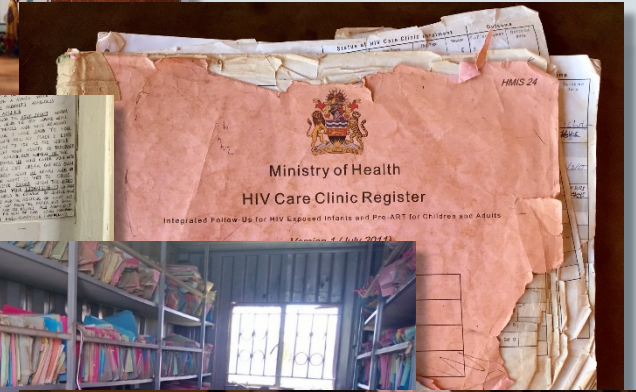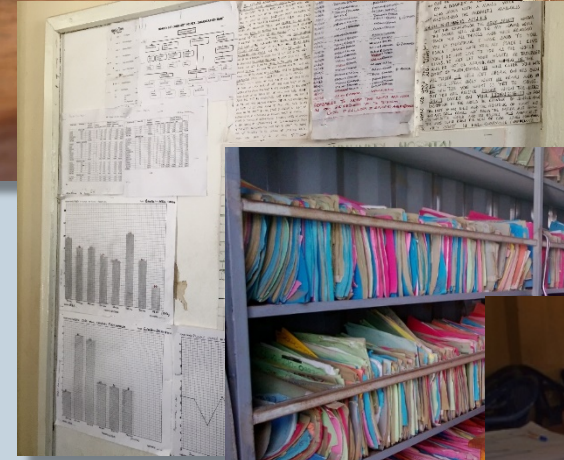# THE KUUNIKA PROJECT

DATA FOR ACTION

Data Users Study- Initial Findings
August 2016

COOPER/SMITH

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- How could data systems/processes be improved?

❑ Next Steps

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Kuunika Project Background

Kuunika Project Background

- [ ] *The Kuunika Project: Data for Action* is a 4-year program funded by the Bill & Melinda Gates Foundation (BMGF) and implemented through the Government of Malawi (GOM) and partners.

- [ ] It aims to establish a strong base of high-quality, routinely-available data and an ingrained culture of data use among technicians and policy makers in the health sector, using HIV as a first use case.

- [ ] The project places a strong emphasis on increasing capacity to access and use health data in high burden HIV/AIDS facilities and communities.

- [ ] In addition, the *Kuunika Project* seeks to improve information available to decision-makers at all levels of the health system, with the ultimate goal of improving HIV and health outcomes.

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The 9 Goals of the Kuunika Project

**1** Ensure uninterrupted availability of 1st line ARV drugs with adequate buffer stock

2 Improve identification of HIV-positives through HIV testing, including testing coverage, quality assurance, and yield

3 Improve linkage of identified HIV–positive with treatment programs

4 Improve retention of HIV-positives on ART, and improve suppression of viral loads
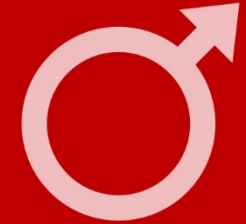
5 Improve uptake of voluntary male medical circumcision

6 Improve identification, linkage, and lifelong retention in treatment of HIV-positive mother and baby pairs

7 Ensure that resources are targeted to high-burden and high-transmission geographical areas and populations

8 Improve routine program performance monitoring at community, facility, district, and national levels with associated targets and remediation process for identified gaps

9 Ensure routine monitoring of program allocative and technical efficiency with clearly defined boundaries, goals

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What information is missing?

☐ Currently, a comprehensive inventory of **available data**, **primary users**, and **systems** for HIV (both paper and electronic) is lacking.

☐ This limits the ability of *Kuunika Project* planners to assess gaps, bottlenecks, and hone in on people and processes where investments will yield the greatest benefit.

☐ Further, critical decision points for the HIV response and data needed to support these decisions have not been systematically documented.

☐ The information gathered from this rapid study will address these gaps and help select and tailor interventions for project implementation that are expected to maximize improvements to program processes and outputs.

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Overview of study objectives and methods

The overarching purpose of this study is to systematically document how HIV-related data is collected, transmitted, analyzed, and used at community, health facility, district, zonal, and national levels.

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Study Objectives

2 Primary Objectives:

1 *Systematically document, relate, and validate assumptions for key **data elements**, **users**, and **systems** that help to manage the HIV response in Malawi*

2 *Identify **critical decision points/events** encountered by decision-makers and the information used or needed to improve program effectiveness*

Primary Goal:

G *Use results to ground Kuunika Project activities in evidence and maximize return on investment*

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1 *Systematically document, relate, and validate assumptions for key **data elements**, **users**, and **systems** that help to manage the HIV response in Malawi*

Key questions:

1. What is the comprehensive set of HIV-related data elements/indicators currently used in Malawi?

2. What is the comprehensive set of systems or system components (paper and electronic) currently used in Malawi to manage each HIV-related data element/indicator?

3. What is the comprehensive set of users that collect, record, report, transmit, manage, and access HIV-related data in Malawi?

4. What are the key relationships between HIV related data elements, systems, and users?

5. How does HIV-related data flow (in practice) through each level of the health system and what are typical gaps and bottlenecks?

6. Where and how do users currently obtain support for data collection, submission, transmission, and access?

7. What feedback is received on data collection and reporting and how is this provided?

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2 *Identify critical decision points/events encountered by decision-makers and the information used or needed to improve program effectiveness*

Key questions:

1. For each area identified for program improvement (9 goals), what are the **key decisions** that need to be made on a periodic basis?

2. What are primary data elements used to inform each decision, how are these accessed, and how are they used?

3. How could data sources, flow, access, and use be improved to better provide decision support?

4. How are key data currently analyzed, including users, tools, methods, process and how could this be improved?

5. How are key data currently presented, including tools and methods, and how could this be improved?

6. Where do users currently obtain support for data review, analysis, and interpretation?

7. What feedback is received on program performance and how is this provided?

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District Selection
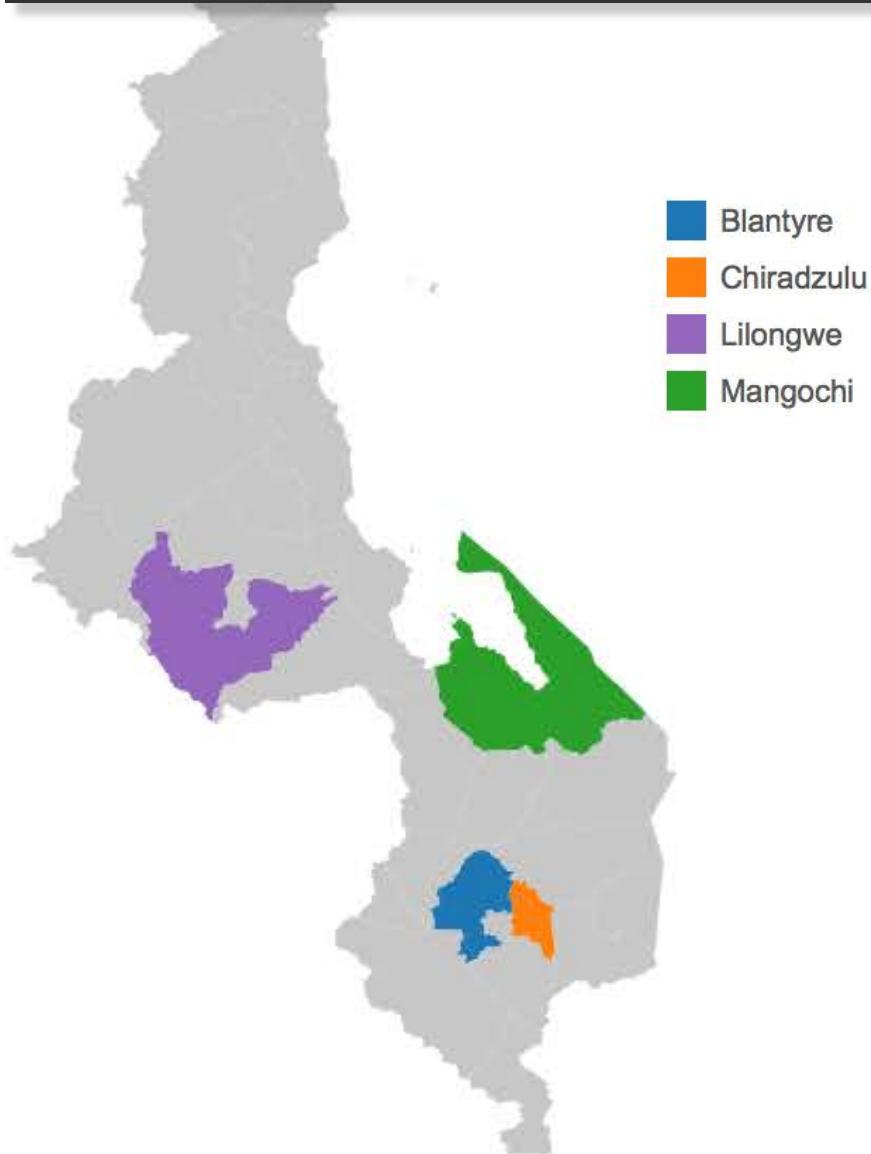
4 Districts were chosen for the study—**Chiradzulu, Lilongwe, Blantyre,** and **Mangochi**—based on the following criteria and operational factors:

