# Reaching the zero-dose and under-immunized children in Uganda

## A case study of the Electronic Community Health Information System. Preliminary findings

**Presenter**: Carol Kamya (ckamya@idrc-uganda)

**Contributors:** Chrispus Mayora, Albert Besigye Tumusiime, , Faith Namugaya, Patience Kabatangare, Paul Katamba, Deogratius Agaba, Moses Kamya.

IHEA INTERNATIONAL HEALTH ECONOMICS ASSOCIATION

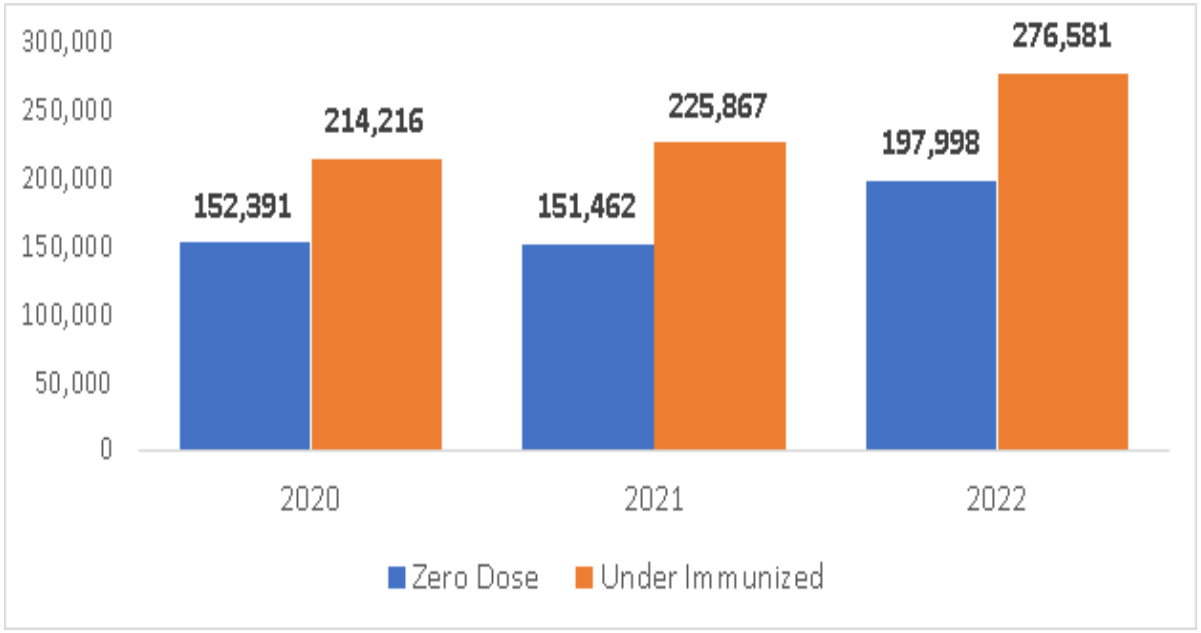
IMMUNIZATION ECONOMICS.ORG

Gavi The Vaccine Alliance

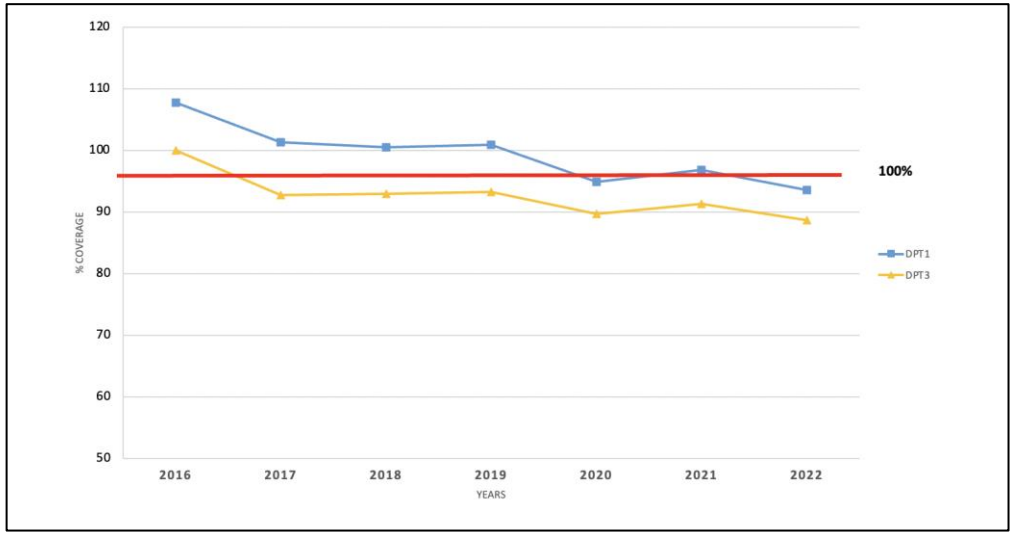
IDRC INFECTIOUS DISEASES RESEARCH COLLABORATION

