

# Implementation of an Electronic Community Health Information System and research lessons

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# Background

- Integrated community case management (iCCM) was introduced in 2010 in Uganda to improve access to lifesaving interventions targeting three childhood diseases: malaria, pneumonia and diarrhoea through community health workers referred as to village health teams (VHTs) in Uganda.
- Quality care and timely reporting continued to be hampered by the use of conventional paper-based approaches.
- Malaria Consortium, in collaboration with the Ugandan Ministry of Health (MoH), has supported the development and implementation of the Electronic Community Health Information System (eCHIS) since 2020.
- eCHIS incorporates a digital tool developed to enhance quality service provision and real-time surveillance for community health. The digital tool assists community health workers (CHWs) with case management for reproductive, maternal, neonatal and child health, as well as HIV and tuberculosis, and provides support tools for nutrition and water, sanitation and hygiene (WASH).
- eCHIS is led and fully owned by the MoH and is the only community mobile health (mHealth) tool endorsed for use in Uganda.

# Malaria Consortium: Involvement throughout Uganda's journey to eCHIS implementation

## Technical development

### eCHIS modules:

- Training
- Supervision
- iCCM
- Stock management
- Data synchronisation

Translation into Luganda

Linkage to health facility  
discharge  
application

1

## Buikwe implementation

**Phase 1:** Doughnut iCCM 365 village health teams (VHTs): Acceptability, feasibility, usability and plausibility for impact on key childhood indicators

**Phase 2:** District-wide (844 VHTs): Robust impact assessment

2

## Transition to scale

District-wide in four districts (2,444 VHTs)

Alternative implementation approach

Research in new contexts

Cost analysis

3

## Full scale

Scale up to new districts (varied contexts)

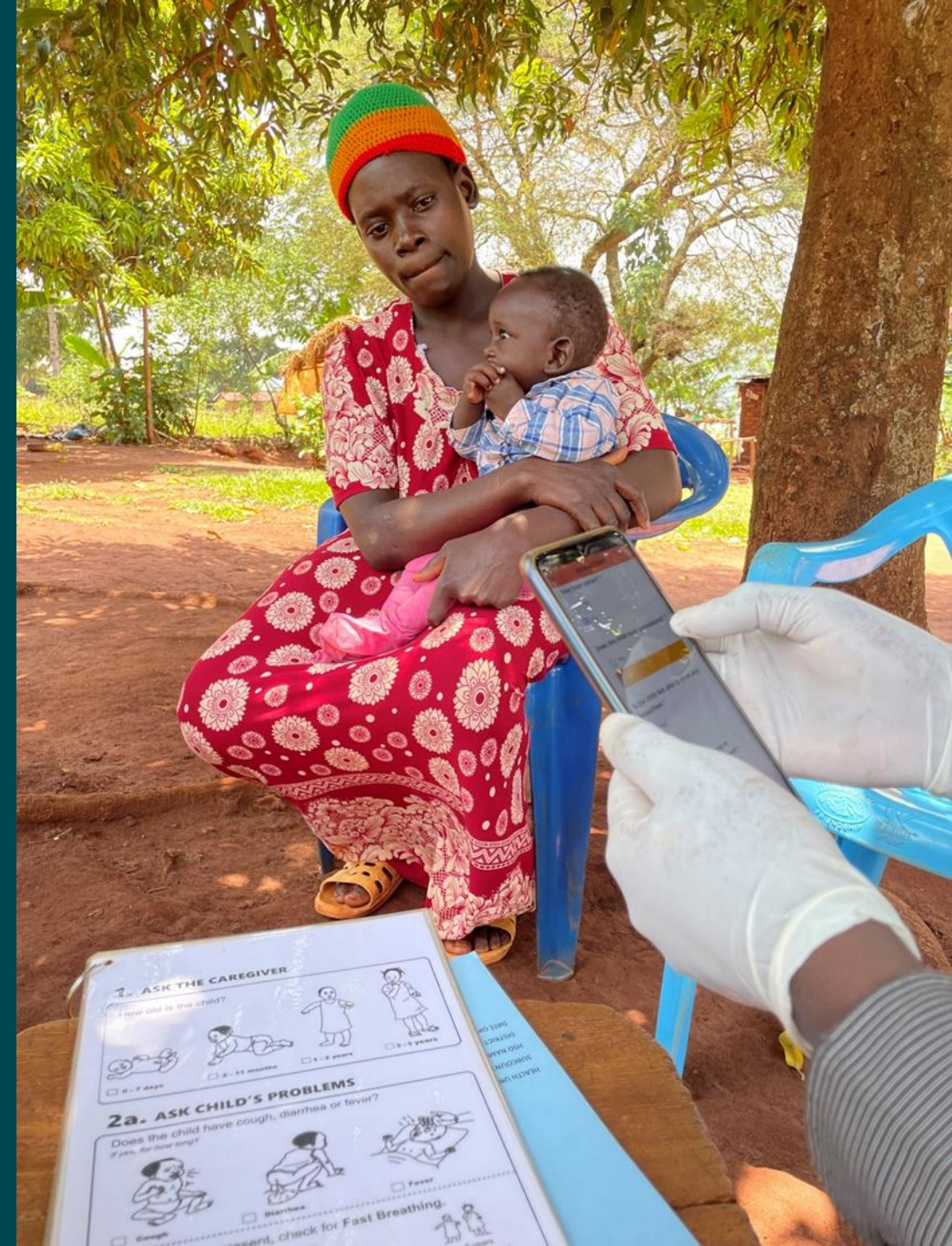
Conduct research to further guide national scale-up

