# Vaccine Administration Data Backlogs:

## Preliminary Findings & Next Steps

CoVDP DH & GIS WG Presentation

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Team: Rob Rosenbaum, Adele Waugaman, Joy Kamunyori and Merrick Schaefer

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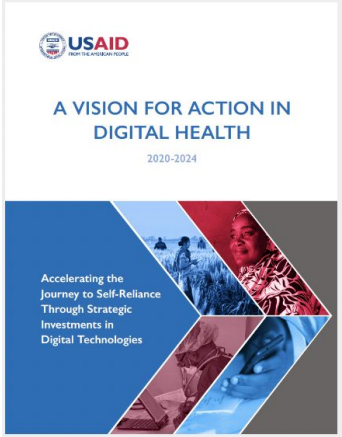
# Goals & Framing

# Goals of this presentation

- To **share what USAID is observing** regarding backlogs of COVID-19 vaccine administration data in partner countries, and their root causes
- To l**earn from other funders' and partners' observations** and work addressing these data backlogs
- To **identify opportunities to for alignment** in these efforts going forward – in particular around assessing and addressing data backlog root causes

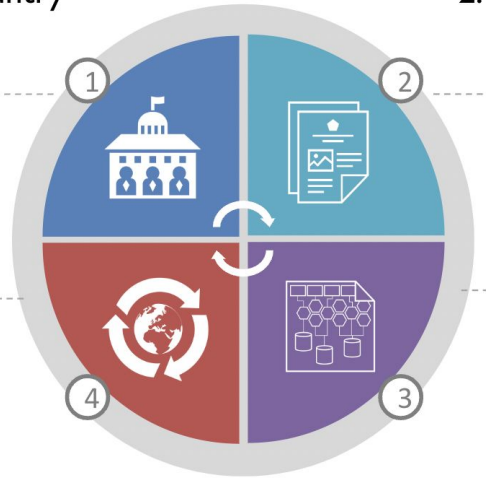
Photo Credit: Fauzan Ijazah/UNICEF for USAID

# Framing: A Systems-Strengthening Digital Health Approach


1. Assess & Build Country Digital Health **Capacity**

2. Advance National Digital Health **Strategies**




3. Strengthen National Digital Health **Architectures**

4. Leverage **Global Goods**

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# COVID-19 Vaccine Administration Data Backlogs Analysis

# Data Backlogs: Problem statement and background

- **Disaggregated data is critical to COVID-19 vaccine delivery**
  - **Specifically patient-level vaccine administration data** that captures who is being vaccinated by key demographic details (i.e. age, sex, HCW status, vx type)
    - **Yet in most countries there are significant difficulties accessing these data**, which creates challenges for C19 vaccine administration planning and targeting of priority populations
    - **Without these data, it is difficult to track progress,** which has implications for improving health outcomes and for monitoring vaccine delivery progress
- **Most countries have dual pipelines for vaccine administration data**
  - **One rapid count that rolls up from sites**, often using phone calls or text messages to capture total doses administered by geography
  - **A second, slower, pipeline for disaggregated data that varies by country** that typically utilizes a digital health information system at some stage (e.g. DHIS2)

# Methods and interpretation

- Approach: We sent out a 5 question survey and supplemented with discussions with colleagues in country offices and findings from other global stakeholders (e.g., WHO).

- What this work can tell us: How widespread are the issues? What are our in-country colleagues seeing as the main drivers?

- What this work cannot tell us (yet): True root causes, detailed bottlenecks, beyond what was reported in the survey.

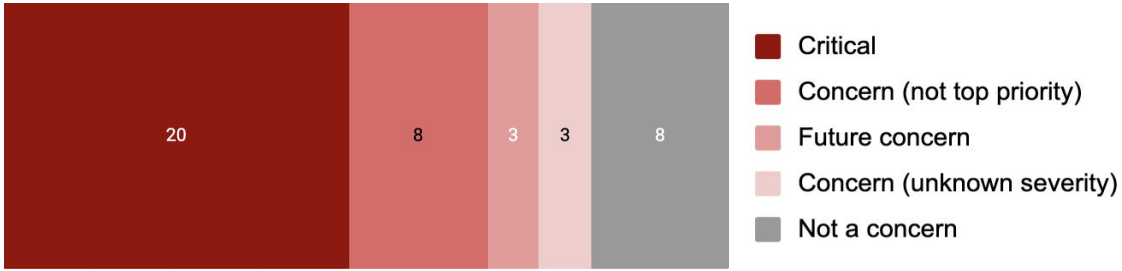
Photo Credit: Francis Kokoroko/UNICEF

# Questionnaire to USAID Field Offices

1. How big of a problem are data backlogs in your country? (choose one)
   a. Critical/Very high priority
   b. Concerning now but not a top priority
   c. A possible future issue to monitor
   d. Not an issue
2. Do you have a ballpark estimate of the number of backlogged vaccination forms?
3. What do you believe is driving the backlogs?
4. What (if any) digital platform/technology is the MoH using to capture vaccine administration data?
5. Are we deploying any USAID resources in-country to help resolve either the backlogs or improving the digital tools used to collect data on vaccine administration? (Please note amount and IP)
6. Please feel free to add any additional comments or thoughts on this topic.