# Zero Dose and under-immunized burden in Uganda

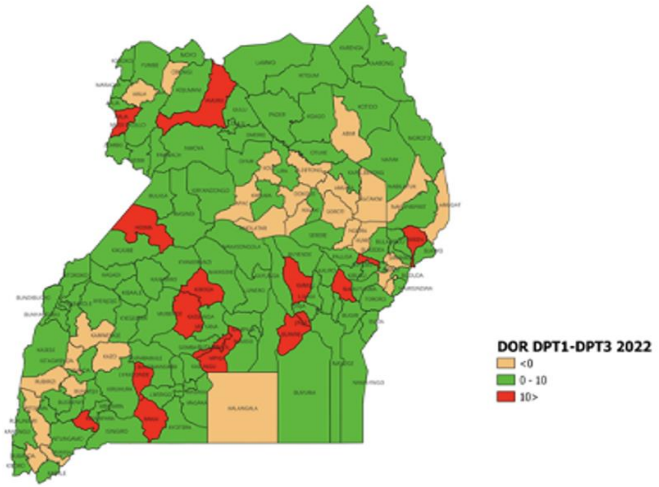
Trends in the Zero-Dose and under-immunized children




Trends in DPT1 and DPT3 coverage



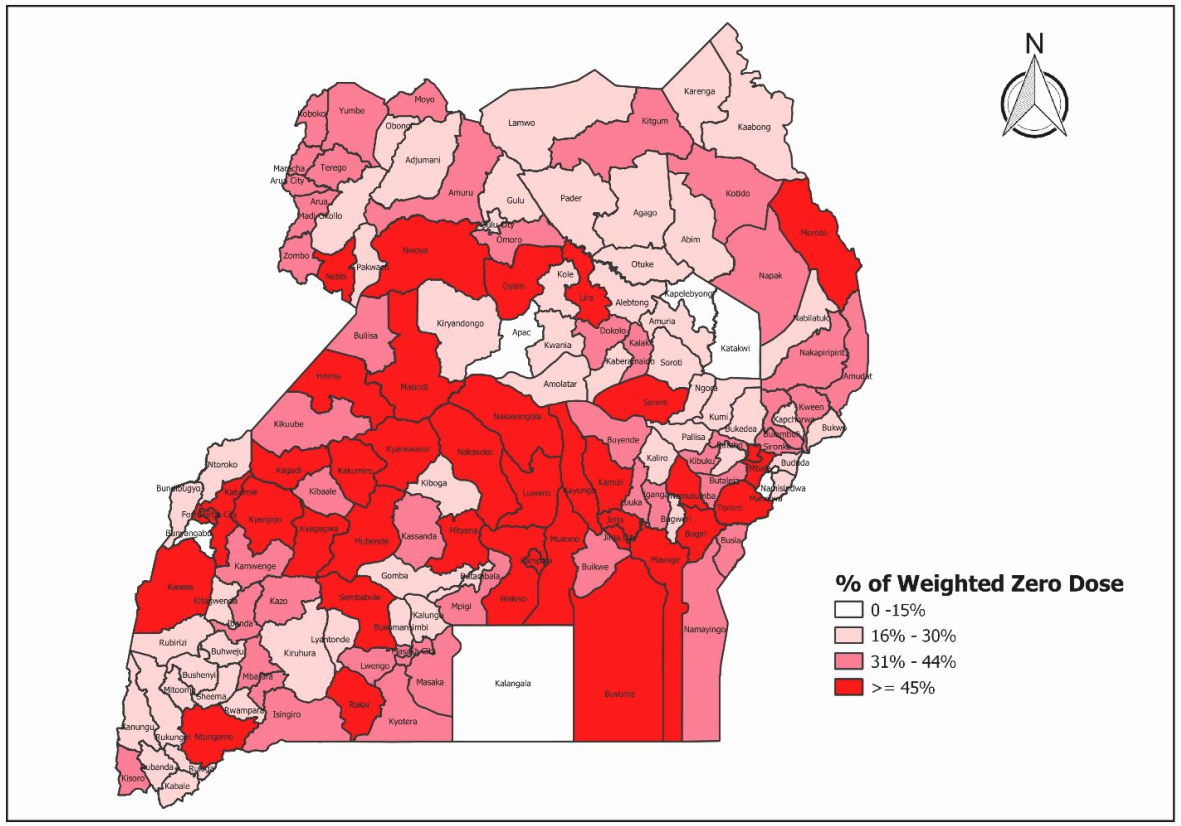

DPT-1 –DPT3 dropout rate in 2022



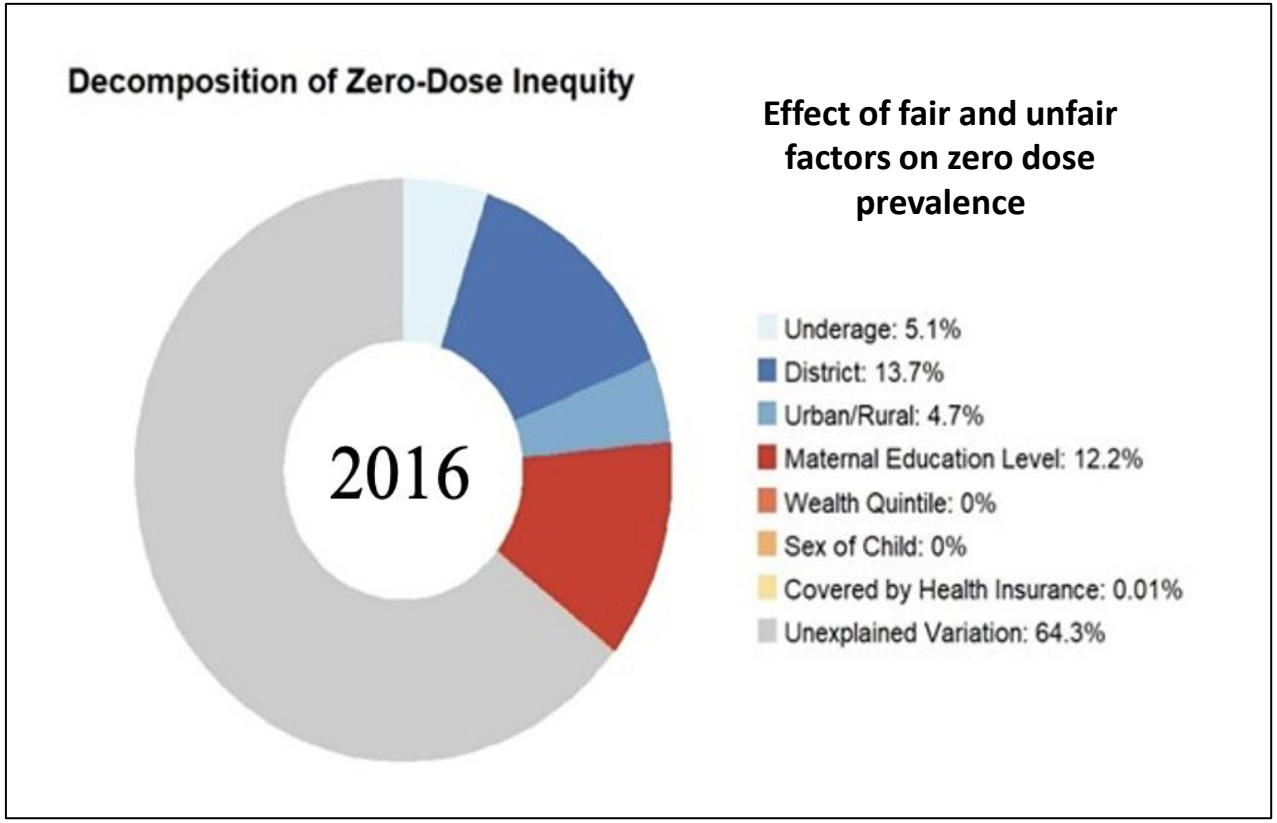

IHEA INTERNATIONAL HEALTH ECONOMICS ASSOCIATION

IMMUNIZATION ECONOMICS.ORG

# Where are the Zero-Dose children in Uganda?




**Zero Dose children are unevenly distributed in 52 districts and 7 cities across the country**




**Household residence and Maternal education** accounts for **14% and *12%*** of Zero-Dose inequity, respectively.

IHEA INTERNATIONAL HEALTH ECONOMICS ASSOCIATION