- HIV burden
- The ability to capture data from both high and low performing sites
- The ability to capture data from sites with different patient volumes, human resource footprints, and electronic system capabilities
- Historical support for data systems and/or reporting
- Regional distinctiveness
- Study budget

Legend:
- Blantyre
- Chiradzulu
- Lilongwe
- Mangochi

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Site Selection

16 sites chosen

Represents 4 districts, 4 tiers, & historical reporting performance

Sampling Frame

Tier	Reporting Performance (Ontime)	Blantyre	Chiradzulu	Lilongwe	Mangochi	Grand Total
Tier1a	Low	4		2	1	7
	Middle50	1		3		4
	NA	3	1	4		8
Tier1b	Low		5			5
	Middle50		2			2
Tier2	High			1	2	3
	Low	2	2	2	1	7
	Middle50	3		3	3	9
	NA			6	1	7
Tier3	High			1		1
	Low		1	1		2
	Middle50			1	1	2
	NA	1		1		2
Grand Total		14	11	25	9	59

Number of Facilities
1 — 6

Number of Facilities broken down by Survey Districts vs. Tier and Reporting Performance (Ontime). The sampling frame for health facilities is intended to represent a wide range of factors that may affect data production and data quality, as well as capture information from high-performing and low-performing sites. As such, the full list of facilities providing ART in each district was stratified by district, "tier," and historical data reporting performance.

Facilities Selected

Location of Facilities Surveyed

Facility Owner

Type
- District hospital (blue)
- Health Centre (orange)
- Hospital (green)
- Rural hospital (red)
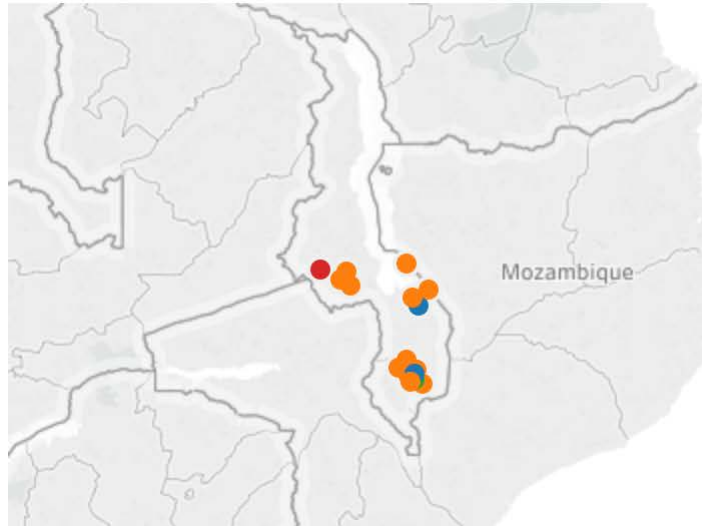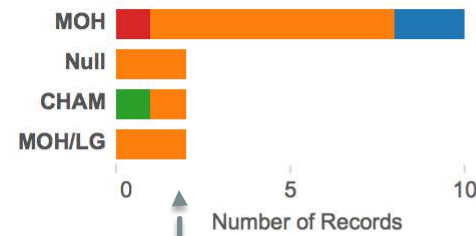
Facility Type
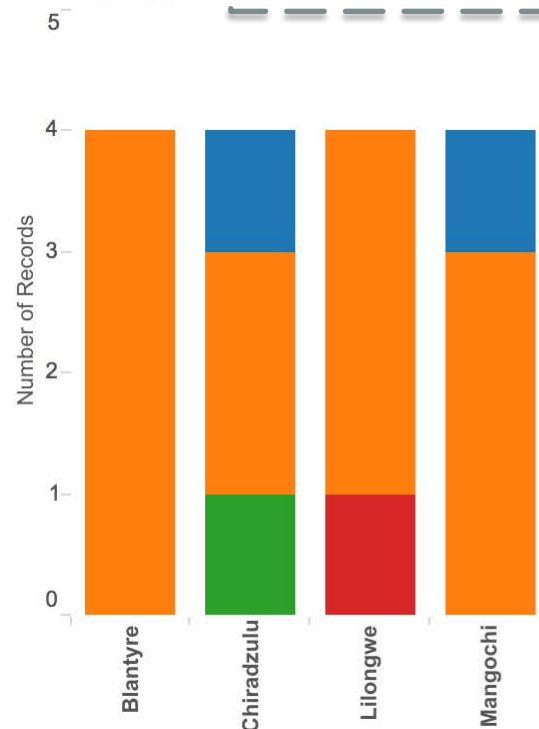
Varied sample

Name	Survey Distri..	Type	Owner
Bangwe	Blantyre	Health Centre	Null
Chiradzulu D..	Chiradzulu	District hospital	MOH
Chiwamba	Lilongwe	Health Centre	MOH/LG
Dziwe	Blantyre	Health Centre	MOH
Kabudula	Lilongwe	Rural hospital	MOH
Katuli	Mangochi	Health Centre	MOH
Kawale	Lilongwe	Health Centre	MOH
Koche	Mangochi	Health Centre	CHAM
Lundu	Blantyre	Health Centre	MOH
Makanjira	Mangochi	Health Centre	MOH
Mangochi D..	Mangochi	District hospital	MOH
Mauwa	Chiradzulu	Health Centre	MOH
Mtenthela	Lilongwe	Health Centre	MOH

Who provided information?

Individuals Surveyed

Level	Data Handler	Decision-Maker	Total
Community	3		3
Facility	13	13	26
District	4	20	24
National		10	10
Total	20	43	63

Different tools for different use cases

Focus Group Participants

Type	Mangochi	Chiradzulu	Blantyre	Lilongwe	Total
HCAC	5	6	5	7	23
CBOs	9	6	9	10	34
Total	14	12	14	17	57

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Use case definitions

❑ **Data Handler** – A person identified by facility managers or district staff as key people for collecting and aggregating data

Examples:

- ART Clerks, Data Clerks, HSAs
- HMIS Officers, Statistical Officers, M&E Officers

❑ **Decision-Maker** – Facility managers, district or zonal staff, or ministry level officers responsible for making decisions

Examples:

- Facility In-charges
- District Health Management Team (DHO, ART Coordinators, etc.)
- Ministry officers, leads, and high ranking officials

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What did we ask? (Decision-maker example)

Project Goal 1: Antiretroviral availability

Please list **decisions** that you have to make regarding **ARV supply and buffer stock:**

For each decision you mentioned, please answer the following questions:

What specific data elements/indicators do you use to make this decision?

Where do you go to access the information that you need to make this decision?

How often do you access this information?

How do you use this information?

Similar question for each project goal

Slide 5

Data compiled, collated, analyzed, and coded

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How were decisions categorized? (3 examples)

1 Decisions related to 'drug supply' were those where decision-makers referenced the supply/availability of ARVs. Examples:

- "Making sure that each and every client on the programme receives medication"

- "Ordering re-supply of drugs"

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2 Examples of decisions categorized as '<u>default follow-up</u>'

- "**Following up of defaulters** especially those not having turned up for treatment for 3 months"

- "Use expert clients to trace the **defaulters**"

- "…there are few indicators on the reports that can guide you if the programme is running according to the objectives… for e.g. in the report you make sure you are testing everyone and those tested are put on treatment and retained. So if out of 20 clients enrolled only 5 are retained you need to **follow-up** with the site to find out what problems are there and even involve the local leaders to trace the 15 clients"

3 Examples of decisions categorized as '<u>program performance</u>'

- " "That one also we usually have our Quarterly reviewing of HIV, HTC activities in the district as you can see on my wall there, those summaries. We usually comparing with our set targets e.g. plan to reach out on X, are we on coarse, **we try to find why we lost so many or failed to reach the target**? If did not meet target analyse and find reason why we failed to reach the targets"

- "Look at the reports to see if the new approach is working effectively"

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How were decisions categorized?