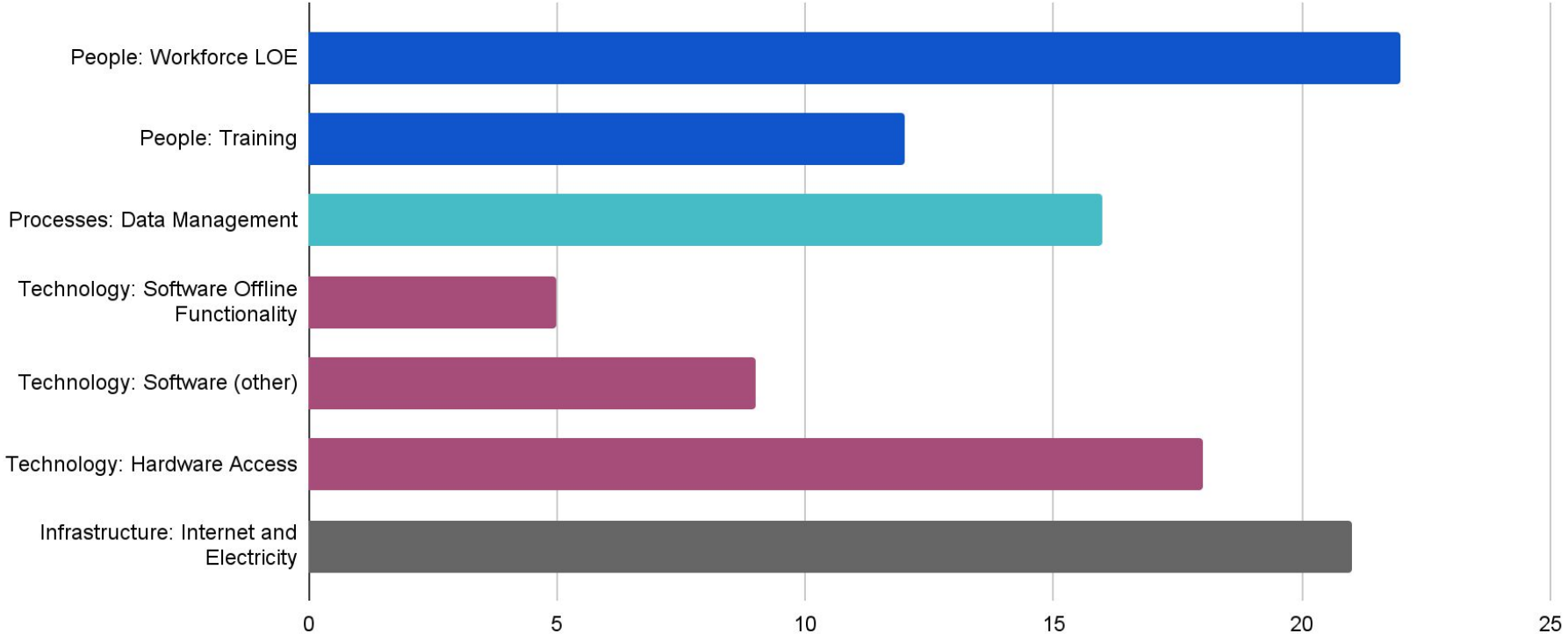
# Top line findings to date

- From the 42 countries, **34 reported backlog issues**; **8 reported no issues**




- **Scope of data backlog in many countries is considerable**
  - **3 country offices reported data backlogs of >10M records missing in their country**
  - **Average backlog is 4M records (for context, the 15 countries where we could quantify the backlog have given an average of 9M vaccines total, representing nearly half of all administered vaccines)**
- **Backlogs of all (aggregated) admin data reported in four countries:** meaning overall undercounting; elsewhere backlogs are disaggregate counts only
- **28 countries have USAID investments in data/digital systems with COVID-19 funding** directly related to vaccine coverage and backlogs - most are just beginning to launch
- **Campaigns** appear to be significant drivers of backlogs, often exacerbating existing HIS challenges, suggesting the need for more intentional planning for data collection
- **Data backlog challenges are multifaceted** and related to a combination of **People** (data entry LOE and training), **Processes** (data entry workflow), **Technology** (i.e., software issues and hardware) and **Infrastructure** (internet)

