Early Lessons From Ethiopia in Establishing a Data Triangulation Process to Analyze Immunization Program and Supply Data for Decision Making

July 2022

JSI

Speakers

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Ethiopia
EPI context and immunization data management

July, 2022

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Outline

- Ethiopia EPI-Background
- Performance –core indictors
- Immunization data management
- Major Successes-Immunization and data management
- Challenges
- The way forward

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Ethiopia-Background

Population

105,119,962

Administration

11 Regions **115 Zones**

2 City admins **1054 Weredas**

Rural Community

83%

Area

1,100,000 square kilometres

Source:- National Implementation Guideline for Expanded Program on Immunization-

Health Infrastructures

Hospitals

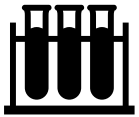
395

Health Centers

3,704

Health Posts

18,202



National and Regional Laboratories

14

National and Sub National EPSS Hubs

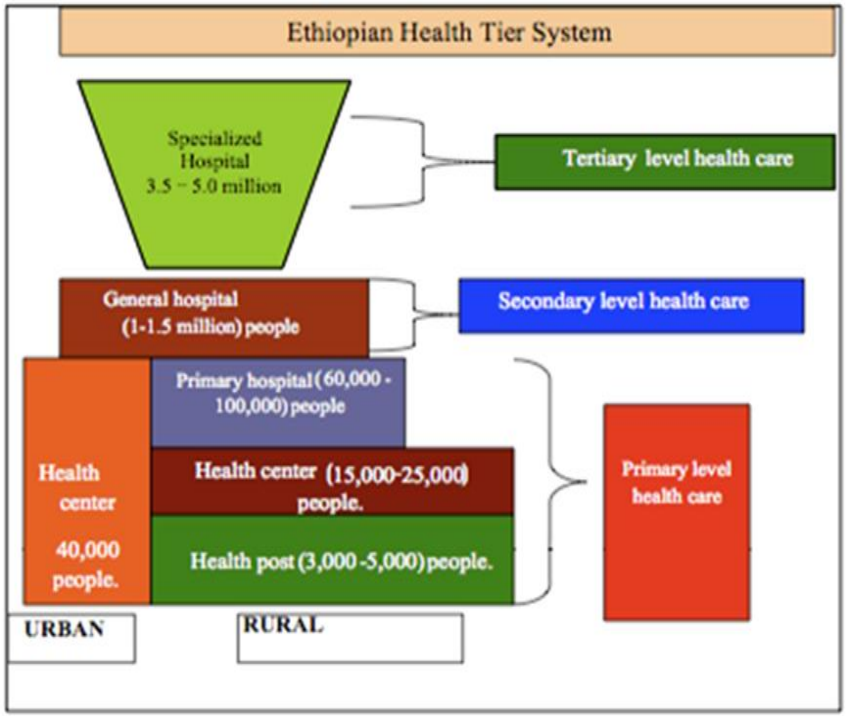
20

HFs Providing Immunization Service

> 21,000

Source: FMOH, HRIS/2018

Health sector operating structures



Federal Ministry of health: EPI team

↓

Regional Health Bureau: EPI Team or Focal
(11 Regions & 2 city admin)

↓

Zonal Health Department: EPI Focal
(>100 Zones)