4



# Phase 1 research results

# Usability, acceptability and feasibility studies



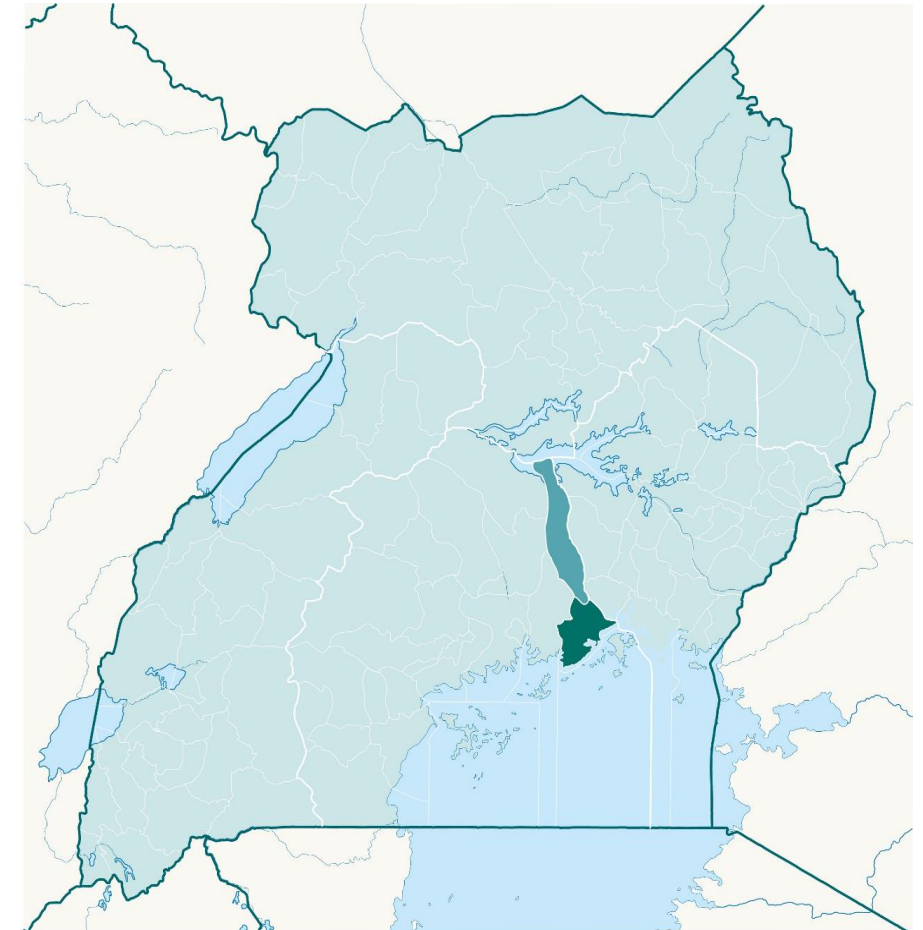
# Methods for usability, acceptability and feasibility studies

