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Harnessing HDSS infrastructure to transform community death registration & mortality surveillance Uganda

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Operating the Iganga - Mayuge Health and Demographic Surveillance Site(IMHDSS)

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- Iganga District Leadership
- Mayuge District Leadership
- Village Health Team members (VHTs)
- Community Members and Local Leaders

Background and introduction

- Mortality statistics by sex, age & cause of death are vital for health policy and epidemiological research.
- The COVID-19 pandemic exposed severe limitations in mortality surveillance across Sub-Saharan Africa.
- In Uganda, civil registration is mandated under the Registration of Persons Act (ROPA) 2015, operated by NIRA.
- Only ~20% of deaths are registered nationally — far below the global standard of ≥80%.
- Uganda's CRVS Strategic Action Plan (2020–2025) aims to strengthen the registration ecosystem.

~20% - Current national death registration completeness in Uganda

A Critical Data Gap

Background and introduction

HEALTH & DEMOGRAPHIC SURVEILLANCE SYSTEM (HDSS)

HDSS Overview

Continuous population-based monitoring of births, deaths, and migrations in defined geographic areas.

IMHDSS (Uganda)

Iganga-Mayuge HDSS operated by MUCHAP has tracked vital events across Iganga & Mayuge districts since 2004.

Death Reporting

HDSS uses Village Health Teams (VHTs) and Local Council endorsement to systematically capture every death at community level.

Proven Protocols

HDSS procedures are rigorous, standardised, and community-embedded — providing a replicable model for national CRVS.

Background and introduction

AIM & OBJECTIVES

AIM: To integrate HDSS practices into Uganda's CRVS framework to decentralise and enhance community death registration completeness and mortality surveillance.

Phase 1 (2022–2023)

- Designed a feasible decentralised death notification model
- Validated core protocols in HDSS villages (Iganga & Mayuge)
- Developed training materials & standard operating procedures
- Established VHT-led community death reporting pipeline

Phase 2 (2023–2024)

- Scaled the model beyond HDSS boundaries to non-HDSS villages
- Trained local teams in verbal autopsy (VA) for cause-of-death
- Extended to 117 villages across expanded Sub-Counties
- Prepared the system for potential national scale-up

STUDY SETTING & POPULATION

Location: Iganga & Mayuge Districts, Eastern Uganda

HDSS Program: IMHDSS by MUCHAP — active since 2004

Phase 1 Sites: HDSS villages only

Phase 2 Sites: HDSS + 117 new non-HDSS villages

Partners: NIRA, UNHPI, CDC Foundation, Data for Health, Swiss TPH

Period: Phase 1: May–Jul 2023; Phase 2: Oct 2023–Aug 2024

Population Profile

- Youthful age structure mirrors Uganda's national profile
- Uganda in early phase of demographic transition
- Study population represents diverse rural & peri-urban communities

METHODS: DECENTRALISED COMMUNITY DEATH NOTIFICATION PROTOCOL

1	2	3	4	5
Death Occurs	**Home Visit**	**Endorsement**	**Submission**	**Registration**
VHT is notified of death in village	VHT visits household, offers condolences & initiates DNF	Village LC1 chairperson endorses notification form	Completed DNF submitted to sub-county NIRA office	NIRA registers death in MVRS database & issues certificate

Capacity strengthening

- Four one-day orientation programs per phase for VHTs, LC chairpersons, sub-county chiefs & health assistants
- Topics: death reporting protocols, completing DNF forms, VA training, verbal autopsy (Phase 2 only)
- Standard operating procedures (SOPs) developed and distributed; field supervision by MUCHAP staff
- Data quality review: all DNFs reviewed before submission; completeness assessed using Adair-Lopez method