IMMUNIZATION ECONOMICS.ORG

# Rationale

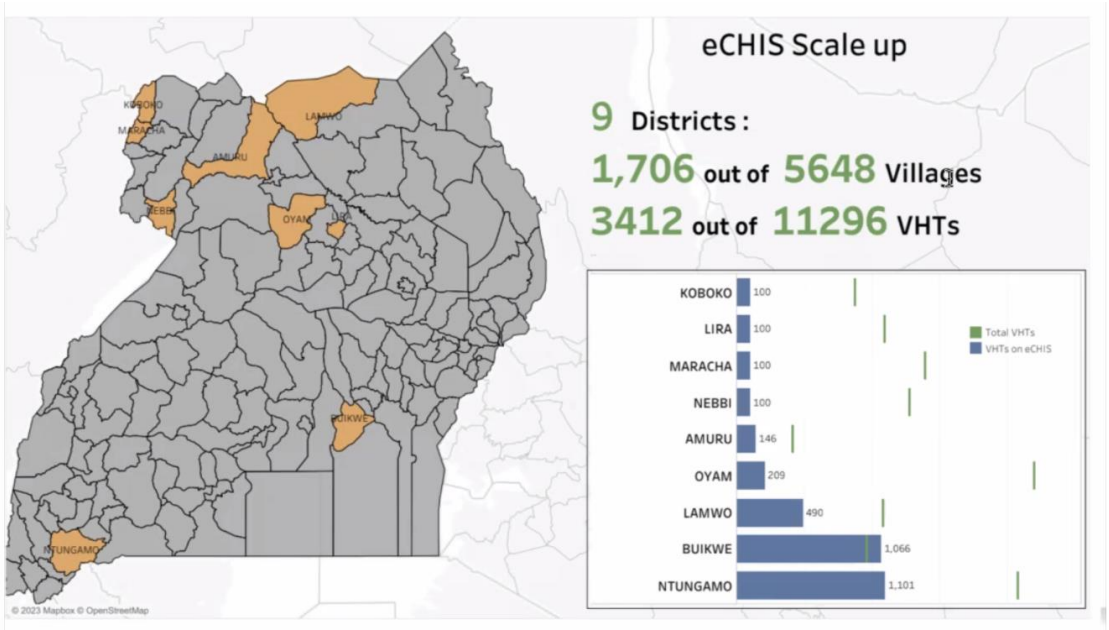
There is limited evidence on the costs associated with providing and scaling immunization to the zero dose and under immunized children

This study focuses on the cost of reaching zero dose and under-immunized children through specific interventions.

Evidence to inform stakeholder decision making for scale up and other LMICs

# What is eCHIS?

- Digital job aid for community health workers
- Open source technologies:Community health tool kit & Open smart register platform.
- Information is linked to central health management information system.
- Immunization indicators: DPT1, DPT3 and MR1