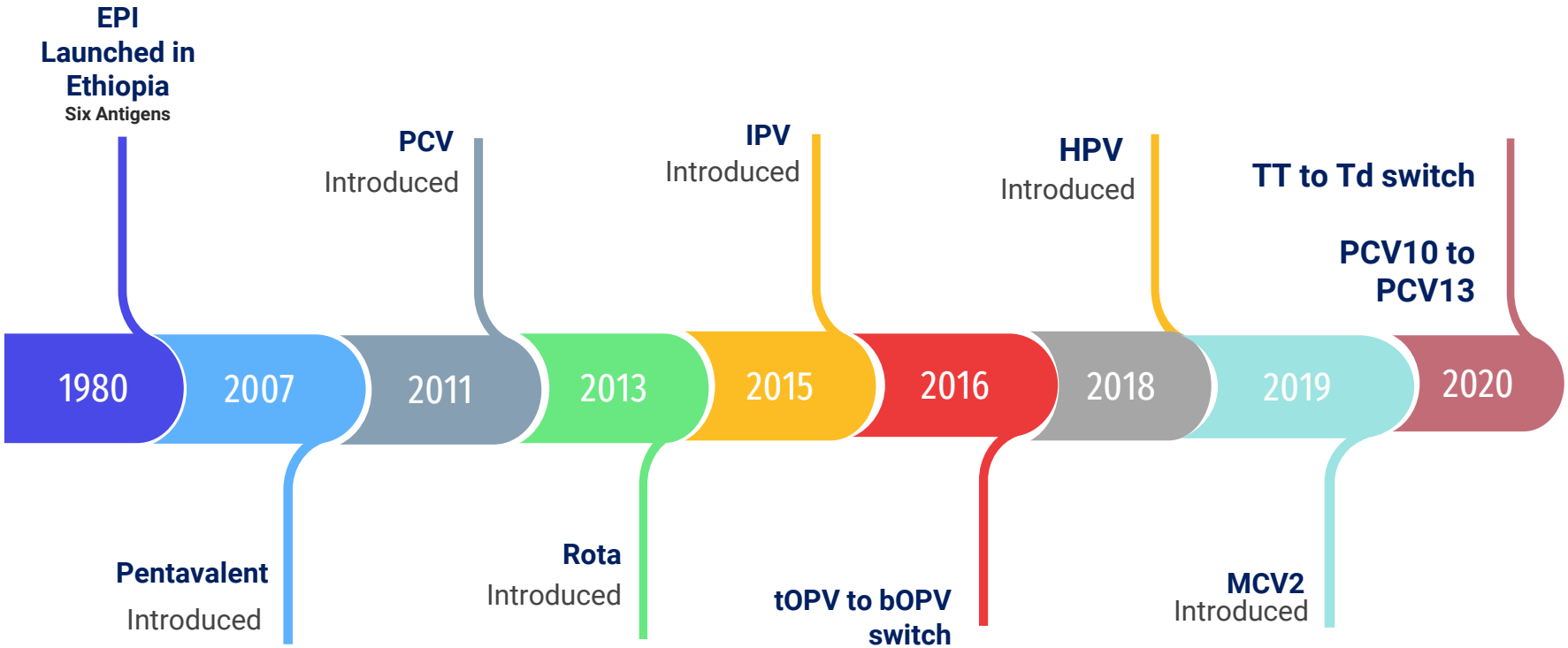
↓

Woreda Health Office: EPI Focal
(>1000 districts)

↓

Kebele: HEWs and HDA
(>18,000 Health Posts)

Ethiopia EPI-Background



Currently 12 Antigens are being provided as part of the Routine Immunization program (RI).

MCH Indicators

MMR per 100,000

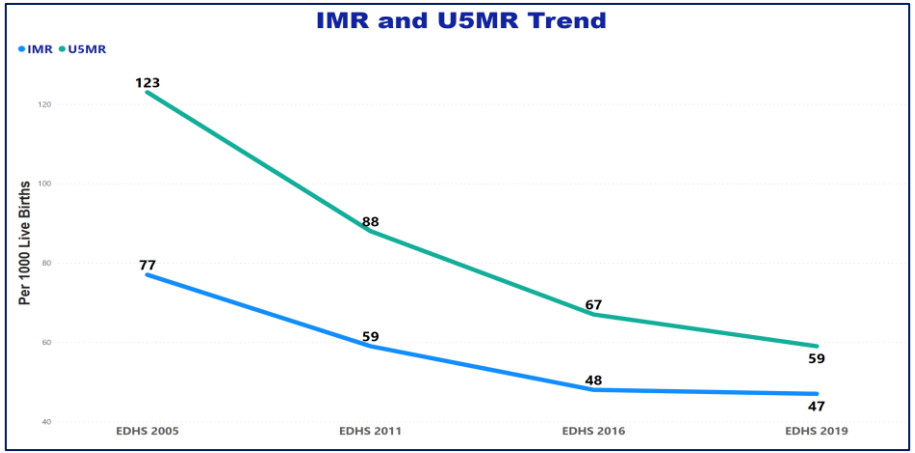
676

(EDHS 2011)

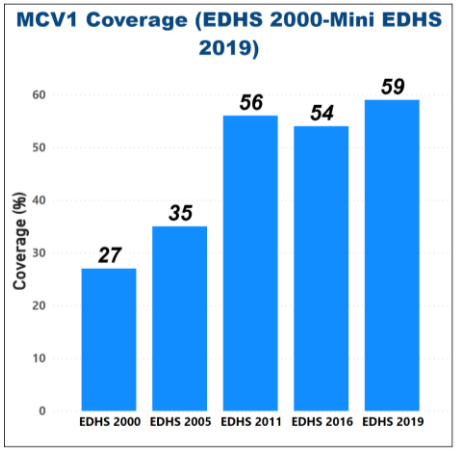
To

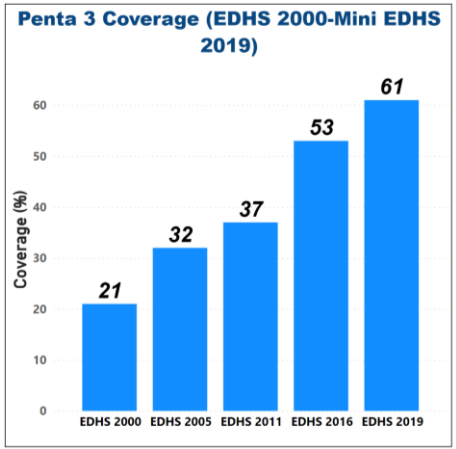
401

(WHO and World Bank 2017)



- **Under 5 Mortality Rate Decreased from 123 in 2005 to 59 in 2019**





Penta3 coverage increased from 21% in 2000 to 61% in 2019

Source: EDHS 2000-Mini EDHS 2019

Zero-dose children distribution in Ethiopia (EDHS 2019 Finding

Region	Surviving Infants 2019	Penta 1 (Min-DHIS 2019)	Penta-1 Vaccinated	Penta-1 Unvaccinated/zero dose (#)	Proportion of zero dose
Addis Ababa	82,450	96.30%	79,399	3,051	3.70%
Afar	52,270	45.50%	23,783	28,487	54.50%
Amhara	691,048	84.40%	583,245	107,803	15.60%
BG	34,987	89.20%	31,208	3,779	10.80%
Dire Dawa	15,335	95.20%	14,599	736	4.80%
Gambella	13,391	76.30%	10,217	3,174	23.70%
Harari	7,626	65.30%	4,980	2,646	34.70%
Oromiya	1,227,812	73.40%	901,214	326,598	26.60%
SNNP*	795,005	72.70%	577,969	217,036	27.30%
Somali	182,091	42.20%	76,842	105,249	57.80%
Tigray	178,435	95.40%	170,227	8,208	4.60%
National	3,280,450	76.30%	2,473,683	806,767	24.60%

Among GAVI-supported countries, Ethiopia is the fifth country with the highest number of zero-dose children.