❑ Full code book with responses by category available

General Observation:

Decision-makers seem to have some trouble articulating decision points in the form of questions. How do we support Decision-makers to frame the challenges and options they face and apply data more routinely to address?
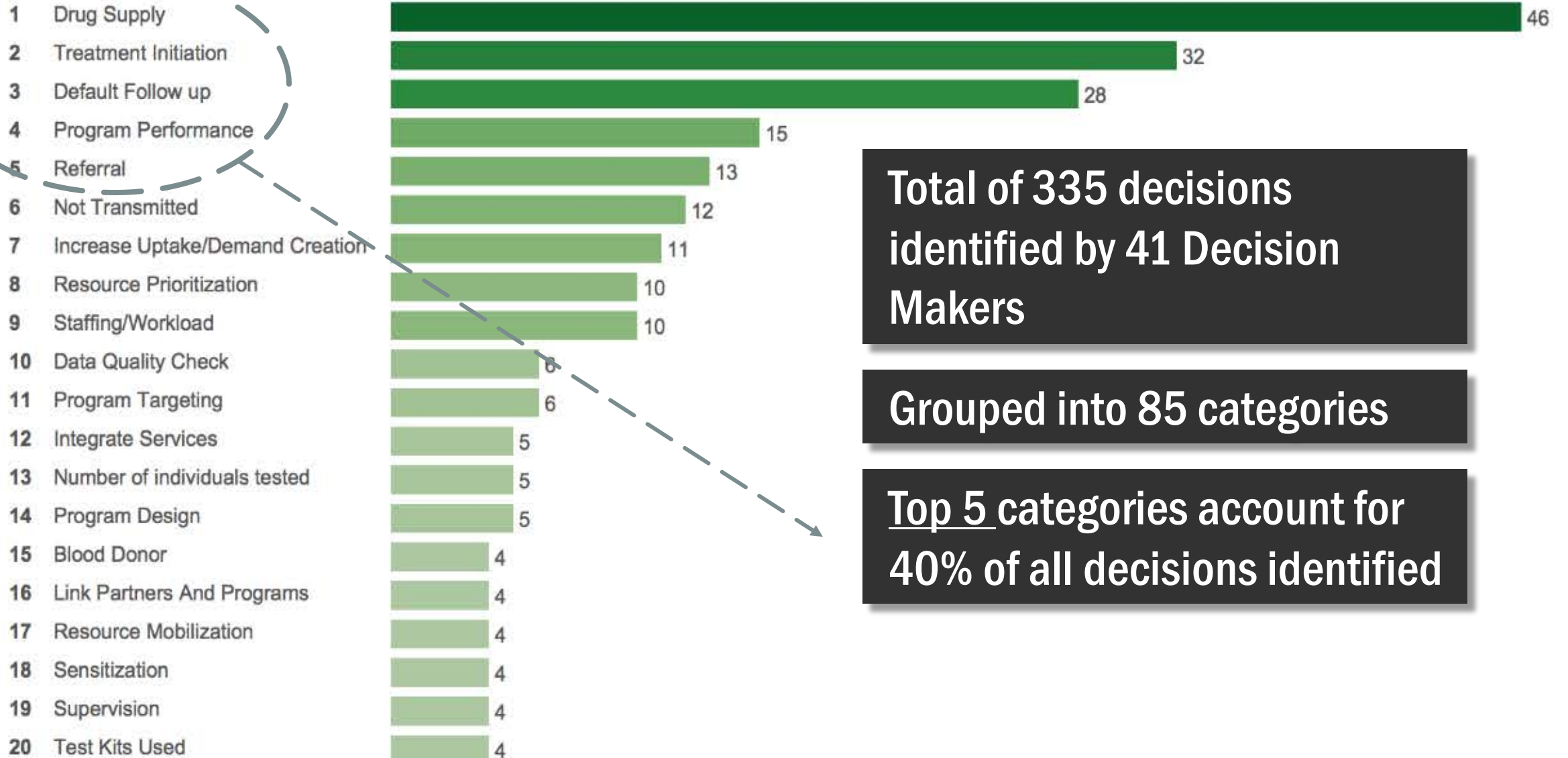
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Initial Findings

What decisions are being made and how frequently?

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What decisions were identified?

What decisions are most frequently identified by Decision Makers?

#	Decision	Value
1	Drug Supply	46
2	Treatment Initiation	32
3	Default Follow up	28
4	Program Performance	15
5	Referral	13
6	Not Transmitted	12
7	Increase Uptake/Demand Creation	11
8	Resource Prioritization	10
9	Staffing/Workload	10
10	Data Quality Check	6
11	Program Targeting	6
12	Integrate Services	5
13	Number of individuals tested	5
14	Program Design	5
15	Blood Donor	4
16	Link Partners And Programs	4
17	Resource Mobilization	4
18	Sensitization	4
19	Supervision	4
20	Test Kits Used	4

Total of 335 decisions identified by 41 Decision Makers

Grouped into 85 categories

Top 5 categories account for 40% of all decisions identified

85

Top 5 decision categories identified

SUPPLY **TREATMENT INITIATION** **FOLLOW-UP** **PROGRAM PERFORMANCE** **REFERRAL**

How are data and systems brought to bear on these critical decisions? How does use of data vary by level and category?

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How many sources and elements were identified to support top 5 decisions?
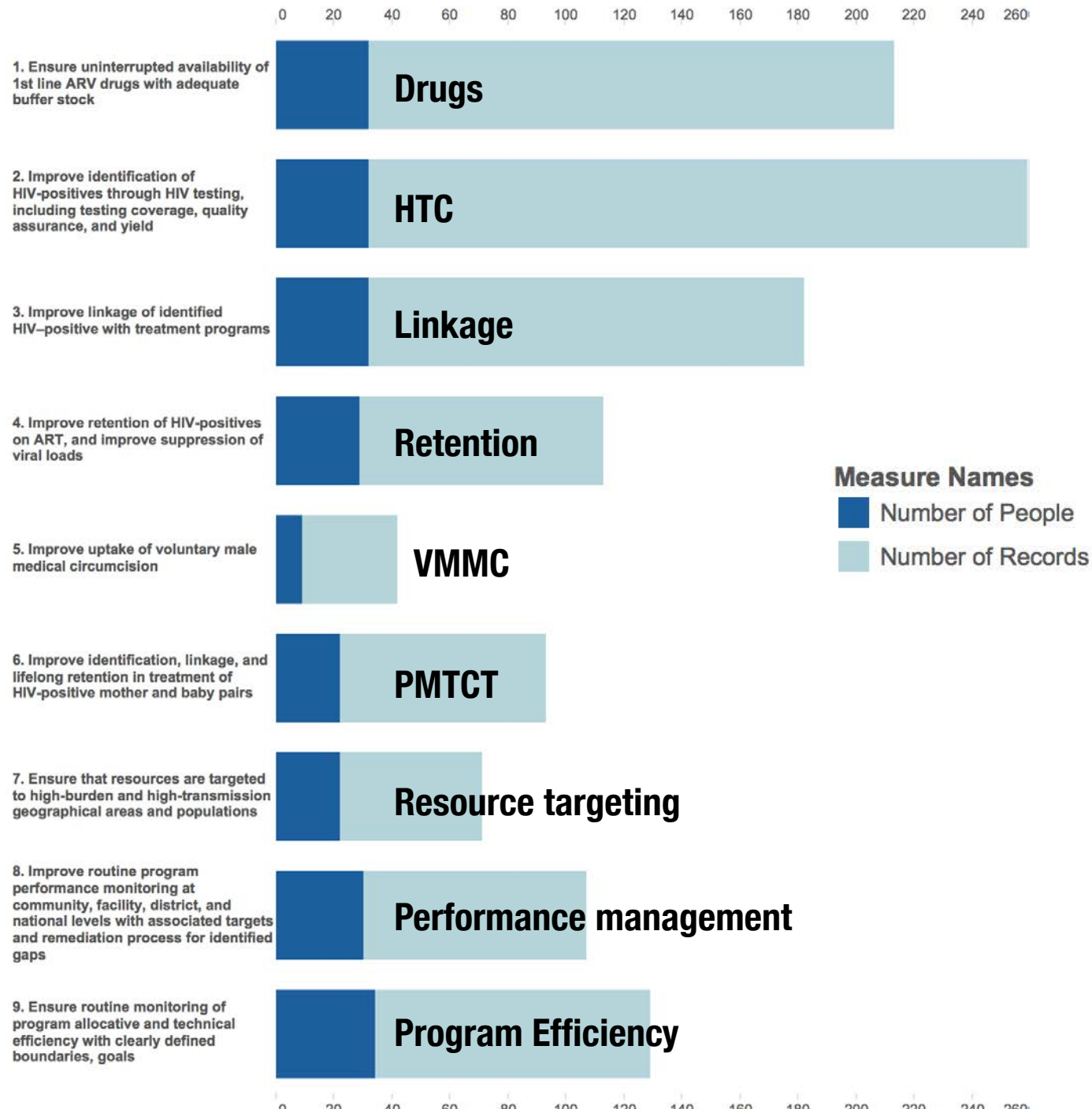
Many sources

- Conflicting figures?
- Multiple systems?
- Opportunities to streamline?