**Maternal Health:**
- Antenatal care
- Postnatal Care
- Family Planning

**Child Health:**
- Nutrition
- Immunization
- ICCM+
- Malaria

**Infectious Disease:**
- HIV/Aids
- Tuberculosis

**Others**
Stock Monitoring

IHEA INTERNATIONAL HEALTH ECONOMICS ASSOCIATION
IMMUNIZATION ECONOMICS.ORG

# eCHIS users

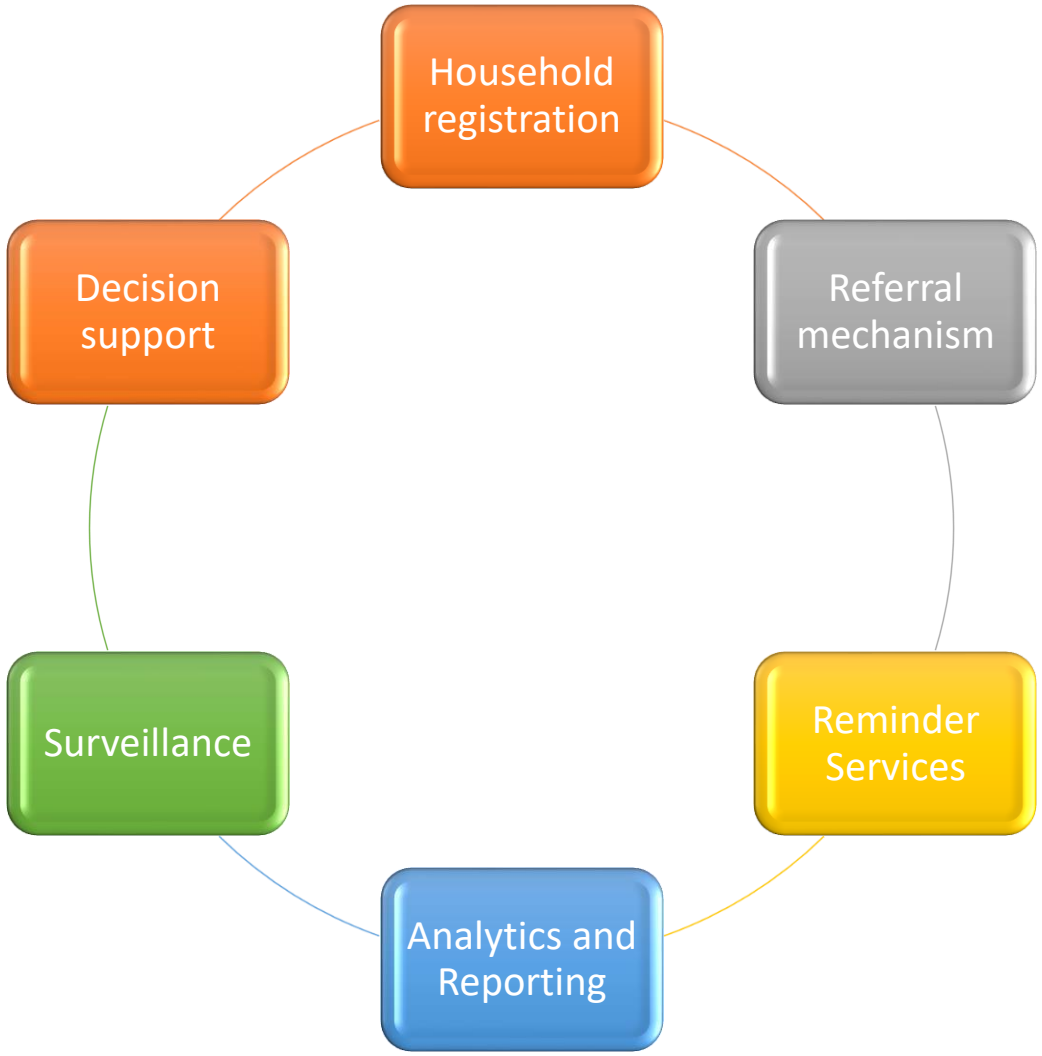
| eCHIS App Users | App Hierarchy | Details |
|---|---|---|
| MoH | Live at admin Level | Staff at this level have online access to dashboards where they monitor program indicators |
| HMIS | Live at admin Level | |
| District Health Team | Live at admin Level | |
| Health Assistant | Live at facility level | In charges and Health Assistants are equipped with the eCHIS Supervisor app. They are able to view dashboards and reports but are not able to access & view patients or households. The app has offline access |
| HCIII In-Charge | | |
| VHT Coordinator | Live at community level | VHTs and their coordinators are equipped with smartphones installed with the eCHIS app. This replaces the physical household register, screening tool and monthly reports. The app has offline access. |
| VHTs | Live at community level | |

