

DATA-DRIVEN RESPONSE

Bridging Health System Gaps for better Maternal and Perinatal Outcomes



National Annual Maternal and Perinatal Death Surveillance and Response (MPDSR) Report FY 2022/2023

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Government of Uganda, Ministry of Health: The National Annual Maternal and Perinatal Death Surveillance and Response (MPDSR) Report for FY 2022/2023.

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P.O. Box 7272

Kampala, Uganda

Email: info@health.go.ug **Website:** www.health.go.ug

FOREWORD

Uganda has made substantial progress towards the reduction of maternal mortality ratio from 336/100,000 live births (UDHS, 2016) to 189 per 100,000 live births (UDHS, 2022). This reduction has surpassed the FY 2022/23 NDP III target of 261 deaths per 100,000 live births. In addition, neonatal mortality rate decreased from 27 (UDHS, 2016) to 22 deaths per 1,000 live births (UDHS, 2022), which is close to the FY 2022/23 NDP III target of 21 deaths per 1,000 live births. The Ministry of Health (MOH) continues to support implementation of the 2017 National MPDSR Guidelines with the focus on strengthening the response to agreed actions.

MPDSR emphasizes continuous identification and reporting of maternal and perinatal deaths including zero none reaistered and utilisina that information to facilitate Quality Improvement (QI) processes. The national MPDSR annual report FY 2022/23 is a result of concerted efforts of health workers that have been involved in notifying, reviewing, reporting, and following up on responses through both the sub-national and national maternal and perinatal death and response (MPDSR) committees. Over the past two financial years (FY 2021/22-FY 2022/23), notification of maternal deaths declined from 97.9% to 94.1% and reviews stagnated between 89.8% and 89.1%. However, notification of perinatal deaths improved from 52.9% to 63.4% and reviews improved from 42.2% (to 43.1% in the last two financial years (FY 2021/22-FY 2022/23).

Over the past financial year, focus has been on improving perinatal death notification and reviews. At national level, the neonatal subcommittee of the MPDSR committee coordinated bi-weekly meetings and follow-up notifications and reviews of perinatal deaths at high-volume facilities across the country. At subnational level, weekly MPDSR analytics are shared on the Local Maternity and Neonatal Systems (LMNS) WhatsApp platforms as well as follow-up with districts and individual facilities that are reporting deaths.

The main purpose of the report is to learn from every maternal and perinatal death and identify feasible means to prevent deaths from similar avoidable factors. The MPDSR process should, therefore, engage various stakeholders in planning for services aimed at improving the Maternal and Newborn quality of care.

I would like to express my appreciation to the MPDSR committees at different levels of health care, development and implementing partners, professional associations, and all the individuals who have contributed to the development of this report.

Me well

Dr. Henry G. Mwebesa **DIRECTOR GENERAL HEALTH SERVICES**

ACKNOWLEDGEMENT

The Ministry of Health extends its heartfelt appreciation to the dedicated efforts of districts and health facilities in conducting maternal and perinatal death reviews and for diligently submitting their findings to our ministry headquarters. Maternal and Perinatal Death Surveillance and Response (MPDSR) stands as a pivotal quality improvement instrument, and we proudly emphasize its integration as a paramount strategy in our ongoing mission to reduce maternal and newborn mortality rates. We commend the invaluable guidance that the National MPDSR Committee provided, which has been instrumental throughout this process.

Additionally, we extend our sincere gratitude to the following individuals for their invaluable contributions to the report's creation: Dr. Henry G Mwebesa, Dr. Paul Isabirye, Sr. Maria Najjemba, Mr. Bruno Ssemwanga, Mr. Rajab Ssensalire, Mr. Nathan Lubowa, Mr. Phillip Aleu, Dr. Deogratias Migadde, Dr. Ebong Chris, Mr. Rogers Kagimu, Dr. Robert Mutumba, Dr. Bonnie Wandera, Dr. Olive Sentumbwe Mugisa, Dr. Lawrence Kazibwe, Mr. Akena Stephen, Ms. Clara Kokunda, Dr. Gloria Ndagire, Mr. Brian Ngobya, Dr. Brenda Kharono, Dr. Richard Kagimu, Dr. Agnes Namagembe, Dr. Dinah Amongin, Dr. Hellena Kasaija, Dr. Victoria Nakibuuka,