We randomly selected 141 of the 365 VHTs and interviewed them to assess:

- their perceptions on using the smart phone and mHealth application
- their ability to use the eCHIS tool and adhere to guidelines while treating sick children
- challenges with using the tool
- the coverage and quality of eCHIS services.

## Outcomes

- **Primary:** ability to assess, classify **and** act based on guidelines
- **Secondary:** ability to independently succeed in each separate step (assessment, classification, treatment and referral)



- Buikwe
- Kayunga

Map of Uganda showing Buikwe, the implementation study district and Kayunga, the control district

# Summary results

## Usability

- **98 percent** of VHTs assessed were able to use the eCHIS application with ease.
- **78 percent (baseline) to 98 percent (endline)**, p-value: 0.001, were able to select the application on their phones and use it in household registration.

## Acceptability

- Most (**90 percent**) VHTs were satisfied with using the digital tool instead of paper-based support materials.
- Over one year, **94 percent** of VHTs consistently used eCHIS.
- A majority of patients preferred the eCHIS to paper-based materials.

## Feasibility: Adherence to quality-of-care protocols

- **70 percent (baseline) to 78 percent (endline)**, p-value: 0.027 used the tool to correctly assess malaria **including conducting mRDT and referral.**
- **56 percent (baseline) to 64 percent (endline)**, p-value: 0.019 used the tool to correctly assess pneumonia **including obtaining RR reading, referral.**

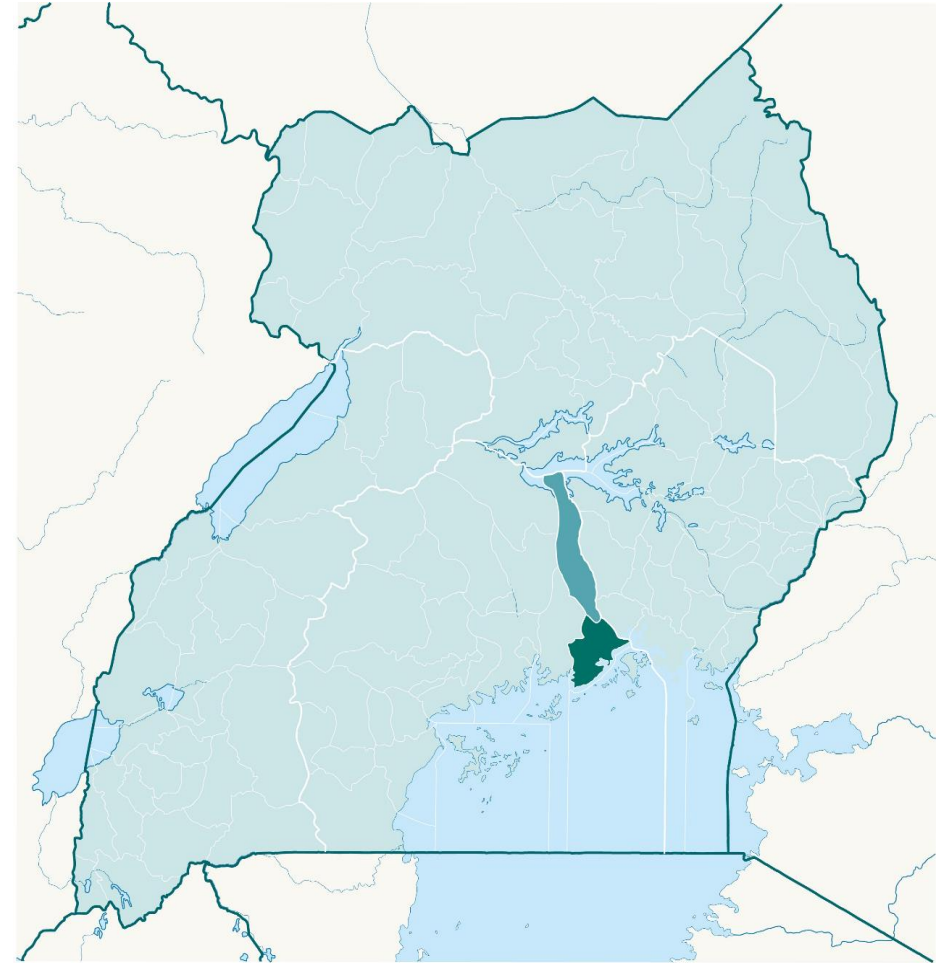
# Impact of digitalising iCCM on child health indicators