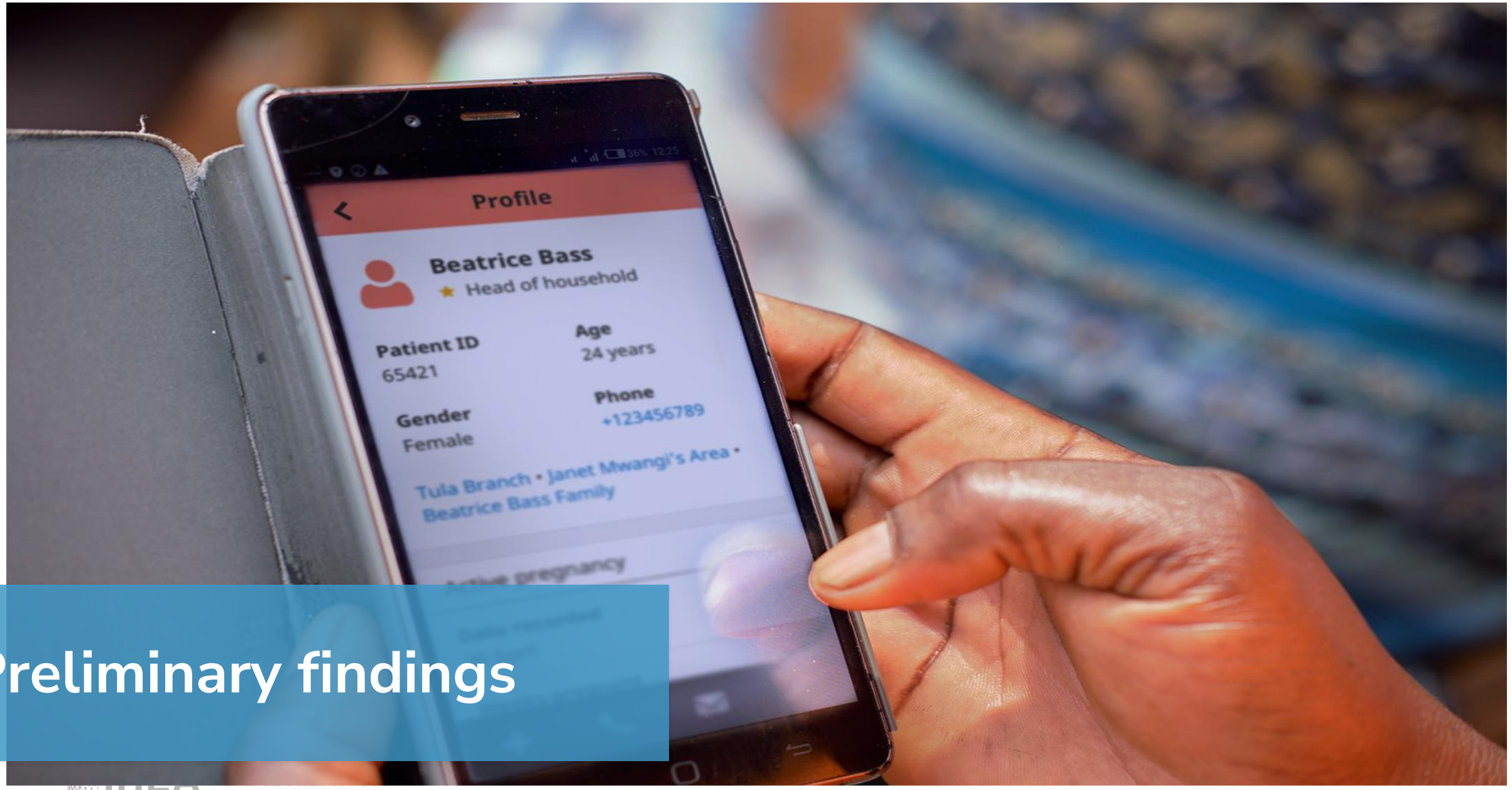
# Objectives and scope

Objective: To estimate the incremental cost of implementing an electronic community health information system in Uganda

- Retrospective, top down costing study at national level
- Government perspective
- Time horizon: One year

