Budgets and Revised Annual Workplans*	*Previous annual work plan , RED tool like microplans used at facility level, Revised Annual Workplan, Revised Budget, Meeting with FHMT, Prioritized Expenses List, Facility patient numbers, population numbers and performance coverage targets*

5 EPI Workstreams

Staff Engagement

(G)

CHALLENGES
- Training activities take away from work time, putting strain on the already understaffed system
- Who gets trained and when is not standardized, which opens the door for favoritism and creates critical knowledge gaps
- Funding for supportive supervision is insufficient
- Feedback is infrequent, and mostly focused on error-correction

ACTIVITIES

COUNTY | SUB COUNTY | FACILITIES

1	2	3	4	5	6	7	8
Holding data review meetings	Adapting SOPs and guidelines for local context	Securing funding and conducting training and supervision	Organizing formal training sessions	Conducting supportive supervision (with County & National)	Identifying issues & providing on the job training	Providing informal feedback to facilities	Receiving feedback and supportive supervision

KEY ACTORS

County EPI Manager	County HIRO	Sub County EPI Manager	Sub County HIRO	Immunization Nurse

DECISIONS

County EPI Manager	County HIRO	Sub County EPI Manager	Sub County HIRO	Immunization Nurse
• How to adapt National Training SOPs to County context • When and how to train the trainers • Who will receive supportive supervision • Who from County will conduct supportive supervision and when • How to use WhatsApp to provide advice to others	• How to train and advise others within the Sub Counties and the Facilities on data-related issues • How to use WhatsApp to provide advice to others	• How to adapt SOPs for local context • When and how to share training I have received with others • Which Facilities will receive supportive supervision & CME's and how to fund it • Who will conduct supportive supervision & CME activities and when • How to use WhatsApp to provide advice to others	• How to train and advise others on data-related issues • Who requires training within the Facilities based on parameters set by EPI Manager • How to use WhatsApp to provide advice to others	• How and when to train the CHVs on the immunization program and community health • How to adhere to the guidelines and SOPs, utilize my training, and implement supportive supervision recommendations • What advice to put into practice based on my conversations in WhatsApp Groups

TOOLS & DATA SOURCES

County EPI Manager	County HIRO	Sub County EPI Manager	Sub County HIRO	Immunization Nurse
SOPs and guidelines, Program specific training, DHIS-2, WhatsApp, Performance Coverage, Recommendations from SCHMT and CHMTs, Specific Data issues flagged by HRIO, CHANJO, Staff availability, Annual Workplans and National directives, County Supportive Supervision Tool,	*Skills Update Training, Integrated & program specific supportive supervision tools (TCI, HIV, FP), Data review meetings, WhatsApp, Best Practices*	*SOPs and guidelines, Training materials, DHIS-2, Performance Coverage, Recommendations from the Facilities, SCHMT and CHMTs, Staff availability, Annual Workplans, National directives, County Supportive Supervision Tool, Partner requests, Budgets or County allocations, WhatsApp*	*Skills Update Training, Integrated supportive supervision tool, Supportive supervision tools, Data review meetings, DHIS-2, Performance Coverage, Specific Data issues flagged by County HRIO, CHANJO or Stock Ledgers, WhatsApp, Best Practice*	*CHV training modules, Best Practices, SOPs and guidelines, Vaccine Management, Supportive Supervision feedback, WhatsApp Groups, Advice on Best Practices*

(5) EPI Workstreams