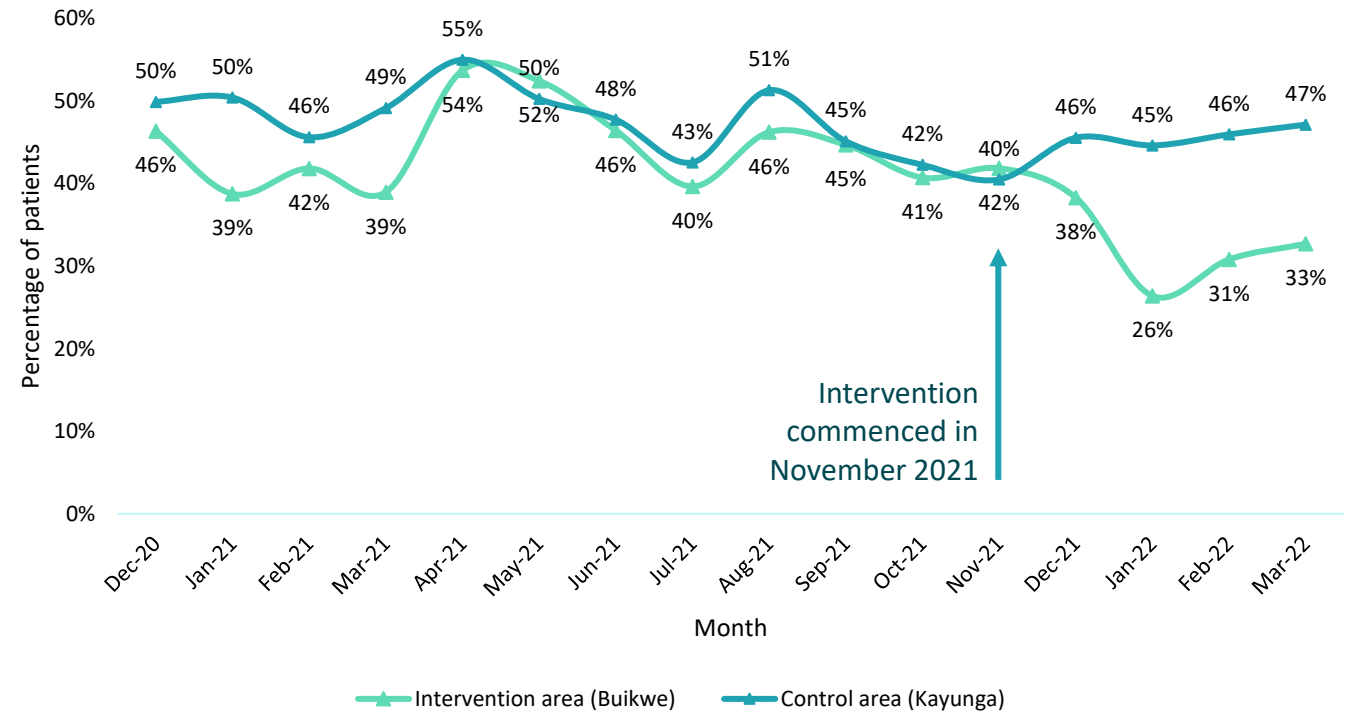
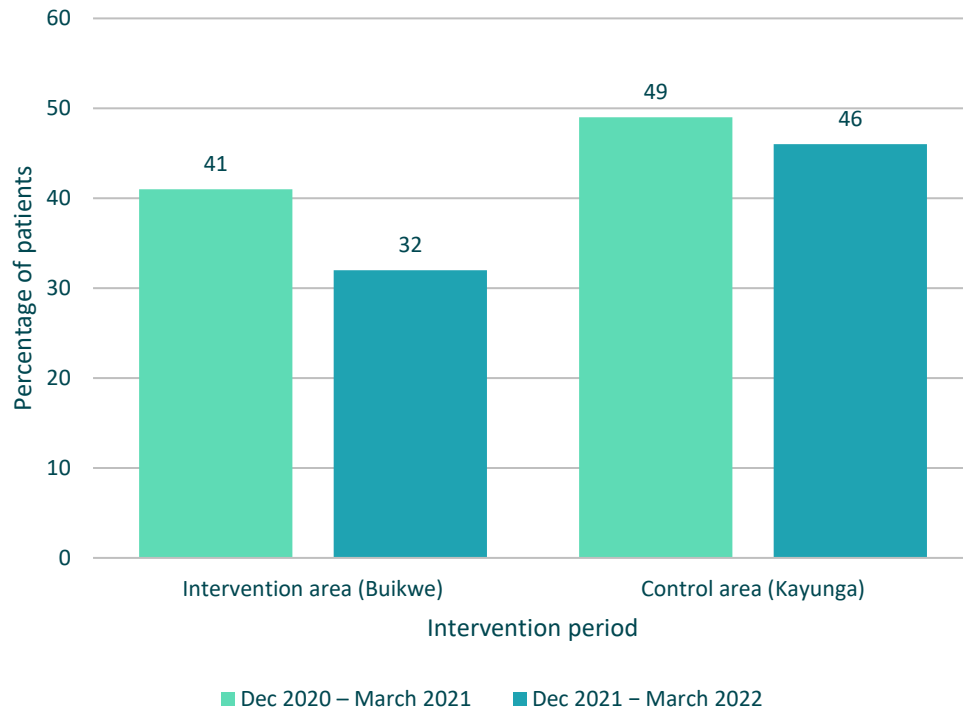
# Method for assessing the impact of digitalising iCCM on child health