Key components



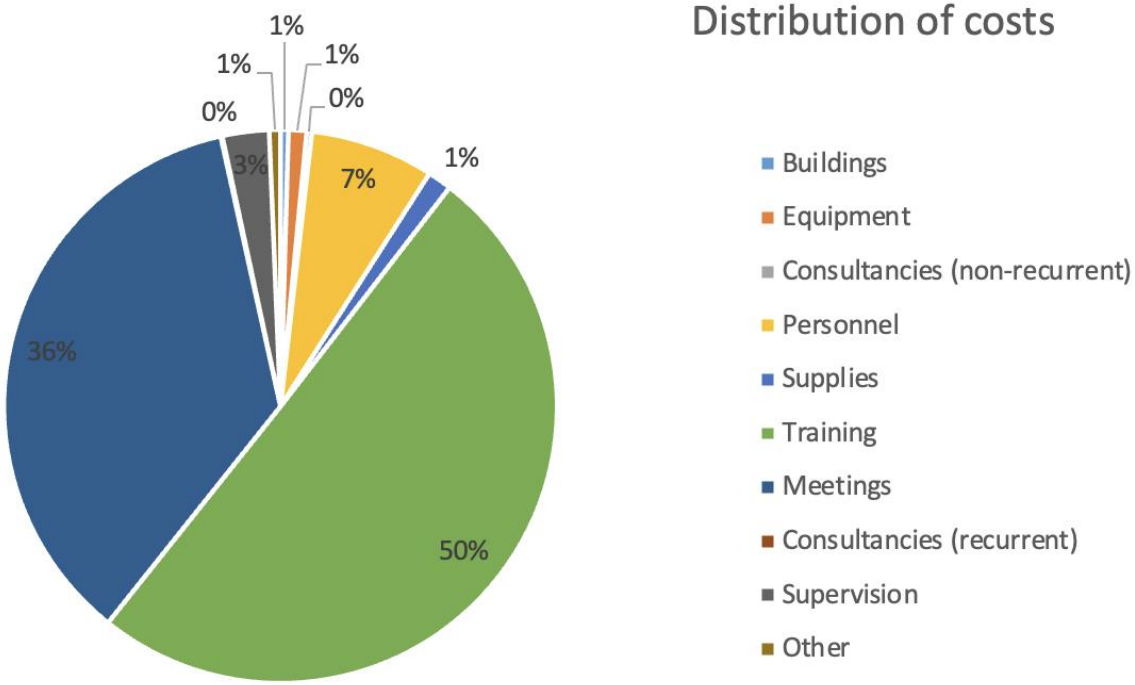



# Preliminary findings

# Annual cost

## Estimated total cost at national level (2023 US$)

| Cost category | Start up costs | Recurrent costs |
|---|---|---|
| **Capital** | | |
| Buildings | 20,000 | 6,000 |
| Equipment | 56,194 | 3,660 |
| Consultancies (non-recurrent) | 17,000 | |
| **Total capital costs** | **93,194** | **9,660** |
| **Recurrent** | | |
| Personnel | | 408,986 |
| Supplies | 31,332 | 48,500 |
| **Training** | **2,650,401** | **188,376** |
| **Meetings** | **7,895** | **2,015,343** |
| Consultancies (recurrent) | | 5,100 |
| Supervision | | 154,049 |
| Other | | 37,076 |
| **Total recurrent costs** | **2,689,628** | **2,652,341** |
| **Total Costs** | **2,782,822** | **2,662,001** |