RESULTS: DEATH NOTIFICATION & REGISTRATION

2,992

Total deaths notified & registered across both phases

7

Sub-Counties covered for NIRA MVRS registration

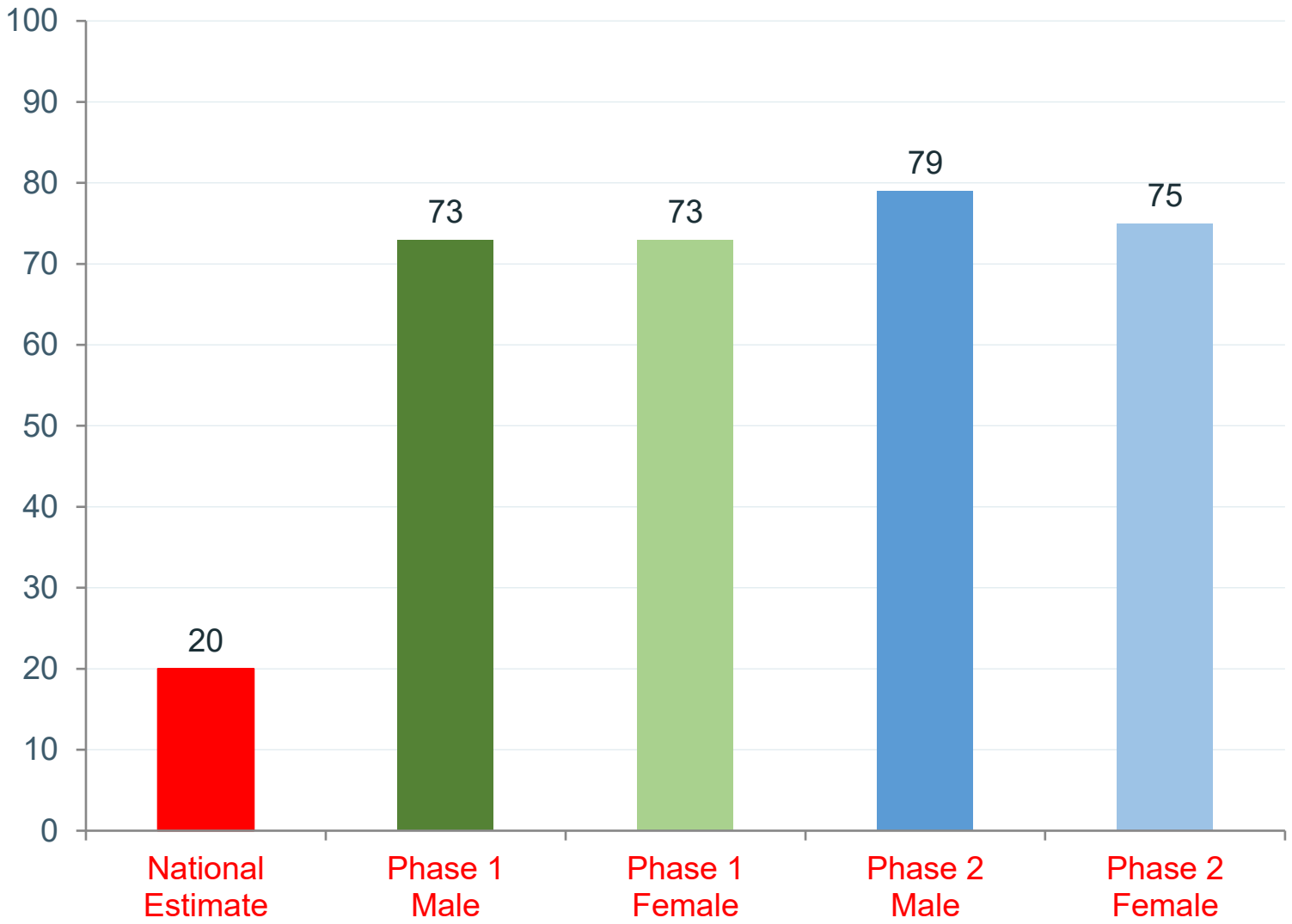
117

Villages reached in Phase 2 expansion

Phase Comparison

Indicator	Phase 1 (2023)	Phase 2 (2024)
Coverage	HDSS villages only (Iganga-Mayuge)	HDSS + 117 non-HDSS villages
Deaths registered	Subset of initial HDSS deaths	Significant expansion beyond HDSS
Completeness (Male)	≥73%	≈79%
Completeness (Female)	≥73%	≈75%
vs. National average	3.5–4× higher	3.5–4× higher

RESULTS: DEATH REGISTRATION COMPLETENESS



20%

National estimate

73–79%

Achieved in this study

3–4×

Improvement over national average

Completeness estimated using the Adair-Lopez method

RESULTS: KEY MORTALITY INDICATORS

66.3 *years*

Life Expectancy at Birth (Male)

68.7 *years*

Life Expectancy at Birth (Female)

208 *per 1,000*

Adult Mortality Risk (Male)

129 *per 1,000*

Adult Mortality Risk (Female)

⚠ Male adult mortality risk is ~60% higher than female — consistent with gender differentials documented across Sub-Saharan Africa.