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Dr. Richard Mugahi

ASSISTANT COMMISSIONER HEALTH SERVICES, REPRODUCTIVE & INFANT

ABBREVIATIONS

DHIS District Health Information System

DHO District Health Officer

FHI360 Family Health International

HMIS Health Management Information System

LMNS Local Maternity and Neonatal Systems

IMMR Institutional Maternal Mortality Ratio

IPMR Institutional Perinatal Mortality Rate

MCHN-A Maternal Child Health and Nutrition Activity

MOH-SP Ministry of Health Strategic Plan

MPDSR Maternal and Perinatal Death Surveillance and Response

NASMEC National Safe Motherhood Experts Committee

NDP III Third National Development Plan

NIRA National Identification and Registration Authority

OPD Outpatient Department

SDG Sustainable Development Goal

SITES Strategic Information Technical Support

SVD Spontaneous Vaginal Delivery

UDHS Uganda Demographic Health Survey

UHA Uganda Health Activity

UNFPA United Nations Population Fund

UNICEF United Nations Child Education Fund

USAID United States Agency for International Development

URMCHIP Uganda Reproductive Maternal Child Health services Im-

provement Project.

WHO World Health Organization



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1.1 INTRODUCTION

lobally, the health of women, children, and adolescents is critically important to almost every area of human development and progress. Every *Woman Every Child* (EWEC) global strategy provides an opportunity to improve the health of women, children, and adolescents in all countries. Ending preventable maternal and perinatal mortality is a global priority under the Sustainable Development Goals - 2030 (SDG) agenda. The aim is to reduce the average global Maternal Mortality Ratio (MMR) to less than 70 maternal deaths per 100,000 live births and neonatal mortality to at least 12 deaths per 1000 live births by 2030.

Uganda made a commitment in the NDP III to reduce maternal mortality ratio to 211 per 100,000 live births by FY2024/25. Similarly, the country committed to reduce neonatal mortality rate to 19 per 1,000 live births during the same period. The country has adopted strategies to achieve these targets as stipulated in RMNCAH Sharpened Plan. These include: focusing on districts with the highest maternal and child mortality; increasing access for high burden population in each district; scaling up delivery of evidence-based high-impact intervention packages; addressing the broader multisectoral context, and strengthening mutual accountability for RMNCAH outcomes by all stakeholders.

The country has made significant progress towards the reduction of maternal mortality ratio from 336/100,000 live births (UDHS, 2016) to 189 per 100,000 live births (UDHS, 2022). This reduction has surpassed the FY2022/23 NDP III target of 261 deaths per 100,000 live births. In addition, neonatal mortality rate decreased from 27 (UDHS, 2016) to 22 deaths per 1,000 live births (UDHS, 2022), which is close to the FY2022/23 NDP III target of 21 deaths per 1,000 live births.

Achieving SDG goal 3 targets will require access to safe, effective, quality, and affordable care for women and newborns. In 2015, the World Health Organization (WHO) prioritized improving the quality of care for women and newborns to reduce preventable maternal and newborn deaths.

In 2012 the Ministry of Health recommended that maternal and perinatal deaths be notified for surveillance purposes on the IDSR system. Notification would be done using the weekly reporting through the Integrated Disease Surveillance and Response (IDSR) platform so as to be able to provide real time data for response/action. The IDSR platform is linked to the DHIS2 a web data base that is used to capture and store national Health Management Information (HMIS). The MPDSR system emphasizes continuous identification and reporting of maternal/perinatal deaths and linking that information to quality improvement (QI) processes.

In Uganda, maternal and perinatal death surveillance are handled together through the quality improvement platform. Maternal and perinatal death



reviews (MPDR) help to understand the circumstances around the death of a mother or newborn in order to identify factors contributing to death so as to develop strategies to address the identified factors. The MPDSR system aims at identifying ALL maternal and perinatal deaths, determine causes of death and avoidable factors that lead to maternal/newborn deaths so as to respond with actions aimed at preventing future similar deaths.