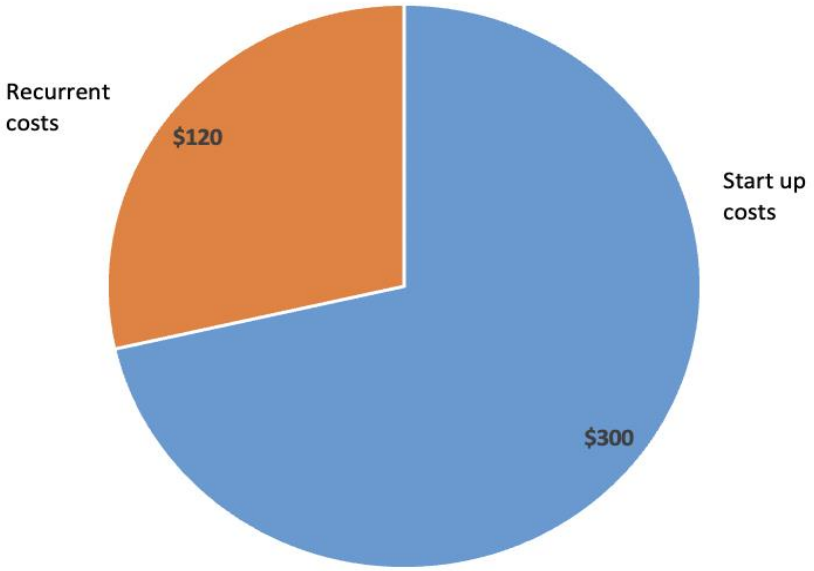


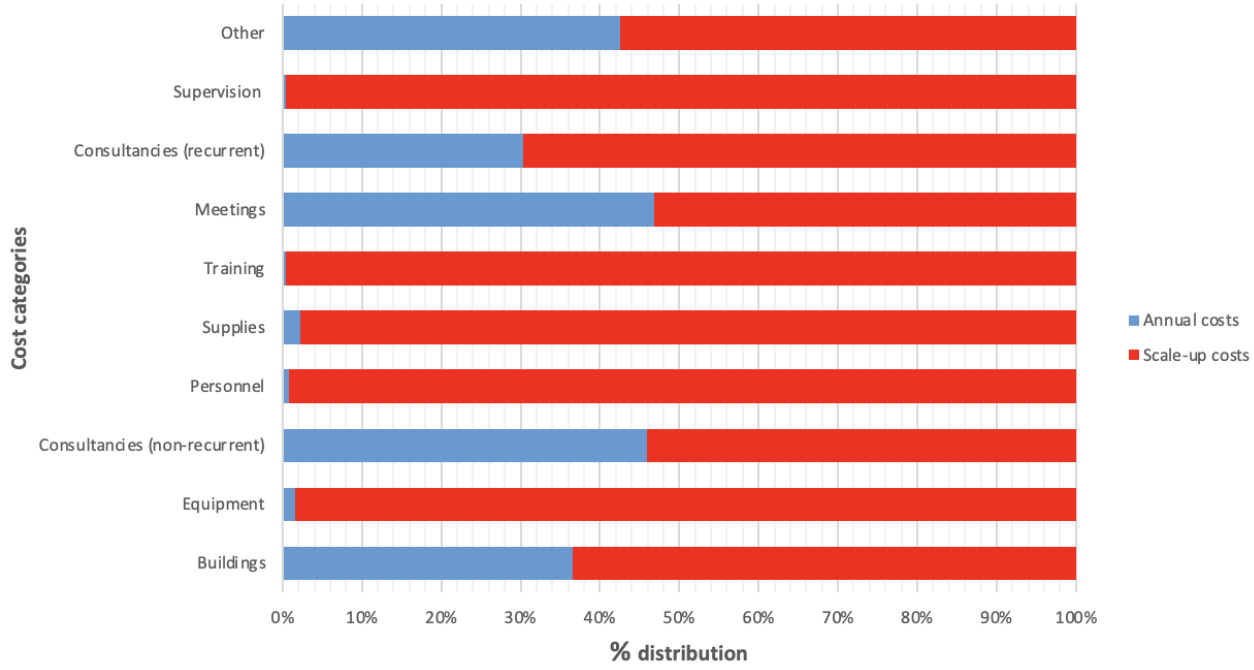

- The total annual incremental cost is US$ 5.4 million.
  - Driven by training and meetings.
- Potential savings: Human resources, Printing costs.
- Costs for cold-chain equipement remains unchanged.

IHEA INTERNATIONAL HEALTH ECONOMICS ASSOCIATION IMMUNIZATION ECONOMICS.ORG

# Scale up: costs per child vaccinated

## Scale up costs per child vaccinated (2023 US$)




- Cost per zero-dose child vaccinated: $300 at start up and $120 for recurrent costs
  - Start up costs are driven by training costs and equipment
  - Recurrent costs are driven by personel, supervision.
- Potential savings: Human resources, Printing costs, Immunization supply-chain.

IHEA INTERNATIONAL HEALTH ECONOMICS ASSOCIATION
IMMUNIZATION ECONOMICS.ORG

# Contexutalizing costing findings

## Human Resource

Volunteer basis

Low literacy levels

Need for continuous supervision

## Vaccine & Supplies

Frequent stock out of vaccines

## Capital Equipment

Frequent phone loss

Data bundles