- A quasi-experimental design was applied.
- We purposively selected a total of 40 health facilities (HFs) with similar malaria, diarrhoea and pneumonia incidences:
  - 20 HFs in the intervention district (Buikwe) and
  - 20 HFs in the control district (Kayunga).
- Monthly cases of malaria, diarrhoea and pneumonia for outpatient and admissions were analysed in the District Health Information System 2 (DHIS2).

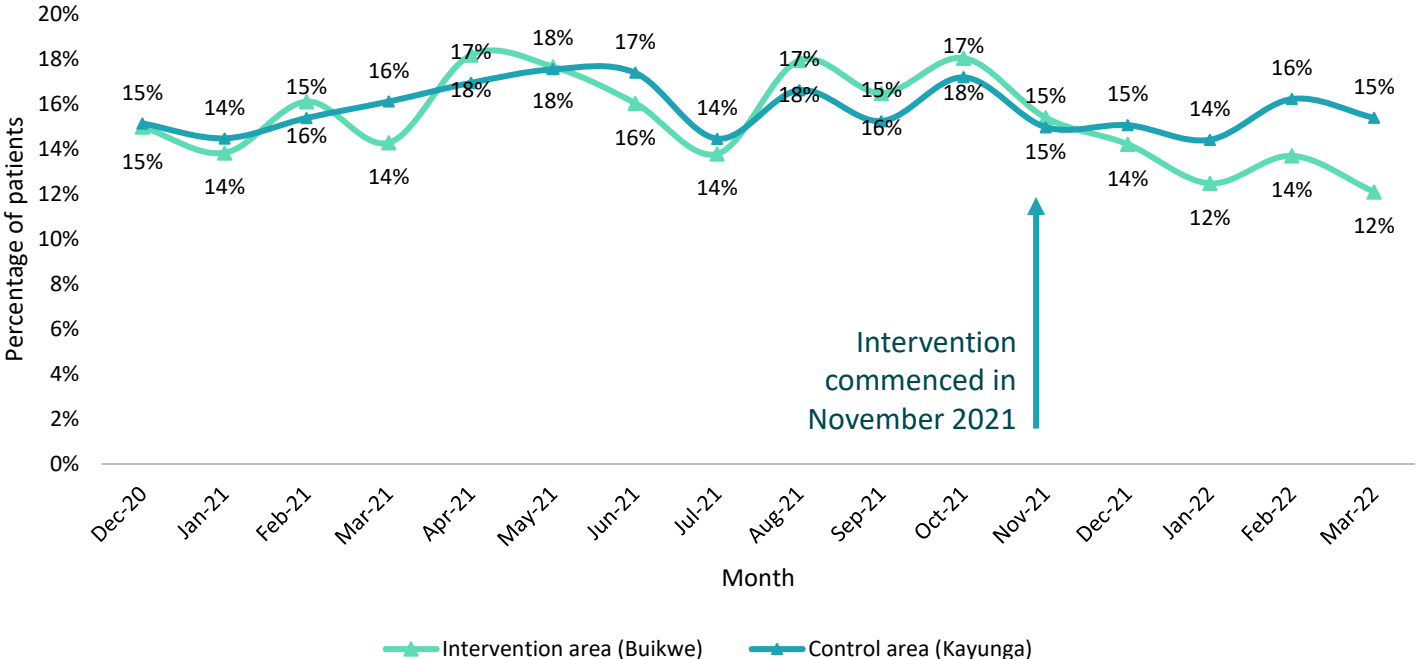
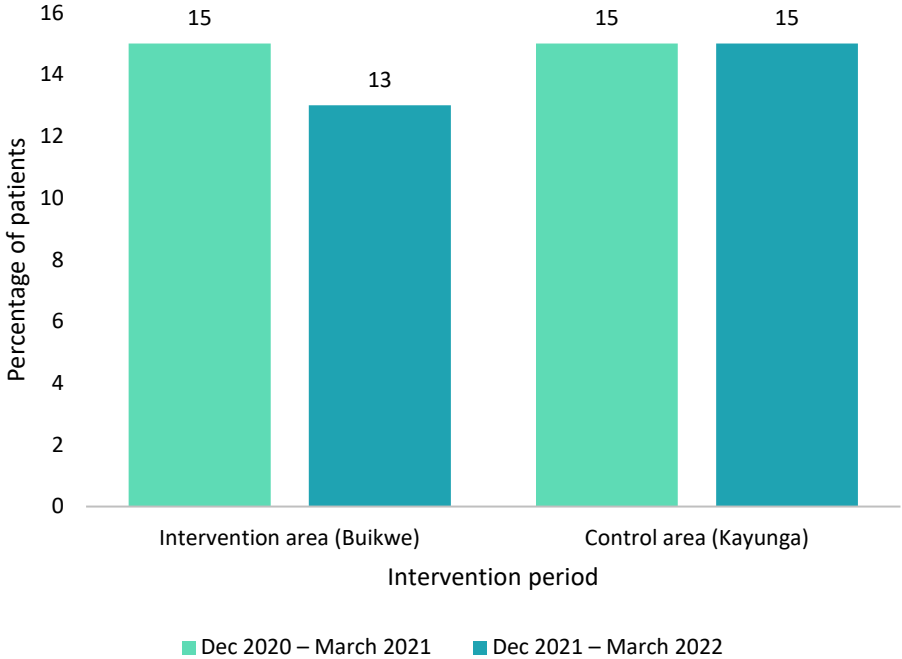