Immunization data management

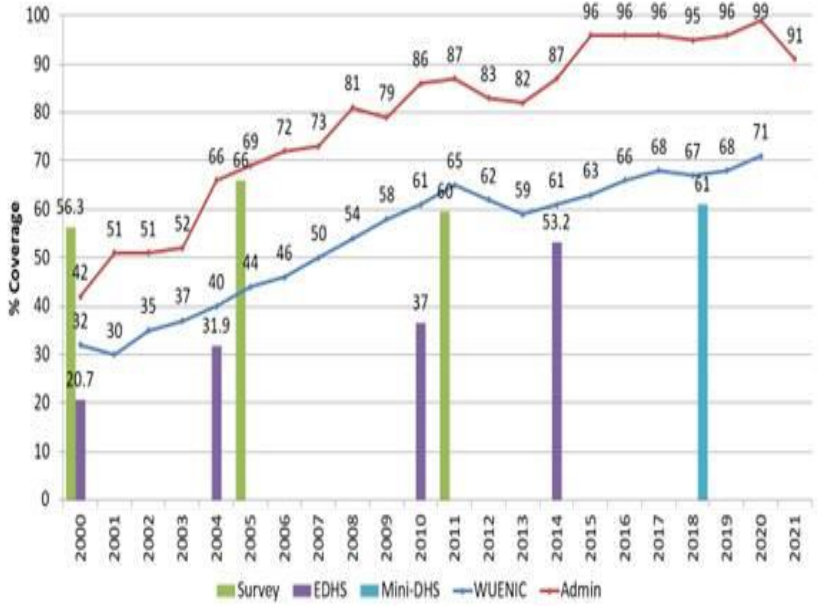
- The health information technology directorate(HITD) at MOH and corresponding bodies to the lower level are responsible bodies to manage health information system
- Ethiopia has been using information generated by the HMIS to track health service outcomes including immunization.
- The HMIS, designed and implemented in 2008
- The CHIS is a part of HMIS and is implemented at the community level to meet the information needs of the HEW
- The Information Revolution was one of the four transformation agendas in Ethiopia's first Health Sector Transformation Plan
- A particular focus was given to the introduction of the DHIS2 and data quality improvement

Data sources for EPI

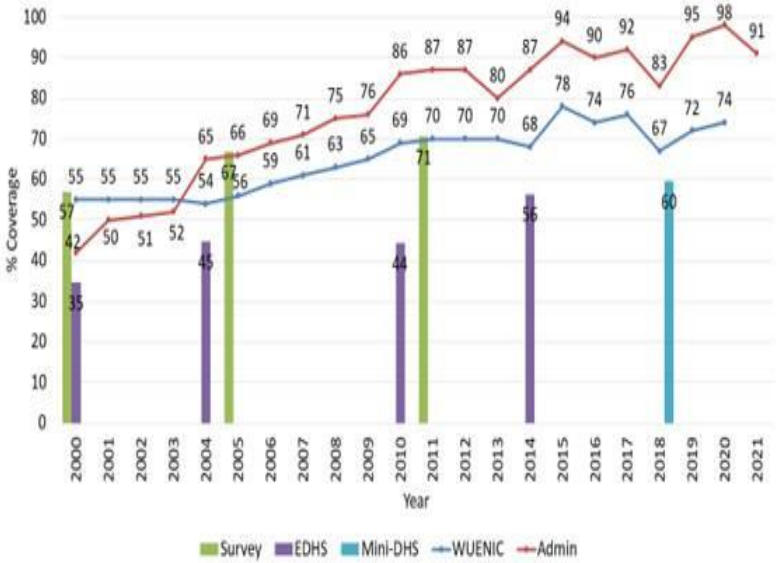
- Administrative Data(DHIS)
- Coverage survey
- EDHS
- WUENIC

Immunization performance by data source

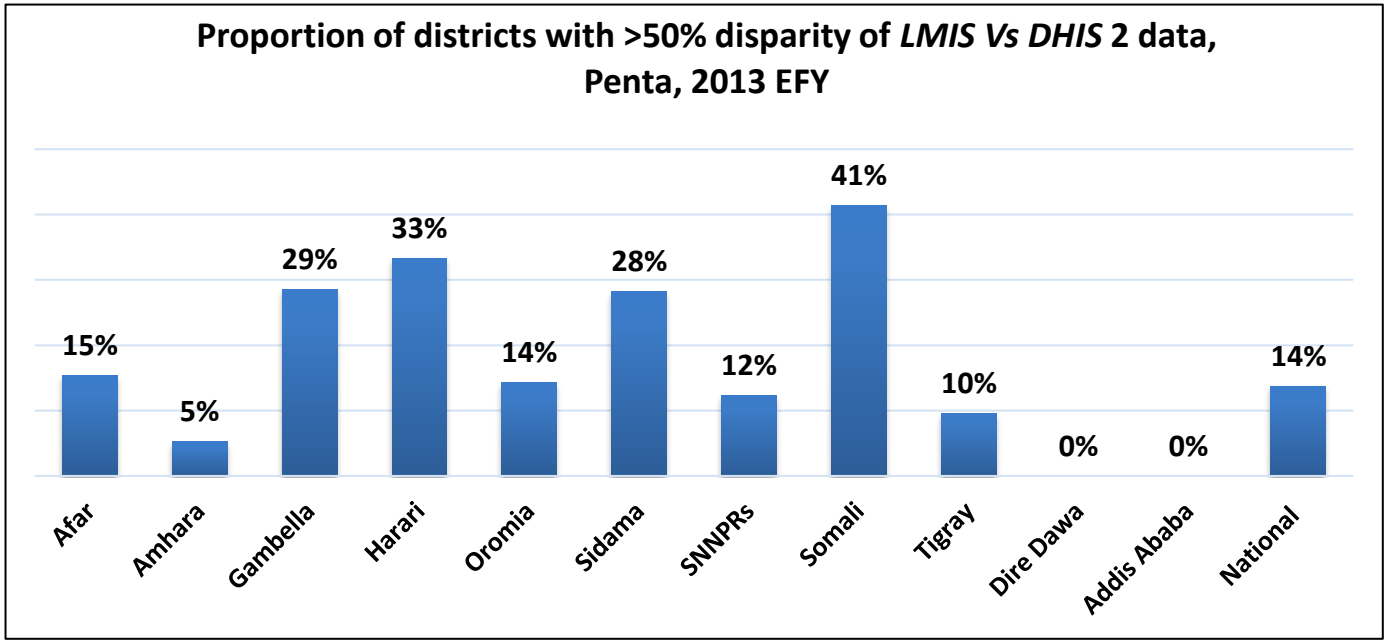
Trend of Penat-3 Coverage by different sources