# Drivers of data backlogs



# Analysis: People

- Workforce LOE was the single most commonly cited driver of backlogs (n=22)
- Workforce training was also common (n=12)
- Specific challenges include:
  - Overall quantity of data clerks
  - Staffing surge needs during campaigns (and then moving off C19 vaccination before data ha been entered)
  - Training on digital tools (especially where paper-based registry is the norm)
  - Staff remuneration and motivation

Photo by USAID/Tunisia

*"At the urban level, it is the lack of human resources for data entry. When there is a high demand for vaccination, human resources are insufficient, since they carry out different activities corresponding to other programs."*

# Analysis: Processes

Photo by USAID/Uganda

- **Data management/business process** challenges listed as drivers of backlogs in about half of countries reporting issues (n=16)
- Most countries use (at best) a combination of digital and paper tools, the process of **converting paper to digital** varies but often involves multiple people and transfers of files (rather than single point of entry).
- Where data clerks are limited, nurses are asked to enter data, often after a full day of vaccine administration. **Staffing during campaigns** also a business process consideration.
- However, **process constraints are the least understood of bottlenecks** due to difficulty in unpacking through relatively limited survey.

*"Lack of standard operating procedures on how to document 2nd doses creating challenges to data entry clerks as some entries are missed."*

# Analysis: Technology

- Software-related concerns were not among the most commonly cited drivers (n=9), despite being one of the triggers of this work. However:
  - Where offline functionality concerns are driving backlogs, there may be reasonably quick solutions
  - Improvements to DHIS2 Tracker (and other applications) even where not cited, could have knock-on benefits to other issues, such as HRH capacity
  - Many reports of slow applications that include more than minimally necessary fields slowing down registration and leading to decisions to use paper based registry
- Hardware constraints (i.e., tablets) were widely cited (n=18)

Photo: Des Syafrizal for USAID

*"[Country] just finished a COVID-19 vaccination campaign which saw record daily numbers of people turning up for vaccination. As a result, the system was overwhelmed and so we are currently at a critical/very high priority level in terms of data backlog."*

# Infrastructure and enabling environment

- Underlying infrastructure, specifically **internet connectivity**, was the second most commonly cited issue (n=21)
  - This highlights the importance of broader enabling environment to enable digital health solutions to succeed
- Possible that *some* internet constraints could be resolved with better **offline functionality of applications**, which are designed specifically to work in low resource environments

Photo by Riaz Jahanpour for USAID Tanzania

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# USAID’s Initial Next Steps

# Solutions: Clearing of Backlogs (addressing the symptoms)

Immediate-term solutions already underway

- Hiring/deploying data clerks
- Purchasing hardware (tablets, etc)
- Training nurses and data clerks
- Utilizing Smart Paper Technology
- Other approaches to “unclog” existing backlogs


UNICEF Sierra Leone/2018/Mason

# Solutions: Addressing the Underlying Root Causes

- **Working through implementing partners in-country** focused on health information systems and digital health to identify specific bottlenecks that are driving backlogs in country and partnering with MoH (or other government actors) to improve data flow, quality, etc
- **Deep dive analysis and operational recommendations/guide through Digital Square** (phase 2 of this survey work) – looking across 3 countries to develop actionable and generalizable recommendations
- **Aggregating insights and lessons learned** to share with country teams and coordinate future investments with donor community


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# Discussion

# Discussion Framing

There are two threads intertwined in this presentation, for the purpose of this we are interested primarily in discussion #1 below.

1. How are we understanding and addressing the *root causes* of data backlogs?

2. How are we resolving the data backlogs themselves?

Photo Credit: Fauzan Ijazah/UNICEF for USAID

# Discussion Questions

1. Do these findings align with your experience supporting countries' COVID-19 vaccines delivery? If not, how so?
   - Role of technology/infrastructure, people/processes components in contributing to backlogs? Other factors?

2. Are others doing root cause analyses?
   - If so, in which countries and using what approach? How can we work together to share insights?


Photo by USAID/Colombia

# Discussion Questions

3. Where multiple funders are addressing data backlogs and/or their root causes in specific countries, how best could/should we ensure coordination of efforts at the country-level?

- Is this entirely managed at the country level? If so, are those relationships across funders in place when it comes to *digital health* investment coordination?
- Where coordination at the global level is needed, what is the mechanism for doing so?

4. Many of the data backlogs are being successfully addressed through multiple funders' investments in data clerks. To avoid such backlogs in the future, how can funders learn from this experience?

- What steps should we take?
- How can this CoVDP DH & GIS Working Group facilitate those next steps?


Photo by Rama, IFRC for USAID

# THANK YOU!

To learn more or share any additional thoughts please email us at awaugaman@usaid.gov **and** rrosenbaum@usaid.gov

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