Unstable power supply

Device management

Considerations for scale up:

- Inclusion of the private sector?
- Incentivize volunteers?

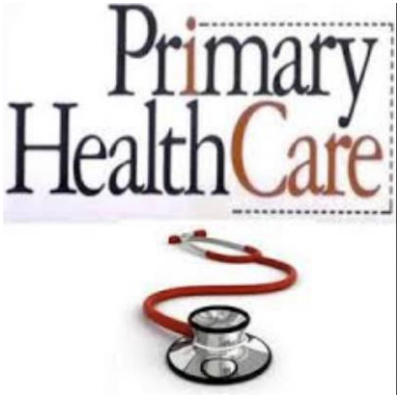
Next steps:
Is this digital platform cost-effective?
Is it sustainable?

IHEA INTERNATIONAL HEALTH ECONOMICS ASSOCIATION IMMUNIZATION ECONOMICS.ORG

# Conclusions

**It costs more!**

- Increasing coverage to reach zero dose and under immunized children costs more especially with high baseline coverage.
- There is need to explore integrated approaches: e.g harmonization of digital systems with targeted outreaches in zero dose communities
- There is need to test and cost these innovative delivery models to reach zero dose communities.




**How much more?**

- There is need to estimate the cost of sustainably expanding the regular delivery of immunization services in specific zero-dose settings

# Acknowledgements


- Ministry of Health
- eCHIS team
- Impelementing partners

# Thank you

IHEA INTERNATIONAL HEALTH ECONOMICS ASSOCIATION

IMMUNIZATION ECONOMICS.ORG