Trend of OPV3 Coverage by different sources



Immunization data triangulation, LMIS Vs DHIS2



Major Successes- Immunization and data management

- Maternal and ***neonatal tetanus*** eliminated as of July 2017
- Certified for ***polio free*** since 2014
- Conducted ***measles SIA*** amidst COVID-19 pandemic in 2020
- Successful ***campaigns of Covid-19*** vaccination (More than 52.2 M doses were administered)
- **National and Sub National Cold Chain** infrastructure improved
- Currently, there are more than 4000 online and 2000 offline access sites for DHIS2
- Over **8,000 data workers** were trained on how to capture, analyze, and report data using DHIS-2
- Over **4,500 data** USERS were trained on usage, analysis and utilizing data for action using DHIS-2
- COVAX DHIS-2 Scale up Implementation
- Establishment of PMT at all levels
- The practice of data quality audit initiatives like; LQAS
- Practice of tracing immunization defaulters, coverage via plan analysis, providing performance feedback and displaying monitoring charts are common in immunization system.
- Data triangulation practices from different sources

Challenges

- ***Security*** and drought
- Global pandemics ***Covid-19 pandemics*** and its outbreak responses
- High trained ***staff turn*** over
- COVID-19 Vaccine hesitancy in Urban sites
- Infrastructure challenges such as connectivity and computers
- Shortage of data recording tools at HFs level
- Delay in **reporting and data inconsistency**
- **Uncertainty of population estimates**
- **Lack of real time data(eg. Where zero dose are)**
- Lack of Districts (Woreda) Data Visibility

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The way forward

- Catch up vaccination for conflict affected and drought affected area and zero dose children
- Continues demand creation and advocacy
- Resource mobilization
- Strengthen supportive supervision
- Reality-checks with triangulation of routine DHIS2 data from other sources
- Integration of service and reduce missed opportunity
- Digitalization

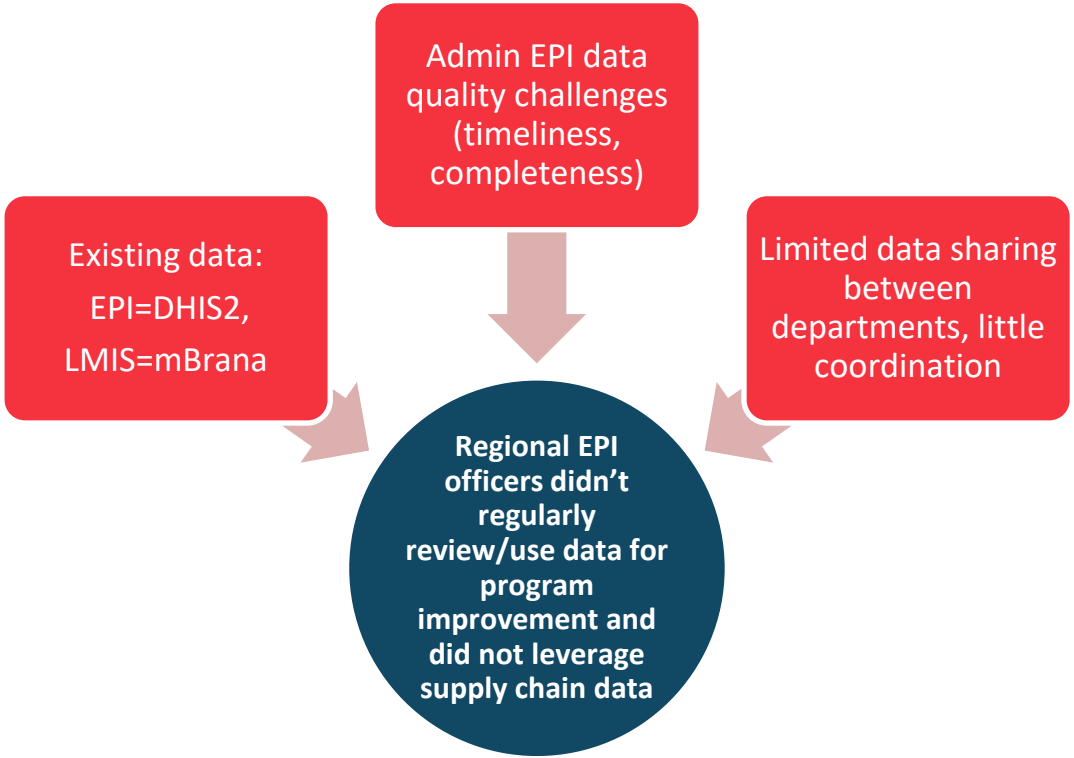

Menze Keya, Woreda Gumer Kebele

Thank you

Early Lessons From Ethiopia in Establishing a Data Triangulation Process to Analyze Immunization Program and Supply Data for Decision Making