Few sources

- Missing data?
- Lack of quality indicators?
- Issues with flow of info between levels?

DECISION DESCRIPTION (group)	Facility		District		National		Grand Total	
	Unique Sources	Unique Elements	Unique Sources	Unique Elements	Unique Sources	Unique Elements	Unique Sources	Unique Elements
Drug Supply	13.00	11.00	25.00	15.00	8.00	6.00	34.00	20.00
Treatment Initiation	20.00	19.00	15.00	16.00	1.00	2.00	31.00	28.00
Default Follow up	16.00	10.00	12.00	10.00			27.00	18.00
Program Performance	2.00	1.00	10.00	9.00	10.00	5.00	20.00	13.00
Referral	6.00	8.00	11.00	12.00			16.00	16.00
Grand Total	41.00	35.00	50.00	39.00	16.00	9.00	84.00	61.00

Survey Level Name

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How does decision frequency vary by project goal?

1. Ensure uninterrupted availability of 1st line ARV drugs with adequate buffer stock — Drugs

2. Improve identification of HIV-positives through HIV testing, including testing coverage, quality assurance, and yield — HTC

3. Improve linkage of identified HIV–positive with treatment programs — Linkage

4. Improve retention of HIV-positives on ART, and improve suppression of viral loads — Retention

5. Improve uptake of voluntary male medical circumcision — VMMC

6. Improve identification, linkage, and lifelong retention in treatment of HIV-positive mother and baby pairs — PMTCT

7. Ensure that resources are targeted to high-burden and high-transmission geographical areas and populations — Resource targeting

8. Improve routine program performance monitoring at community, facility, district, and national levels with associated targets and remediation process for identified gaps — Performance management

9. Ensure routine monitoring of program allocative and technical efficiency with clearly defined boundaries, goals — Program Efficiency

Measure Names
- Number of People
- Number of Records

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How many unique data elements, sources, and decisions were cited relevant to each goal?

Goal Description	Unique Elements	Unique Sources	Unique Decisions
1. Ensure uninterrupted availability of 1st line ARV drugs with adequate buffer stock	23.0	46.0	20.0
2. Improve identification of HIV-positives through HIV testing, including testing coverage, quality assurance, and yield	66.0	65.0	29.0
3. Improve linkage of identified HIV–positive with treatment programs	60.0	46.0	23.0
4. Improve retention of HIV-positives on ART, and improve suppression of viral loads	23.0	47.0	22.0
5. Improve uptake of voluntary male medical circumcision	23.0	22.0	11.0
6. Improve identification, linkage, and lifelong retention in treatment of HIV-positive mother and baby pairs	64.0	37.0	14.0
7. Ensure that resources are targeted to high-burden and high-transmission geographical areas and populations	44.0	53.0	13.0
8. Improve routine program performance monitoring at community, facility, district, and national levels with associated targets and remediation process for identified g..	35.0	40.0	23.0
9. Ensure routine monitoring of program allocative and technical efficiency with clearly defined boundaries, goals	21.0	31.0	27.0
Grand Total	223.0	186.0	87.0

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Initial Findings

Which data are considered most important by each use case?
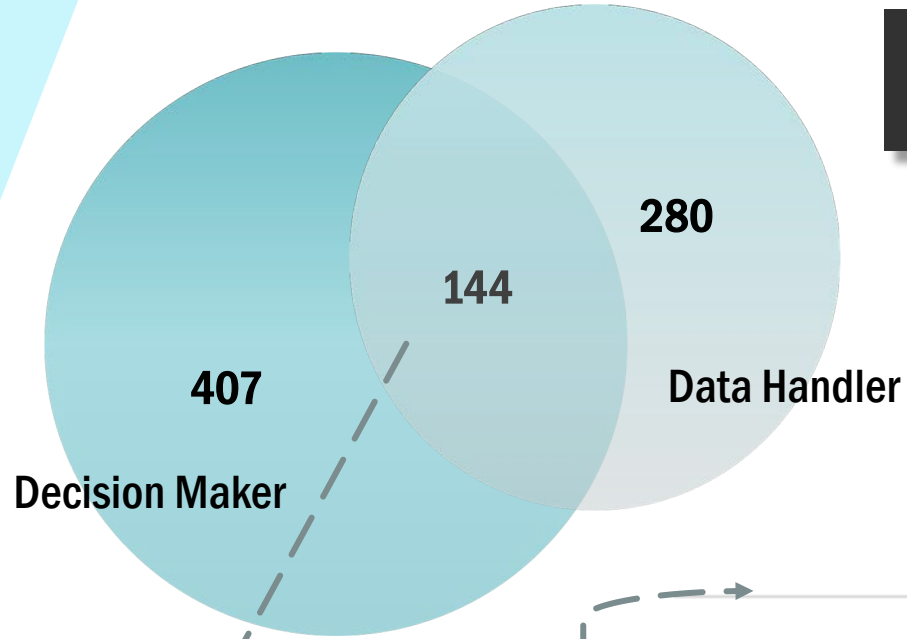
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Which data were most frequently identified by use case?

Elements	Unique Elements	Times Identified	Respondents	AVG Uniqe Elements	AVG Times Mentioned
Decision Maker	148	407	41	4	10
Data Handler	109	280	21	5	13
Both	36	144			

Sources	Unique Sources	Times Identified	Respondents	AVG Uniqe Sources	AVG Times Mentioned
Decision Maker	143	402	41	3	10
Data Handler	77	304	21	4	14
Both	36	125			

Only a handful of elements and sources identified by respondents

Less overlap between DM and DH than expected

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221 Unique elements identified 687 times by 62 respondents

280

144

407

Data Handler

Decision Maker

36 elements referenced by both 144 times

Top 10 account for 70% of overlap and 43% of all element references

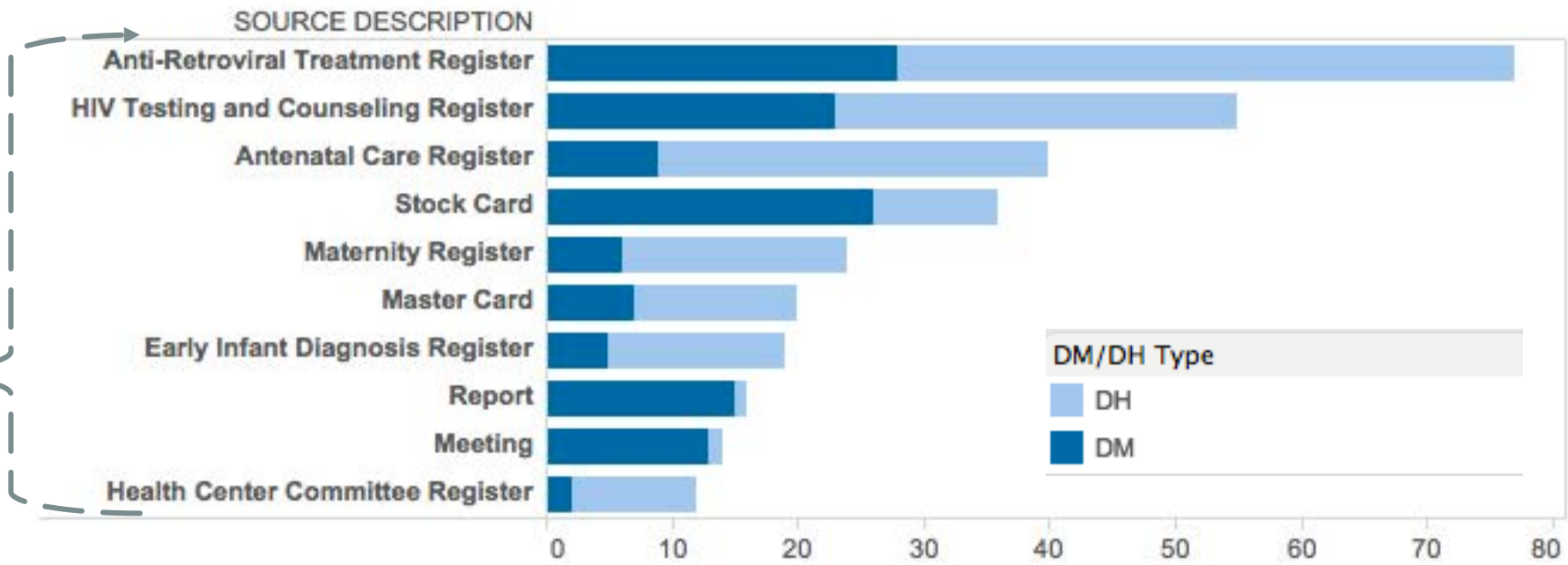Which data elements were viewed as most relevant?