Under the Sustainable Development Goals (SDG) agenda, each country has been given a maternal and newborn mortality reduction goal to contribute to the global target of reducing maternal mortality to 70/100.000 live births.

1.2 Theme, Goal, and Objectives of the Report

1.2.1 Theme:

Data-Driven Response: "Bridging Health System Gaps for better Maternal and Perinatal Outcomes"

1.2.2 General Objective:

To document the data-driven health care system's response for improved maternal and perinatal outcomes.

1.2.2.1 Specific objectives

- (i) To describe the magnitude and trends of maternal and perinatal mortality.
- (ii) To describe the causes and avoidable factors associated with maternal and perinatal deaths.
- (iii) To provide accountability in form of data-driven response and investments towards reduction of maternal and perinatal deaths.
- (iv) To document best practices in form of success stories and case studies on MPDSR implementation for scale up.
- (v) To assess progress towards FY2021/2022 implementation recommendations.





UGANDA'S PROGRESS IN MPDSR IMPLEMENTATION DURING FY2022/2023

2.1 Sustaining the Maternal and Perinatal Death Surveillance and **Response efforts**

ver the last seven financial years, various efforts have been put into collecting, reporting and analysing data on maternal and perinatal deaths, and these have guided the creation and dissemination of the annual MPDSR reports. The FY2021/22 MPDSR report documented the health care systems' response and strategies towards reducing maternal and perinatal mortality. These have been achieved through; strengthening coordination at the national and subnational levels, and various stakeholders' involvement in responding maternal and perinatal deaths.

In the FY2022/23, efforts were towards establishing made and operationalising the Local Maternity and Neonatal Systems (LMNS) to strengthen regional accountability, and advocacy for maternal and newborn health. The LMNS also has focused on improving through onsite mentorships and training; dissemination of **EmONC** the quidelines, conducting confidential inquiries for selected maternal deaths, coordination of referrals and of management obstetric emergencies, drugs and supplies redistribution, as well as mass media engagements. Established a quality-of-care collaborative to improve management of highrisk pregnancies, investment in equipment, onsite training of health workers in ICD11/MCCOD for all Regional Referral and General Hospitals.

MPDSR Implementation in FY 2022/2023



Establishment and functionalization of the 15 regional Local Maternity Neonatal System (LMNS) as accountability platforms



Deep-dive/synthesis of maternal deaths at HC III and HC IV



National Sub-Committee Weekly Meetings (NASMEC)



Dissemination and synthesis of the MPDSR report at national and regional level



Deep-dives and focused health facility responses based on reported data



Strengthening functionality of Health Center IV and general hospitals



Support to lower facilities to review and respond to maternal death



Rollout ANC high-risk Collaborative Learning & Adaptation [CLA]



Established regional blood collection and storage facility at Moroto Regional Referral Hospital



Despite the considerable reduction in institutional maternal mortality over the last seven years, the current IMMR still fall short of the MoH Sharpened Plan II, 2022/23-2027/28 of 70/100000 deliveries, while the target for the Institutional Neonatal Mortality rate of 14/1000 livebirths has been surpassed. This, therefore, calls for more concerted efforts in achieving our set targets over the next financial year.

MPDSR as a quality improvement approach supports the health systems to identify gaps in the care for mothers and newborns. This is made possible through using a standardised approach in conducting the reviews and generating evidence for quality improvement in service delivery. The Ministry of Health with partners has strengthened the regional-led MPDSR responses through setting up and functionalising the LMNS. Through LMNS, local maternal and newborn challenges based on evidence are identified and addressed. Coordination has been improved through the national weekly MPDSR meetings AND efforts have been made to disseminate the MPDSR report at regional level to promote regional specific evidence-based interventions. The need for a centralised coordinated system has initiated national conversations and efforts to standardise MPDSR response-tracking, some of which will be highlighted further in this report.

The Ministry of Health with partners has strengthened regional-led MPDSR responses through setting up and functionalising the LMNS. Through LMNS, local maternal and newborn challenges based on evidence are identified and addressed.

2.2 Health System Response Preventable causes of Maternal and **Perinatal Deaths**

On a global scale, the literature consistently underscores the pivotal role of well-qualified and motivated human resources in ensuring the provision of adequate maternal and perinatal health services. Notably, despite the well-documented advantages of having a responsive healthcare workforce, Uganda continues to grapple with shortages in human resources, particularly in rural areas that are often resource constrained.