Background & Development of Tool and Process

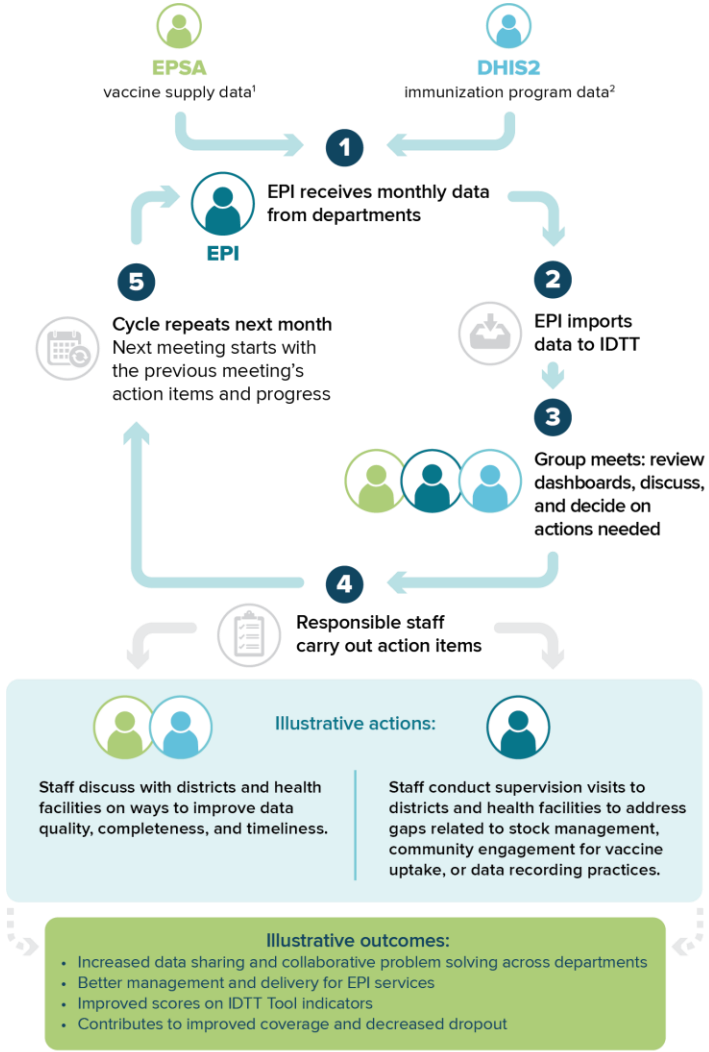
Background

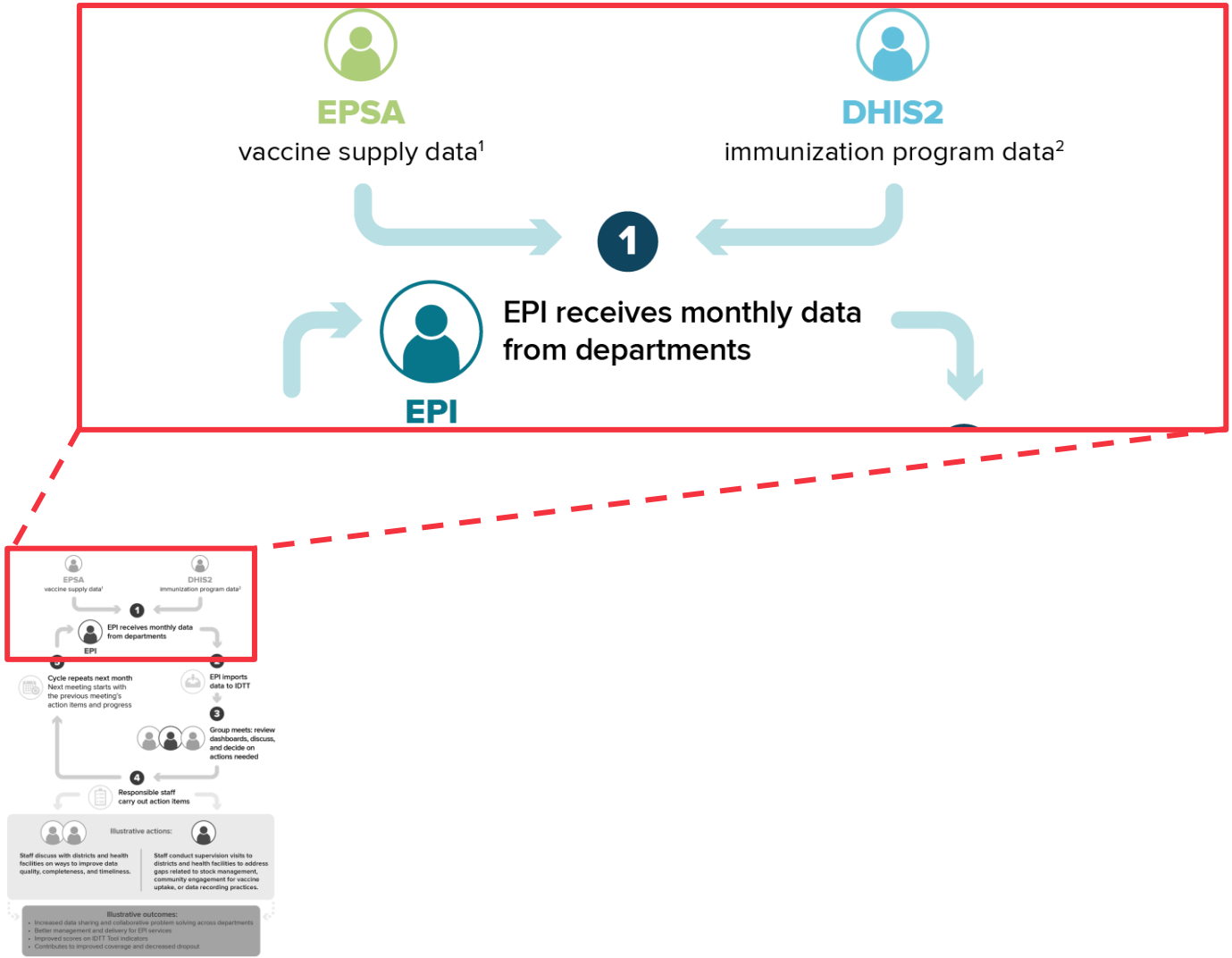

Admin EPI data quality challenges (timeliness, completeness)
Existing data: EPI=DHIS2, LMIS=mBrana
Limited data sharing between departments, little coordination
Regional EPI officers didn't regularly review/use data for program improvement and did not leverage supply chain data