■ Buikwe  
■ Kayunga

# Outpatient department attendance for children under five with malaria, diarrhoea and pneumonia

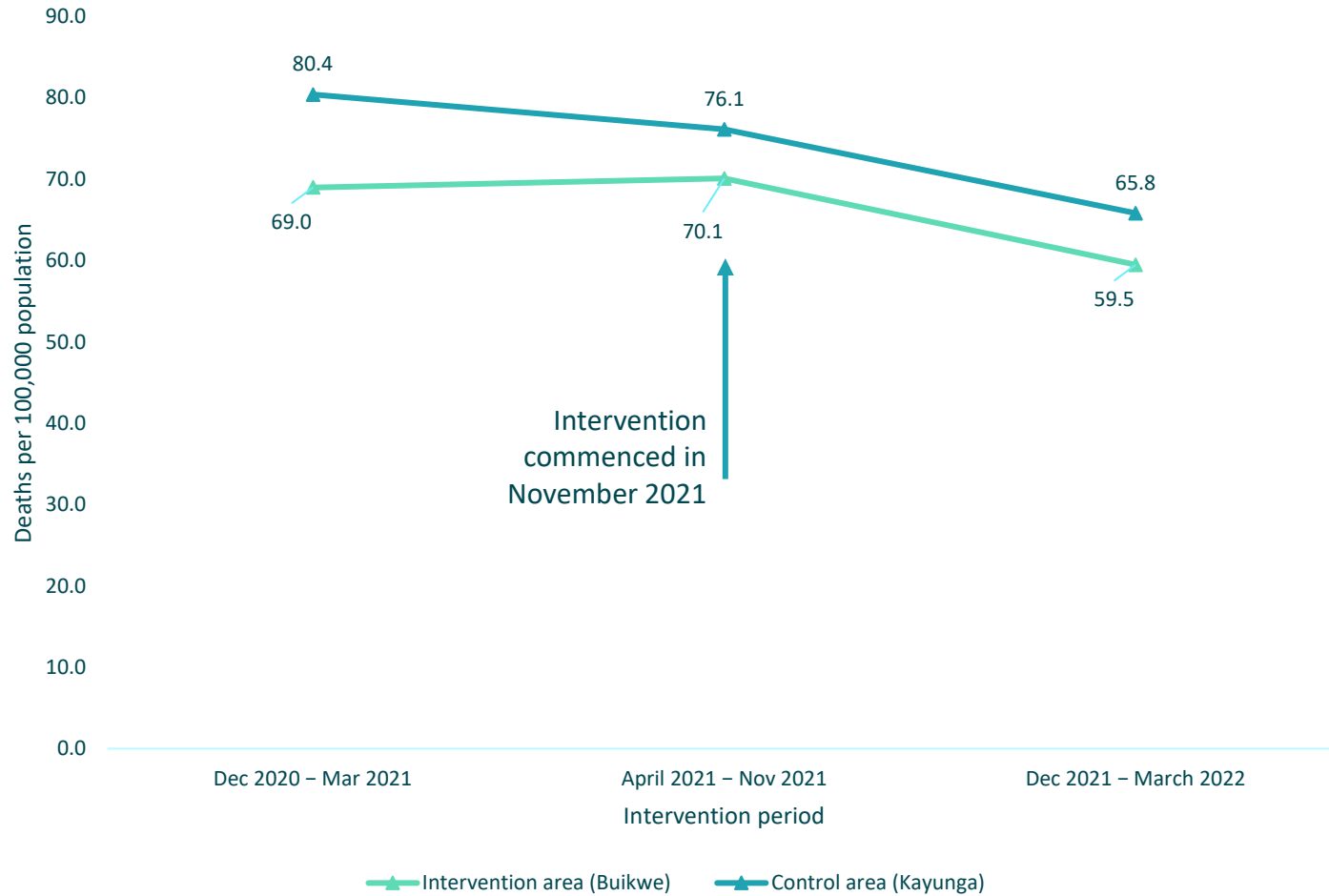


# Health facility admissions for children under five with malaria, diarrhoea and pneumonia



- Significant decline from **15 percent to 13 percent** (p value: <0.001) in Buikwe, while admissions remained constant at 15 percent in Kayunga

# Malaria-related mortality per 100,000 population





**Operational lessons**

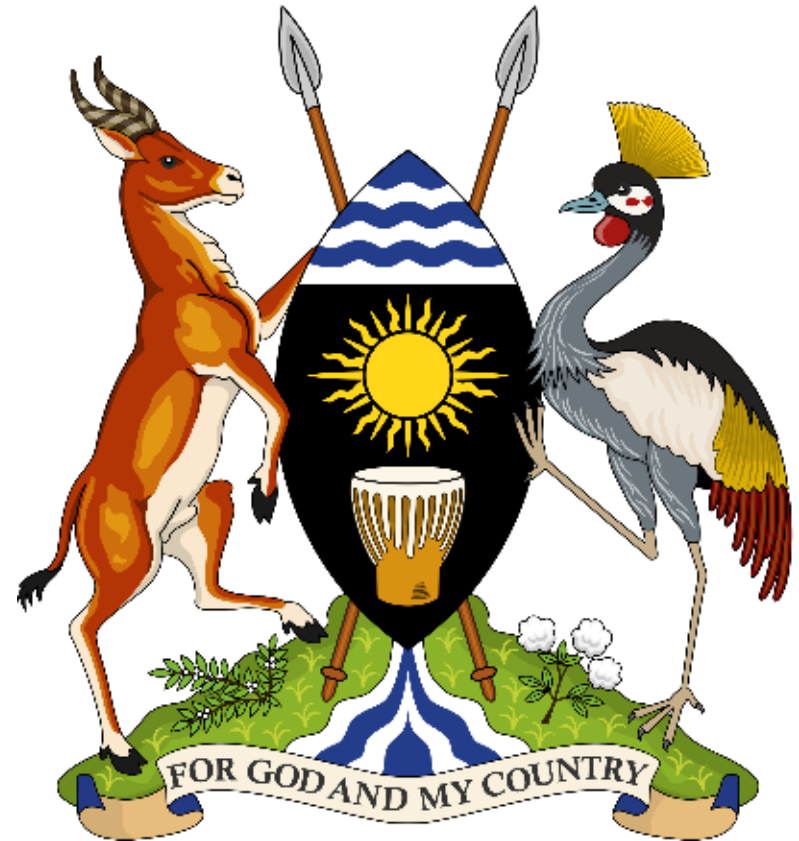
# Lessons learned from implementation

- The eCHIS enables real-time information access and supports healthcare operations management and decision-making (e.g., stock monitoring and reporting). This supports CHWs to provide an improved service with better healthcare outcomes.
- The eCHIS can boost the accuracy of malaria diagnosis by VHTs through quality assessment.
- The use of mobile phones has increased CHWs' confidence in conducting health assessments and improved their standing within their communities. This, in turn, has led to improved community engagement and acceptance of health messages.
- Acceptance and adaptability of digital tools by VHTs are crucial for the success of health programmes.

# Acknowledgements

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- Malaria Consortium
- Study respondents
- Medic Mobile

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*disease control, better health*

**Thank you**

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