Whiletherehavebeennotableenhancements in the delivery of maternal and neonatal healthcare services, the underlying causes of maternal and perinatal mortality have remained remarkably consistent over the past seven years. The imperative to achieve the Sustainable Development Goals (SDGs) has been a driving force motivating Uganda to intensify its efforts aimed at improving maternal and newborn outcomes.

The Ministry of Health (MoH), in collaboration with its partners, is actively contributing to the reduction of maternal and perinatal mortality by embracing innovative strategies to enhance performance at all levels, as a means of addressing existing health system gaps.

considerable efforts Previously, were channelled towards the surveillance and collection of mortality statistics, while the response aspect of Maternal and Perinatal Death Surveillance and Response (MPDSR) faced challenges stemming from underutilized data for decision-making. Consequently, global the consensus regarding the advantages of having accurate information on the causes of deaths through mortality reviews has played a pivotal role in strengthening the implementation of MPDSR and informing initiatives aimed at preventing avoidable maternal and perinatal deaths.



In this year's annual MPDSR report, we build on the previous FY 2021/22 efforts around strengthening the RESPONSE arm of MPDSR nationally, sub-nationally and across all health facilities, to improve maternal and perinatal outcomes in Uganda. The goal is to use the already well-established and coordinated committees in the health facilities and in the different regions to strengthen implementation of the recommendations arising from the reviews to prevent occurrence of a similar death.

2.3 MOH strategic stakeholder collaboration for MPDSR

The deliberate actions taken by the National Maternal and Perinatal Death Surveillance and Response (MPDSR) committee to foster an open and constructive environment for discussing the challenges related to MPDSR implementation with external stakeholders, including politicians, the private sector, and the media, have played a significant role in gaining the support, accountability, and continued monitoring of various response measures.

This multi-stakeholder engagement has proven to be highly influential in achieving enduring results stemming from the implementation of recommendations across the regions, as detailed in this year's report. A diverse range of implementing partners and bilateral organizations have made substantial contributions to these accomplishments.





2.4 MPDSR accomplishment by Health System Building Blocks at National and Regional levels

Table 1: Examples of MPDSR accomplishment by Health System Building Blocks at **National and Regional levels**

WHO Building Blocks	Accomplishments	
Leadership & Governance	National Level: The Ministry of health has continued to provide leadership and coordination through: The weekly national MPDSR meetings NASMEC subcommittee meetings WhatsApp communication platforms Conducted Virtual dissemination of the EMNCC and ANC model guidelines through the monthly National webinars. Commemoration of International and National Days (prematurity, breastfeeding, PET, safe motherhood, contraceptive day)	



WHO Building Blocks	Accomplishments
Service Delivery	 National level Strengthened the referral systems through use of social media to coordinate referrals, improved call, and dispatch ambulance system, procured additional 68 ambulances. Upgraded 81 HC IIs, equipped them and deployed midwives to offer BEmONC services. Established one blood collection and distribution centre (Moroto RRH) Established QI collaboratives to support identification, retention and management of high-risk pregnancies in 9 subregions, 39 districts and 196 health facilities Functionalised 369 health facilities to offer adolescent responsive ANC and Family planning services. Developed in-service training package for neonatal nurses to build capacity in newborn care
	 Supported 319 health facilities in West Nile and Acholi subregions to deliver community adolescent integrated SRH services Mapped TBAs to act as referral agents, companions to mothers and provide referral feedback in Mayuge (200), Buyende (79), Namayingo (123), Jinja City (11), Jinja district (29) and Kampala (38) Conducted community engagements through dialogues/barazas/integrated outreaches with support from implementing partners, leveraging the political leadership will address key issues around maternal and newborn health. Utilisation of RDC/RCC radio airtime to sensitise and raise awareness on maternal and newborn Health services. Rolled out the Family Connect programme to support mapping of pregnant women, sending appointment reminder messages in West Nile, Kampala, and Karamoja.