Indicators

- Focused on short list of indicators; analyzed the same ones every month
- Once indicators chosen, developed “suggested actions” depending on the data
- Example:

Doses administered + stock on hand (prev. 3 mo)	Doses issued (prev. 3 mo)	Ratio	Interpretation/Action
135	120	1.125	• Over time, ratio should be close to 1 • If ratio >1, may indicate data quality issue or over-reporting of doses administered • Solution: Investigate the reasons at District X and provide support for proper re-coding procedures; supervisors should incentivize accurate reporting vs. high reporting


EPSA
vaccine supply data[1]
DHIS2
immunization program data[2]
1
EPI receives monthly data from departments
EPI
2
EPI imports data to IDTT
3
Group meets: review dashboards, discuss, and decide on actions needed
4
Responsible staff carry out action items
5
Cycle repeats next month
Next meeting starts with the previous meeting's action items and progress
Illustrative actions:
Staff discuss with districts and health facilities on ways to improve data quality, completeness, and timeliness.
Staff conduct supervision visits to districts and health facilities to address gaps related to stock management, community engagement for vaccine uptake, or data recording practices.
Illustrative outcomes:
• Increased data sharing and collaborative problem solving across departments
• Better management and delivery for EPI services
• Improved scores on IDTT Tool indicators
• Contributes to improved coverage and decreased dropout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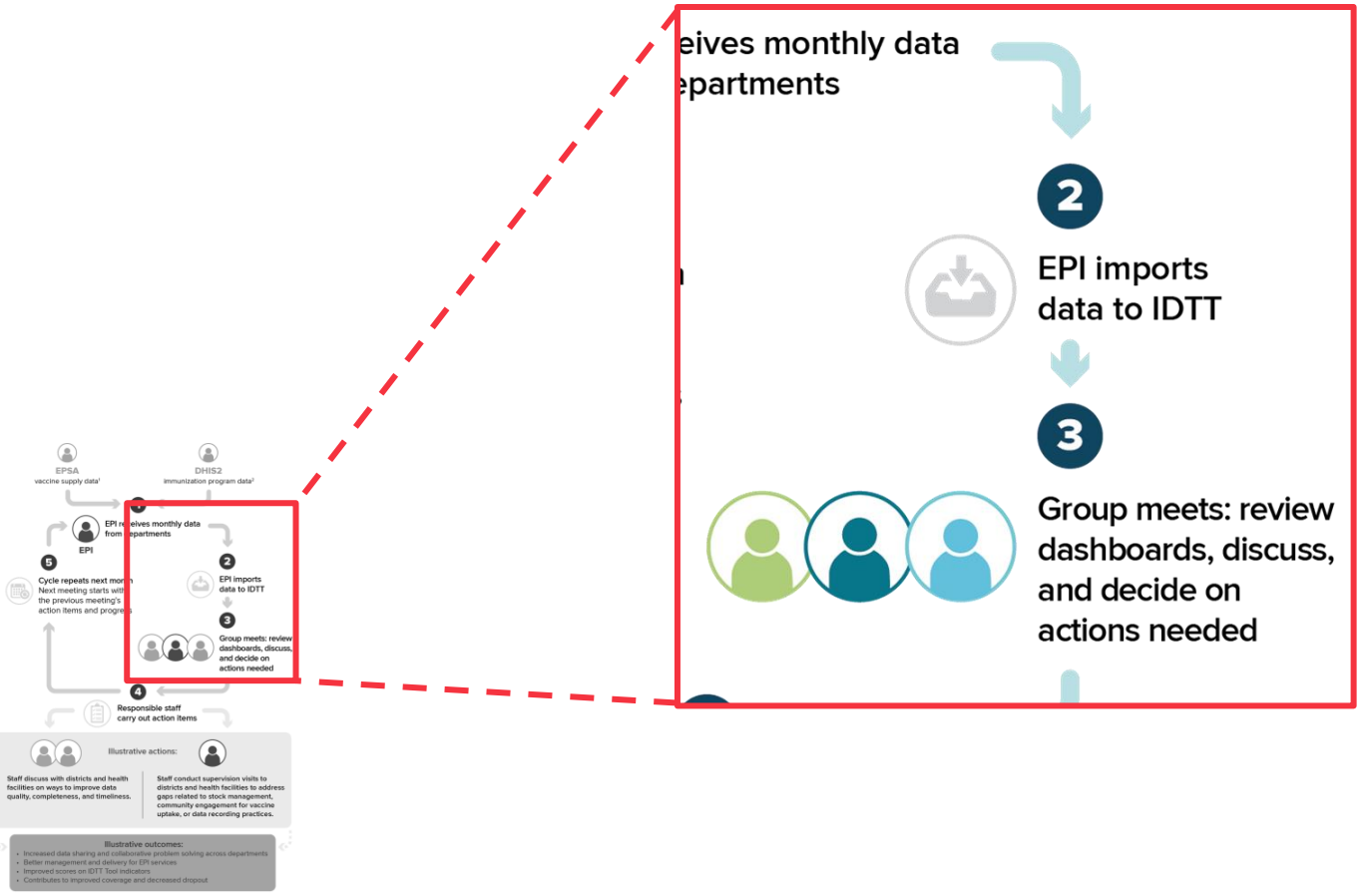
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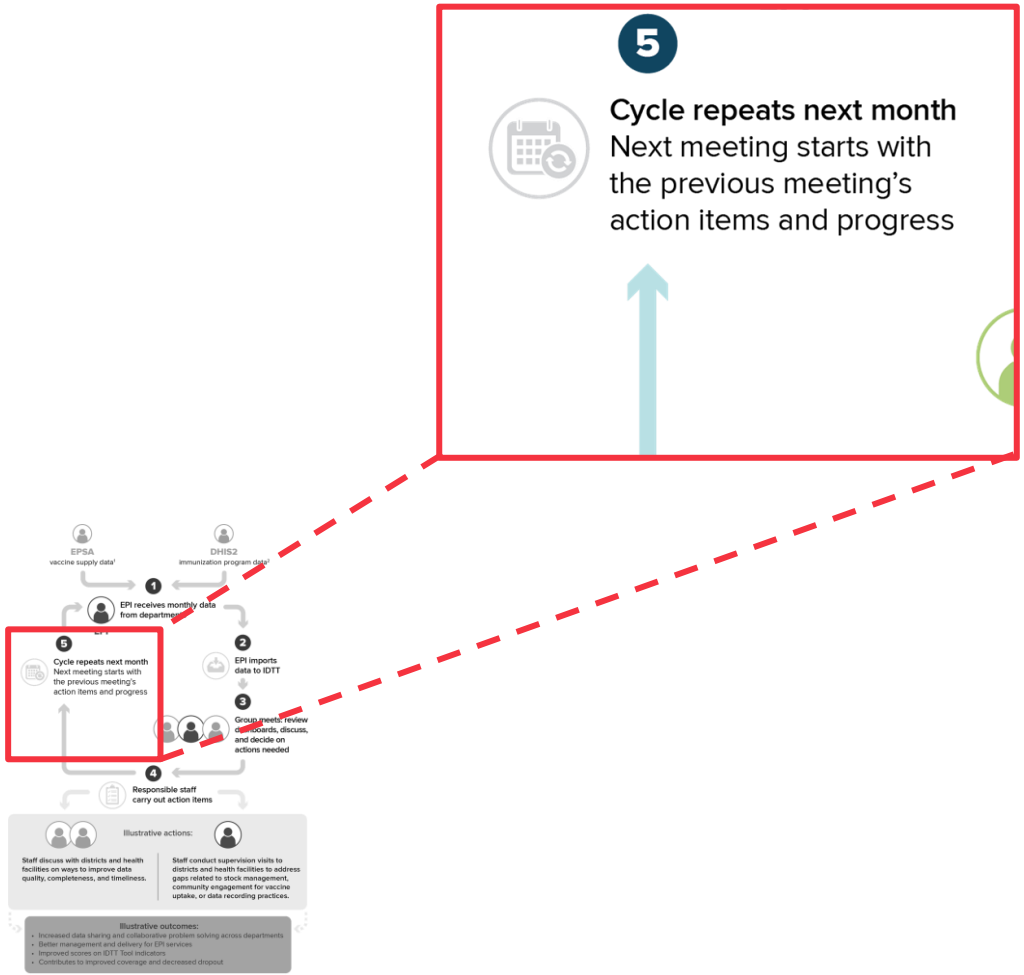
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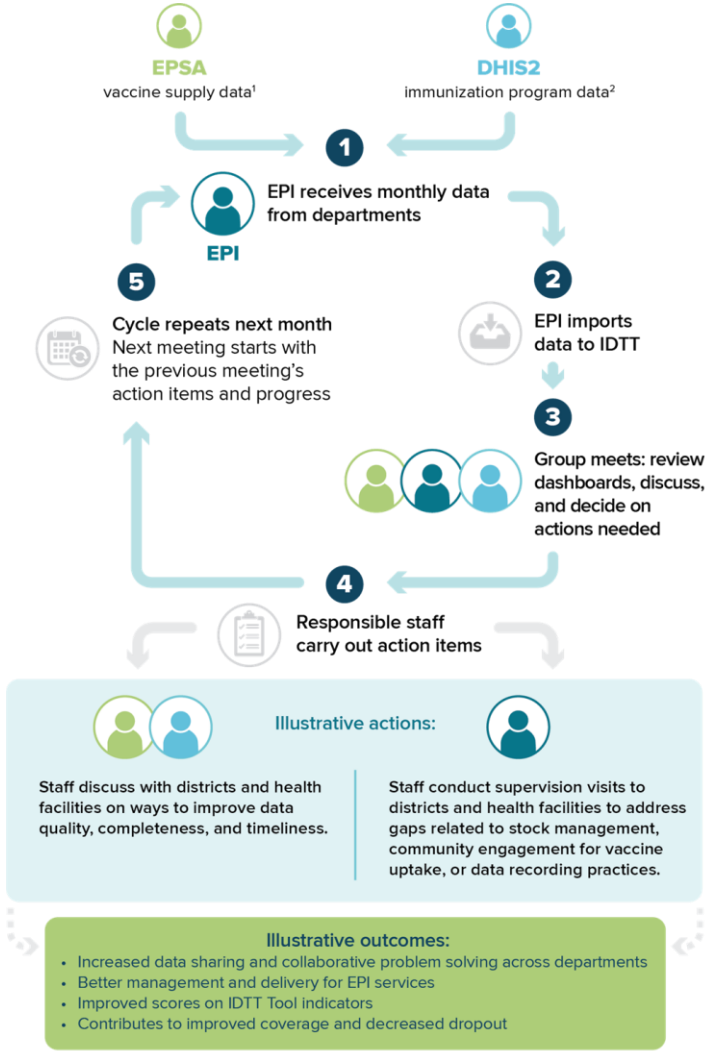
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Process Documentation Objective and Methods

Objective

Understand the feasibility of the IDTT's application as a decision-making tool by examining its use during review meetings.