RESULTS: QUALITATIVE FINDINGS

VHT / Scout Experiences

- VHTs took pride in their expanded role, gaining respect within communities
- Community awareness was key to success — especially in peri-urban Iganga town
- Process simplified cultural undertakings: property inheritance and heir appointment
- *"The process of getting a death certificate is now simpler and no longer requires travel to NIRA offices"*

Cross-Phase Comparison

Similarity	VHTs expressed pride & earned community trust in both phases
Similarity	Families motivated by property inheritance & heir appointment needs
Difference	Phase 2 VHTs operated in unfamiliar, non-HDSS communities — required extra effort
Difference	Phase 2 included VA training, expanding capacity for cause-of-death data

LOGISTICAL ASPECTS OF DECENTRALISATION

Key Enablers

- ❖ Existing HDSS community networks reduced resistance and established trust
- ❖ Pre-existing VHT infrastructure lowered training and deployment costs
- ❖ Government (NIRA) partnership lent official authority to the process
- ❖ SOPs and standardised forms reduced errors in the field
- ❖ Community motivation: families valued death certificates for legal purposes

Key Barriers / Challenges

- ❖ Average travel distances to visit households posed time & cost challenges
- ❖ Variable literacy levels among some VHTs required tailored materials
- ❖ Scale-up to non-HDSS villages needed fresh community sensitisation
- ❖ Limited infrastructure in remote areas slowed DNF submission to NIRA
- ❖ Sustainability beyond the study period requires ongoing funding and support

DISCUSSION

✓ Primary Accomplishment

Successful integration of HDSS practices into Uganda's CRVS framework — directly addressing a critical gap in death registration.

📊 Mortality Rates in Context

Crude death rates (4.29–4.94/1,000) align with similar African populations. Death registration completeness of 73–79% vastly exceeds the national 20% estimate.

⚙ Decentralisation Works

VHT-led reporting mechanisms reduced barriers, improved accessibility, and increased registration rates — enabled by SOPs, training, and MUCHAP supervision.

⚠ Limitations

Geographic scope limited to Iganga and Mayuge districts — findings may not fully generalise to all of Uganda without further validation in diverse settings.

🔬 Future Research Needed

Long-term sustainability studies, scalability analysis, and cost-effectiveness evaluations are required to inform national roll-out.

IMPLICATIONS FOR SCALE-UP & POLICY

Village Level
(VHTs) — Death notification & DNF completion

Sub-County Level
(NIRA Offices) — Form review, MVRS entry & certificate issuance

District Level
(NIRA District) — Data compilation & quality assurance

National Level
(NIRA HQ / UBOS) — Vital statistics production & policy use

This model supports Uganda's National CRVS Strategy 2020–2025 and aligns with the Africa CDC Continental Framework for Mortality Surveillance.

CONCLUSION

Leveraging HDSS infrastructure and community-based notification protocols meaningfully enhances death registration completeness and mortality surveillance in Uganda. It offers a scalable, replicable model for strengthening CRVS in low-resource settings.

This integration of HDSS experience to improve completeness of CRVS registration of the fact of deaths uses existing human resource positions already in place nationally and does not need new cadres.

This approach allows the additional capture of population COD (at least in a sample) in addition to improving the universal fact of death registration completeness.

RECOMMENDATIONS

01 Integrate HDSS death notification protocols into national NIRA operational guidelines for Uganda-wide adoption.

02 Invest in VHT capacity building including verbal autopsy training to extend beyond death notification to cause-of-death attribution.

03 Establish a sustainable financing model for community-based CRVS activities, including VHT incentivisation and logistics support.

04 Conduct a national scalability assessment across diverse geographic and socioeconomic contexts before full roll-out.

05 Leverage this model for African countries with similarly weak CRVS systems and existing HDSS or community health worker networks.

Thank you!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