ELEMENT DESCRIPTION

Defaulters
Drug Supply
Test HIV Positive
Patients Treated
Test HIV
Drug Consumption
CD4 Count
Treatment ART
Number of pregnant women tested HIV positive
Number of individuals tested

DH
DM

0   10   20   30   40   50

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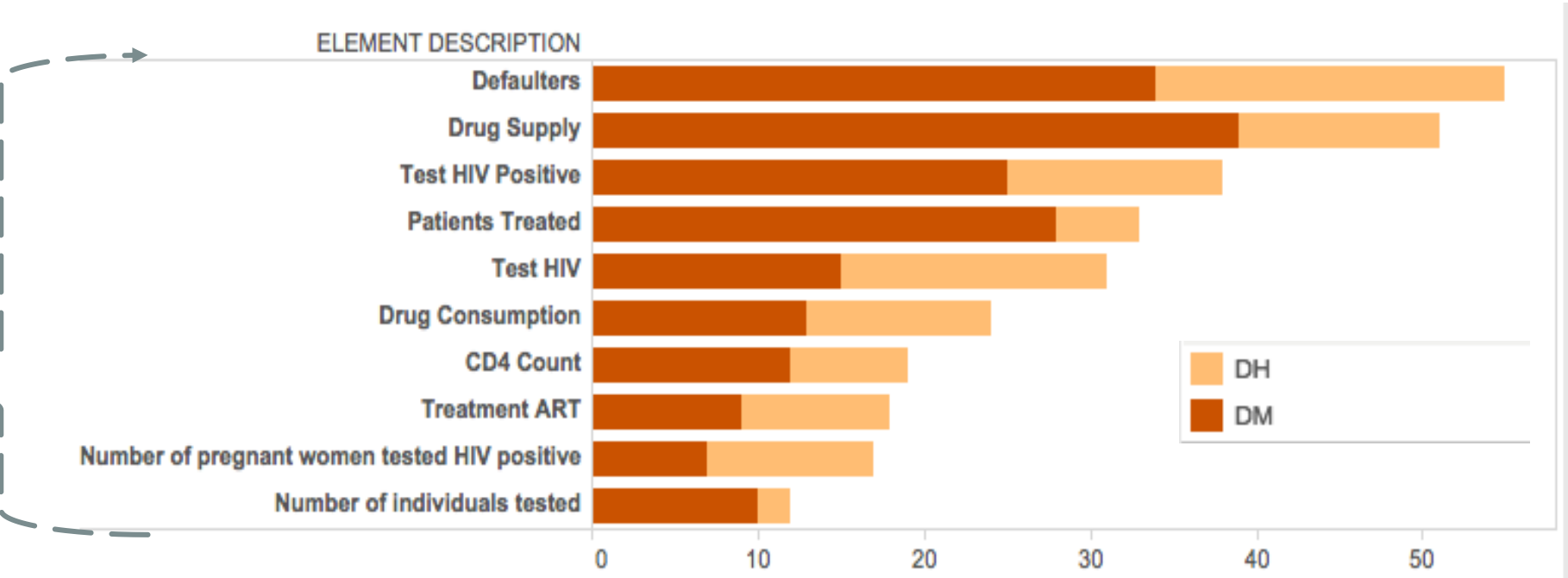
184 Unique sources identified **706** times by **62** respondents

Venn diagram:
- Decision Maker: **402**
- Overlap: **125**
- Data Handler: **304**
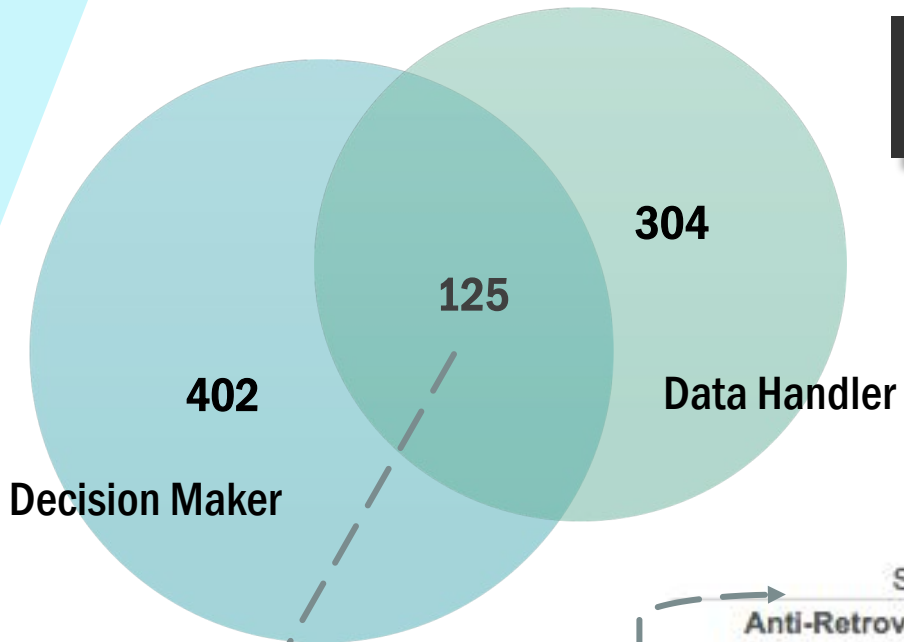
36 sources referenced by both 125 times

Top 10 account for **75%** of overlap and **45%** of source references

Which data sources were viewed as most relevant?

SOURCE DESCRIPTION

- Anti-Retroviral Treatment Register
- HIV Testing and Counseling Register
- Antenatal Care Register
- Stock Card
- Maternity Register
- Master Card
- Early Infant Diagnosis Register
- Report
- Meeting
- Health Center Committee Register

DM/DH Type
- DH
- DM

Initial Findings

Opportunities for improvement

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Where do digital health systems rank as sources?

RANKING	SOURCE DESCRIPTION
1	Anti-Retroviral Treatment Register
2	HIV Testing and Counseling Register
3	Stock Card
4	Antenatal Care Register
5	Maternity Register
6	Report
7	Master Card
8	Early Infant Diagnosis Register
9	Meeting
10	Health Center Committee Register
11	BOABAB Electronic Register
12	Health Management Information System Office
13	DHIS2
14	Register
15	Doctors without Borders
16	ART Clinic
17	Faciltiy Report
18	Health Passport
19	Voluntary Counseling and Testing Register

Digital Systems
- Digital System (orange)
- Not Digital System (gray)

Unique Mentions (x-axis: 0, 50, 100, 150, 200, 250, 300)

Digital Health Systems ranked relatively low for sources identified by participants used in decision-making

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Most data is flowing via paper
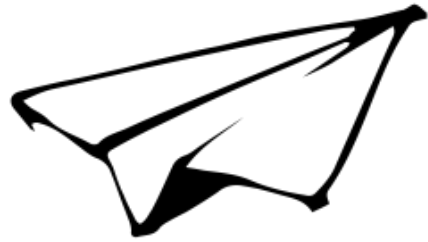
- *In most facilities paper registries are transferred to paper-based HMIS reports, which are then entered into DHIS2 at the district level*

  - *Even at sites with EMRs and DHIS2, parallel paper systems exist*

- *There is no clear path for getting paper reports from facilities to the District Offices. Facilities are creative in their methods of transportation, sometimes at a personal cost*

  - *At district and national level, paper hard copies of reports are often distributed and digital copies are inconsistently distributed via email or USB*