Wanted to examine how the tool/process was used:

- cross-departmental problem solving
- the decisions made based on the data analysis
- the actions taken (e.g., supportive supervision conducted)
- the outcomes of those actions (e.g., improved availability or quality of data).

Methods

- Mainly qualitative methods
- Key Informant Interviews:
  - RHB (BG region) and ZHD (SNNP region)
  - EPSA
  - health management information system
  - JSI project staff
- KIIs conducted ~6 mo and ~3 mo after intro of tool in SNNPR and BG, respectively
- Examined data uploaded to IDTT and meeting minutes over period of implementation to track the data being uploaded and the decisions that were being made as a result of data review

Findings

Findings (1)

- One Zonal Health Dept. (ZHD) demonstrated faster uptake of the tool and approach
  - regular use of the tool for decision making
  - consistent data review meetings
  - increasing ease of using the tool (e.g. mastering data import) over time

- Committee members interacted with and examined the data holistically

- Simultaneous review of immunization coverage and supply data was a new process
  → stakeholders recognized as a value add

Findings (2)

- One Regional Health Bureau (RHB) experienced a slower rollout → recurring conflict/ethnic clashes, competing priorities, COVID-19 waves
  - These issues affected the functionality and performance of the region's immunization program as a whole + caused a delay in activity implementation
  - Reporting to data systems had lapsed (especially mBrana) → steps were taken to improve data availability prior to starting to ensure adequate data were available to triangulate and analyze

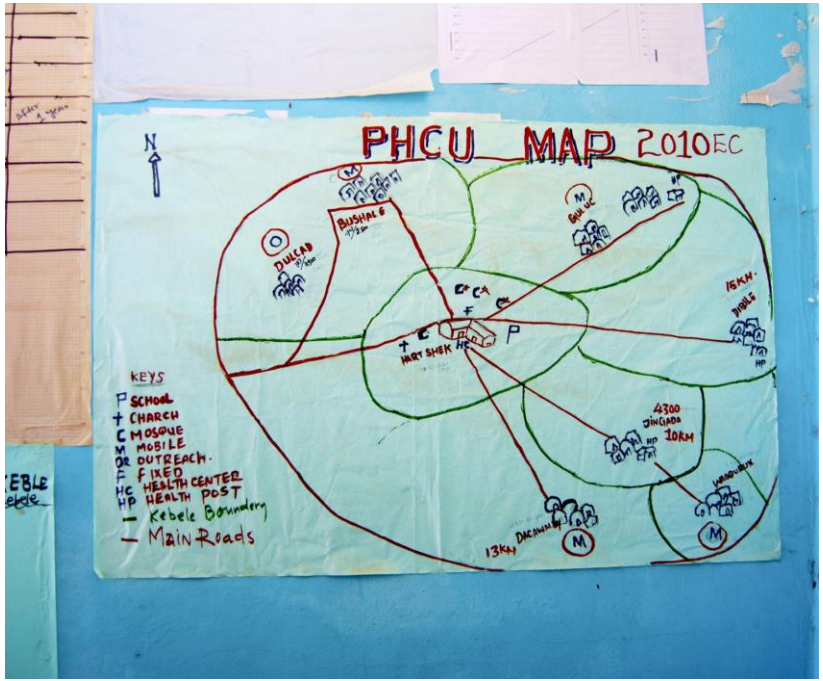
- Once started, mBrana often had incomplete supply chain data, so staff focused more on indicators/analysis based on program data, while improving the availability of vaccine supply data continued to be a focus

Outcomes (1)

Increased number of outreach sites

- Analysis: Low coverage in town; adequate vaccine supply
- Action: EPI team met with district staff and identified issues
- Outcome: Launch of additional outreach sites

Outcomes (2)



Revised target population

- Analysis: Small town in urban area with poorer performance than neighboring areas
- Action: Supportive supervision visit → realized some neighboring communities had been rezoned into the town, which resulted in high number of unimmunized
- Outcome: Town recognized and revised target population and adjusted microplan to plan to reach these areas

Lessons Learned

Establishing Regular Processes for Using Triangulated Data in Immunization

1. Triangulation can foster better coordination among health staff with different professional roles
2. Regular availability of data is important to fully leverage the benefits of triangulation
3. Subnational managers could use data triangulation to monitor issues at the district level

Introducing Tools and Processes Into Health Systems

1. Design with and for the users
2. Manage change and encourage new practices through frequent follow-up support
3. Embed implementation research into introduction processes
4. Don’t let perfect be the enemy of the good

Way Forward and Recommendations

Recommendations

- More research and documentation (incl. at more advanced stages of implementation over a longer period) are needed to further understand:
  - **What regular, practical data triangulation processes can look like** for country Expanded Programmes on Immunization (EPIs)
  - **How data triangulation processes contribute** to better programmatic decision making and better data quality
  - **Relevant indicators and analyses** that are most useful for EPIs

- EPI managers interested in incorporating data triangulation analyses into their current data review systems will need to determine **practical, feasible means to operationalize regular use of triangulated data at subnational level**.
  - When doing so, the process should be **designed through a collaborative process with users**, including an initial training followed by **routine, iterative support**, **embedding of implementation research**, and a collaborative process to work with users to **address barriers or challenges**
  - If data triangulation processes advance and scale, they should be integrated into current health information systems

Conclusion and some parting thoughts…

Despite limitations in data availability, the process documentation showed some evidence that the use of the data triangulation tool and collaborative review process improved decision making and spurred actions that improved the management of immunization services at the district and health facility levels. Respondents also noted the value of regularly using triangulated data.

- Facilitate collaboration and decision making across teams/functions (break down silos!)
- Regular data use – make it routine
- Attention to data availability and data quality
- Focus on concrete actions

Thank you!

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