Few people surveyed identified any form of technology
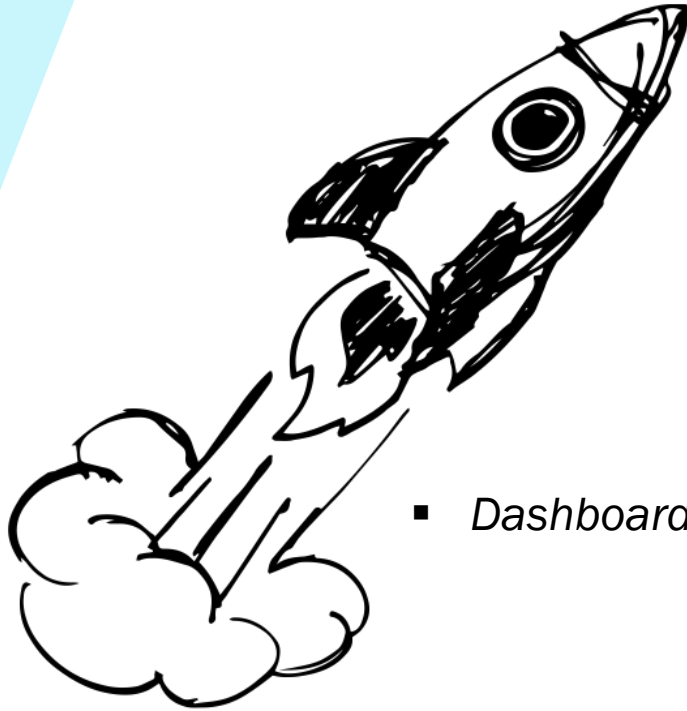
- *At the District Level, PowerPoint and Email were identified more often than DHIS2. EMRs were not mentioned at all as data sources that the District offices use*

- *Dashboards, automated email reports from electronic systems, or standard presentations were not identified as key sources*

- *The databases that already exist are not being used to their full potential and could be leveraged in building up a comprehensive system*

We should focus more on mobile tech at all levels

Decision-Makers Phone Useage
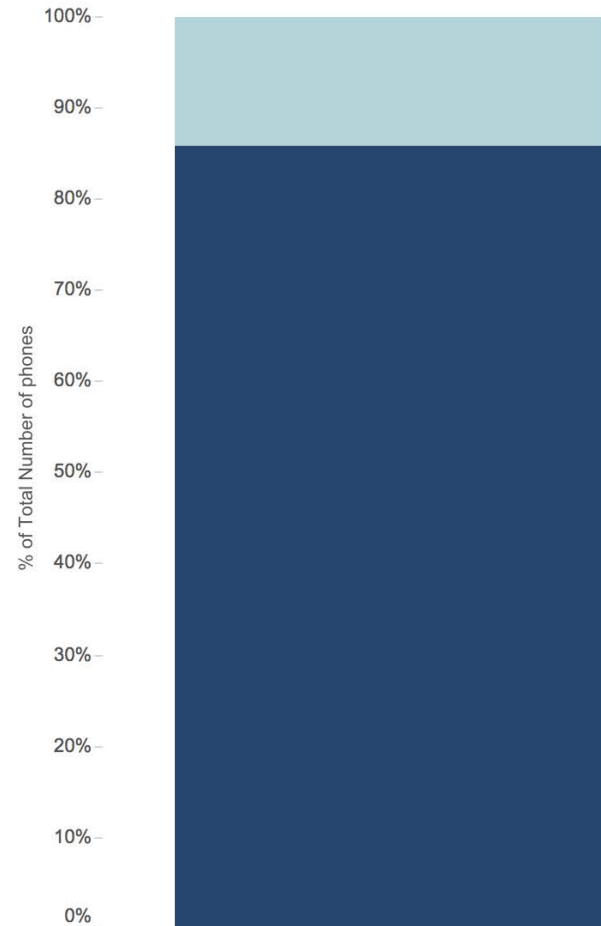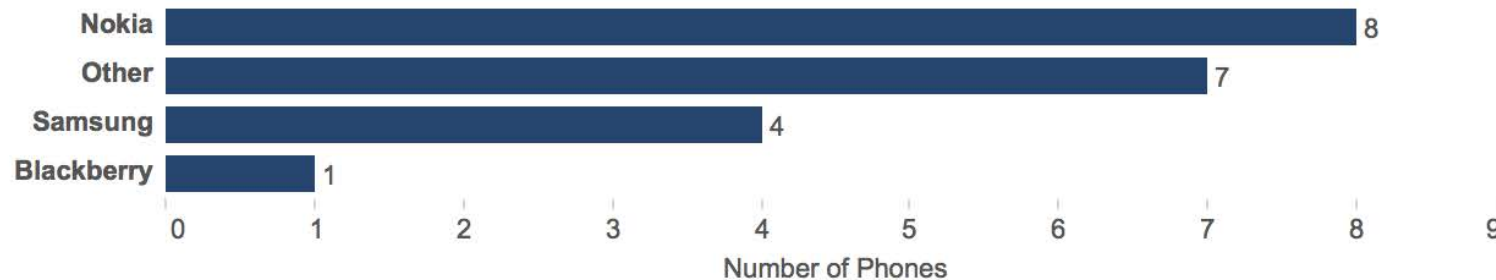
Data Handlers Phone Useage

Owns smartphone
- No
- Yes

Survey Participants Averaged

1.35

mobile phones per person

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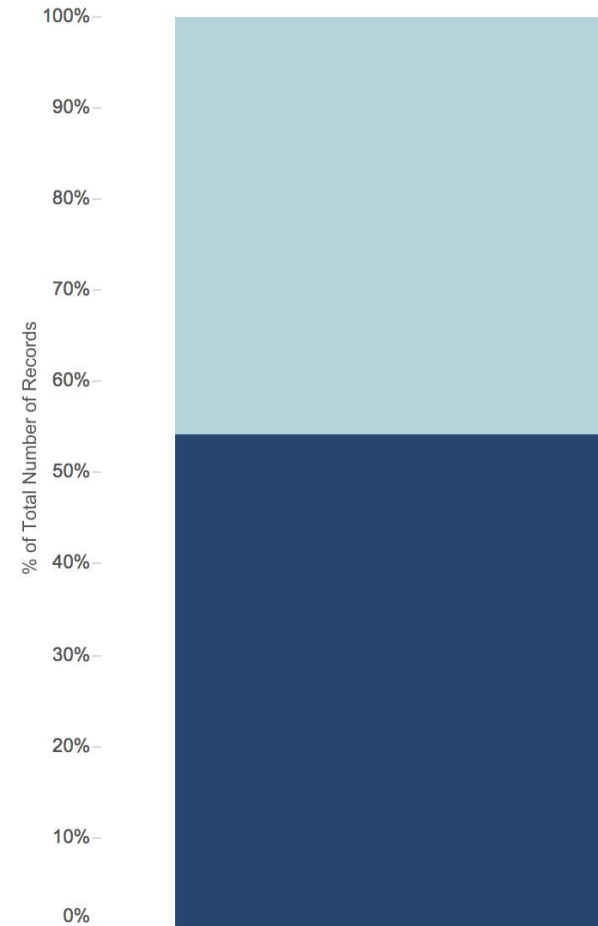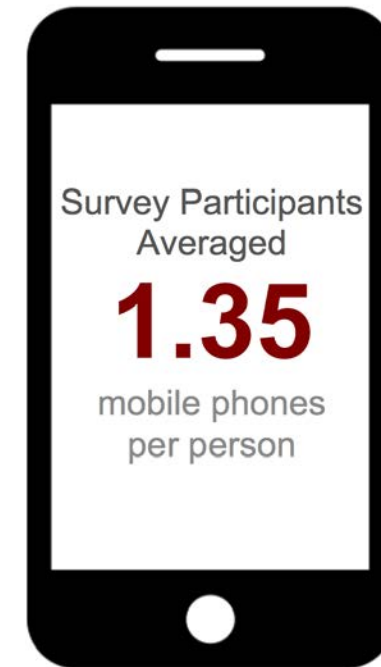
We should build mobile tech on android platforms

Decision-makers

Purchased smart phone ..
- ■ Yes
- ■ No

Brand	Number of phones
Samsung	26
Nokia	8
Other	5
Blackberry	3
Microsoft	3
Apple	2

Number of phones

Data Handlers

Brand	Number of Phones
Nokia	8
Other	7
Samsung	4
Blackberry	1
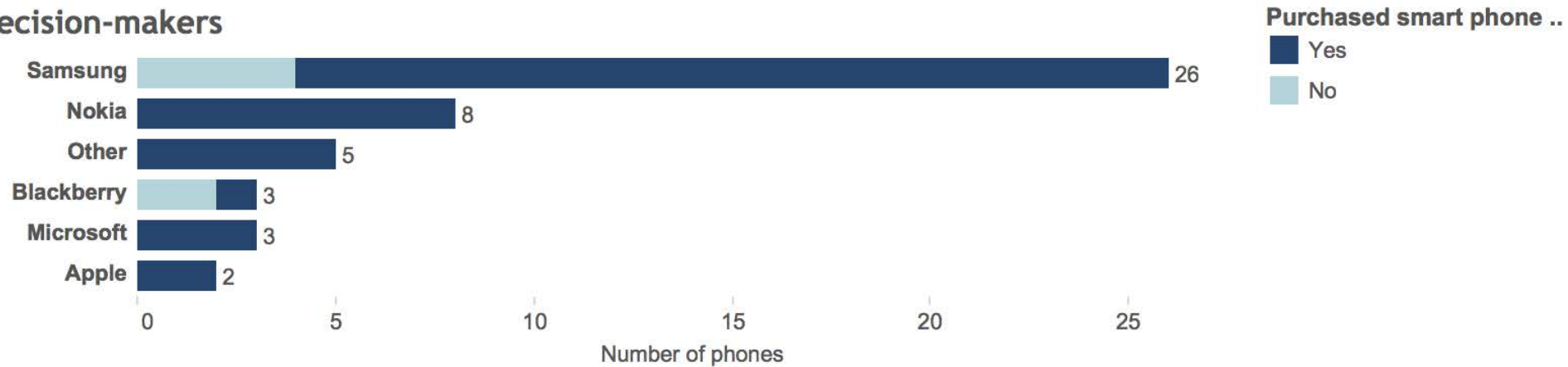
Number of Phones

Samsung and Nokia phones were the most popular brands for survey participants with more of the decision-makers having Samsung and higher-end models relative to the data handlers.

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Labor mobility matters for selecting appropriate capacity development tools

Decision-makers

	Less than a year	1-5 years	5+ years	Grand Total
Accountant		1	2	3
District ART Coordinator	1	3	1	5
District Health Officer (DHO)		2	1	3
District HIV/AIDs Coordinator		2	1	3
Facility In-charge	5	6	1	12
Head of Behavioral Change Interven..	1			1
Head of Policy Development			1	1
Laboratory Officer/Lab Mannager/L..	1		3	4
Pharmacist/Technician	1	1	2	4
Principal Medical Officer		1		1
Supply Chain Officer		2		2
Zonal Officer		2	1	3
Grand Total	9	20	13	42

Most Decision-makers (22) have been working in their position for 5 years or less.
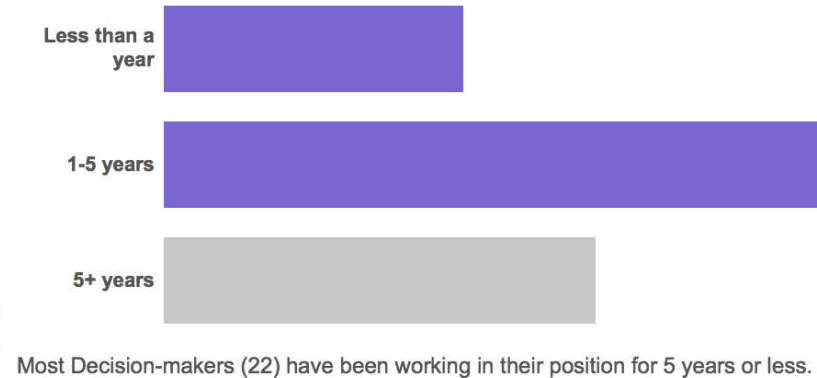
Decision-makers have been at their jobs for less than 5 years

Data Handlers

	Less than a year	1-5 years	5+ years	Grand Total
HSA			6	6
ART Clerk /HSA			4	4
Data Clerk		3	1	4
HMIS Officer		1	4	5
M&E Officer	1			1
Nurse/Midwife/In-charge			2	2
Statistical Clerk		1	1	2
Grand Total	1	5	18	24

Most Data handlers (18) have been in their position for 5 or more years.

Data handlers have been at their jobs for 5+ years

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Education level matters for selecting appropriate capacity development tools

Decision Makers

	MSCE	Certificate	Diploma	Bachelors	Masters	MBBS	MD	PHD	Grand Tot..
Facility In-charge	5	5	1	1					12
Pharmacist/Technician		1	2	1					4
Accountant		1		2					3
Supply Chain Officer			2						2
Laboratory Officer/Lab Mannager/Lab Coor..		1	2	1					4
Principal Medical Officer					1				1
District ART Coordinator		3	1			1			5
District Health Officer (DHO)			1		2				3
District HIV/AIDs Coordinator			3						3
Zonal Officer				1	1		1		3
Head of Behavioral Change Interventions fo..				1					1
Head of Policy Development							1		1
Grand Total	5	7	9	11	3	4	1	2	42

Decision-makers surveyed tended to have higher levels of education 87% (27) decision makers have a degree higher than an MSCE.

Data Handlers

	MSCE	Junior Certifi..	Certificate in ..	Diploma	Bachelors De..	MSC	Grand Total
HSA	4	2					6
ART Clerk /HSA	2	2					4
Data Clerk	2	1		1			4
Statistical Clerk	1			1			2
Nurse/Midwife/In-charge	1		1				2
HMIS Officer				4		1	5
M&E Officer					1		1
Grand Total	10	5	1	6	1	1	24

Data handlers surveyed tended to have lower levels of education with only 22% (8) having a degree higher than MSCE.

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Staff composition matters for selecting appropriate capacity development tools

Relative to the number of other staff, there are few data clerks and HMIS officers at facilities

How can other cadres be equipped to improve data timeliness and quality?

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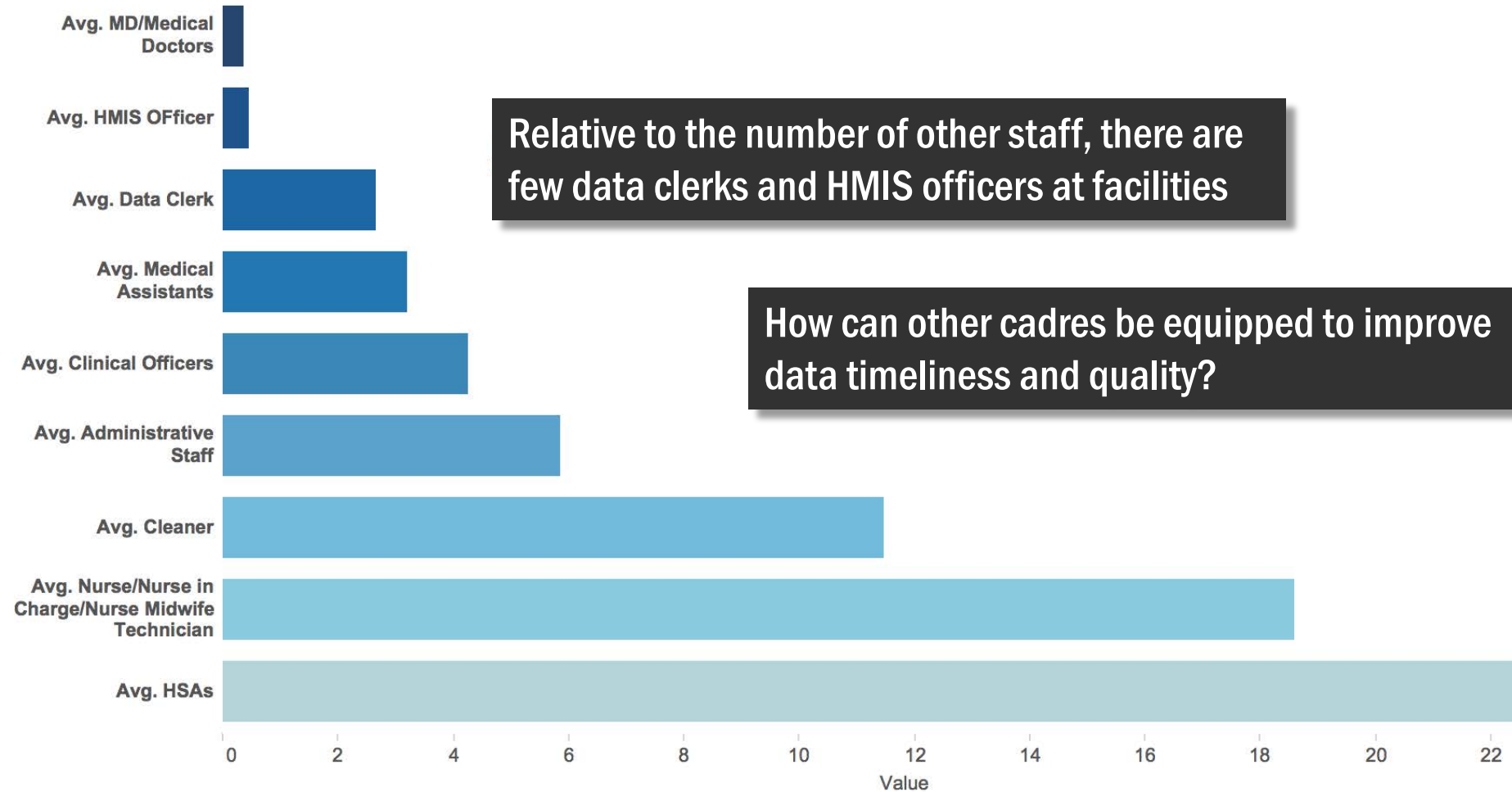
Who collects data for the top data sources identified?

Source

2.02.A Who Is Responsible For Collectin..
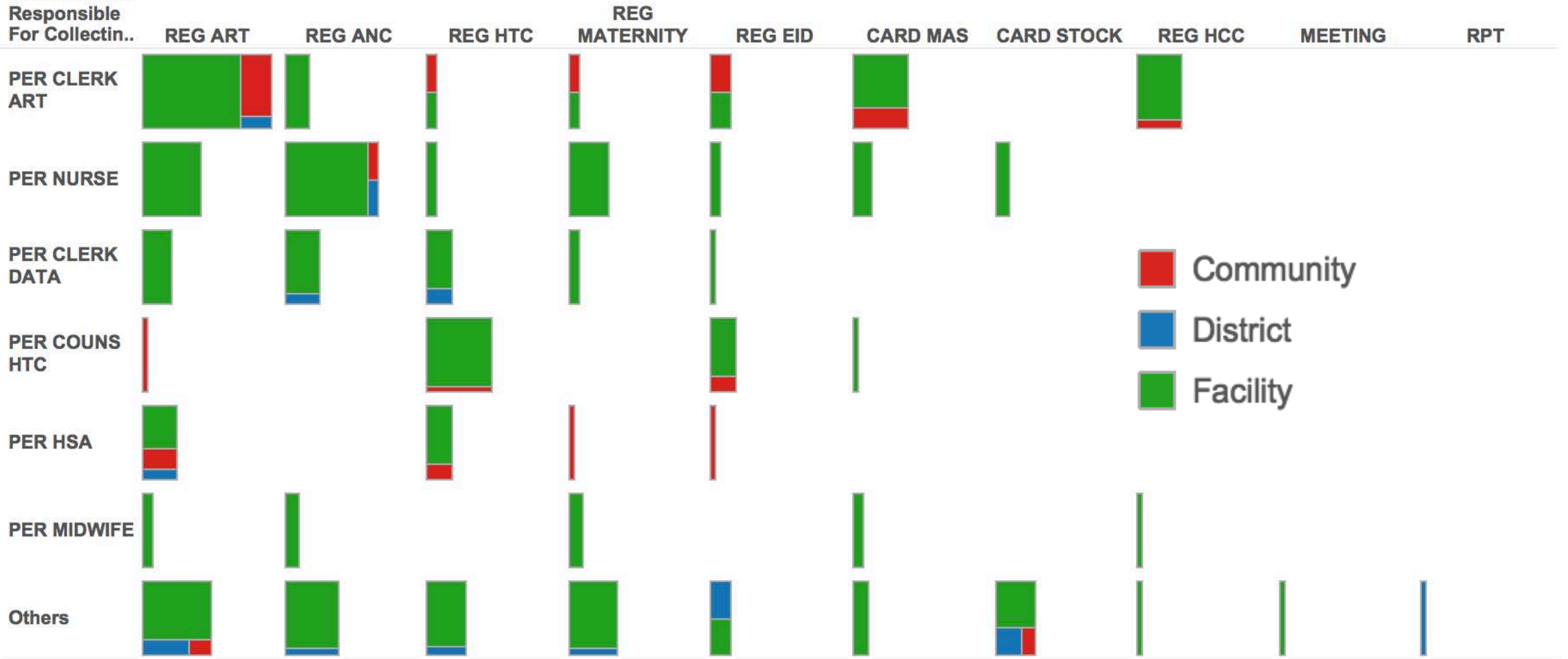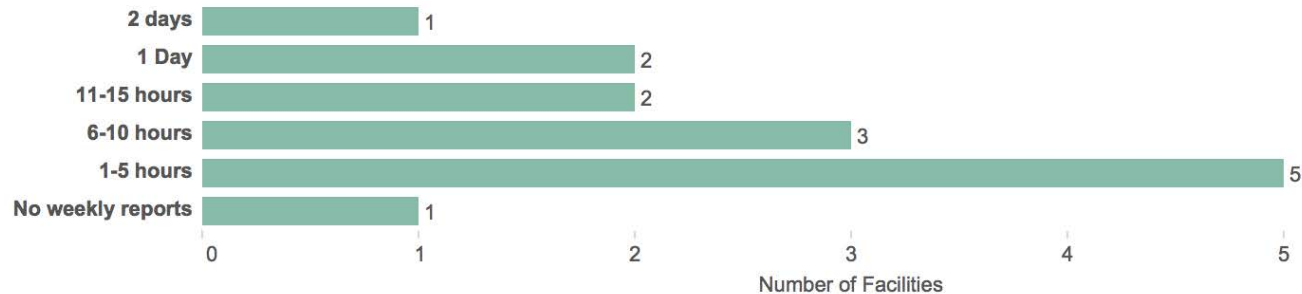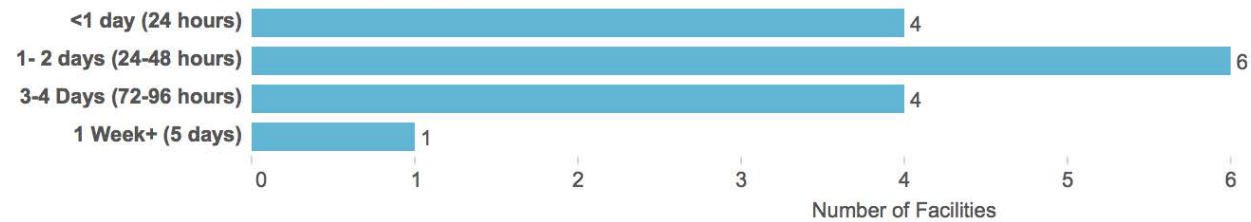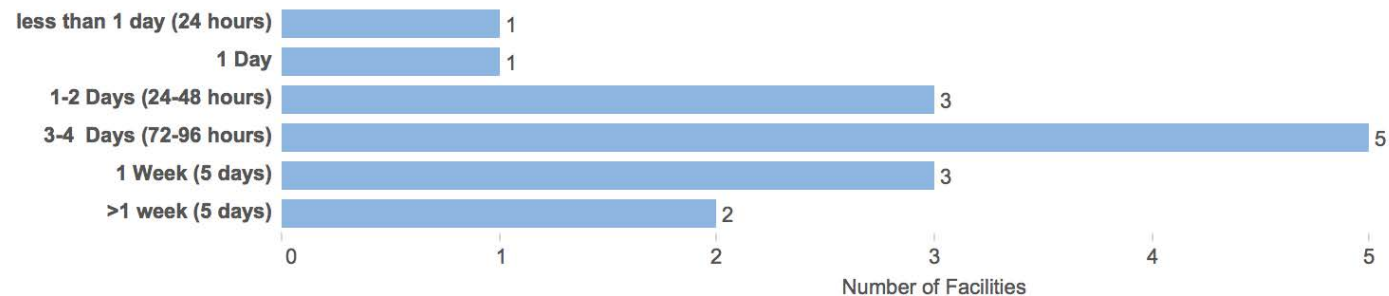
Further Investigation

Next steps

- ❑ Continuing analysis of study data to inform *Kuunika Project* design and Malawi HIS efforts

- ❑ Construction of interactive, relational database to fully define relationships between data elements, sources, users, and decisions (expected Jan 2017)

- ❑ Interactive dashboard of all study findings available on the web

- ❑ Phase 2 study implementation, quantitatively assessing preferences for potential incentive packages aimed at increasing the frequency of data access and use

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Zikomo Kwambiri!

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