WHO Building Blocks	Accomplishments	
Medicines and Supplies	 National level Advocated for the inclusion of IV caffeine citrate in management preterm babies and its provision at RRH level. In addition, there efforts to create awareness of its availability. Carbetocin and Tranexamic acid were added on the essemedicines list. Supported 42 HC IVs by supplying them with theatre equip and blood transfusion services to enable them to deliver CEmservices. Continued to support 507 HC IIs that are offering maternity serwith; medicines and supplies, procurement of key equipment. Under the public-private partnership framework and with pasupport, oxytocin was availed to a select number of private he facilities that had stocked out. 	
	 Subnational level Built capacity in ordering, quantification and forecasting and followed up with facilities to submit timely orders to NMS and JMS. Regional Implementing partners supported districts in RMNCAH commodity stock-monitoring and redistribution. Procured and distributed newborn care equipment for Buliisa Hospital, Kyangwali HC IV, Masindi Hospital, Hoima RRH and Kyegegwa Hospital with support from partners 	



WHO Building Blocks	Accomplishments
Human Resources	 National Level: Approved the new HR structure which will serve to increase the numbers of critical cadres for MNH service delivery. Worked with district leadership to recruit critical cadres for MNH service delivery Conducted monthly NASMEC webinar series to address knowledge gaps among service providers, such as PDS in Uganda and the intervention framework to reduce perinatal deaths, neonatal jaundice, improving neonatal resuscitation to reduce asphyxia related deaths, updates in PET management and the new WHO labour care guide among others.
	 Conducted training and mentorships for knowledge and skills enhancement of health workers (revised ANC model, intrapartum care, and PNC, BEmONC, CEmONC, KMC, HBB+, Essential Training in Operative Obstetrics (ETOO), Postabortion Care, Community-based Family Planning and PPFP. Oriented 5,701 health workers on provision of adolescent responsive SRH services across all regions Recruited critical cadres in Kampala health facilities (6 medical officers and 8 anaesthetic officers) to provide RMNCAH services
Health Financing	 Engaged Corporate Society for Safe Motherhood (Stanbic Bank, Rotary, Nile Breweries, MTN) to procure equipment and supplies, Tricycle Village Ambulances (TVAs) and support delivery of MNH services. Through the quarterly stakeholder engagement meetings and in conjunction with CSOs, MoH advocated for an increase in funding by the Parliamentary Committee on Health to improve MNH service delivery.



WHO Building Blocks	Accomplishments	
Health Information	 National level Continued to share weekly and monthly MPDSR analytical products with the RMNCAH stakeholders. Printed and distributed MNH HMIS tools to support data documentation and reporting. Disseminated MPDSR learning at international, regional and national platforms through sharing success stories, Webinars, abstract presentations at global conferences. Coordinated bi-weekly meetings and followed-up notifications and reviews of perinatal deaths at high-volume and burdened facilities across the country. 	
	 Conducted integrated quarterly regional performance review meetings with a deep dive discussion into maternal and newborn health indicators. Rolled out the RMNCAH scorecard in Acholi and Busoga regions. Rolled out the MPDSR SMART-PORTAL action tracker in WestNile, Acholi, Karamoja and Lango subregions. 	

2.5 Implementation of the MPDSR | national learning platforms

Learning for Action

In the context of merging clinical efforts, public health, and research, strategic committees have been instituted to provide technical guidance, direction and support towards mitigating mortality-related factors. While these groups are related in many ways, they each independently support specific components of the maternal neonatal and child health cascade. These communities of engagement platforms support MoH's goal of how to best achieve SDG 3 component of the national Maternal and Perinatal outcomes related to coverage, quality of care, scale-up of high-impact interventions. These meetings have yielded actionable information for better scale-up of evidence-based MNCH practices by addressing system bottlenecks and to accelerate progress toward reducing maternal, neonatal, and child mortality. The collaborative learning and sharing agenda are guided by data from the MPDSR issues over the past years.

Nationally, MoH through the weekly meetings has spearheaded the process of documenting all maternal and perinatal deaths and linking the reviews to actionable recommendations. This strong political will has been at the forefront of capturing MPDSR success stories across the country and using the lessons learned in other regions through the CSO mentorships. The lessons learned are captured weekly and shared across various DHO, ADHO, Regional Referral Hospitals, and Health facility fora by email and innovative information sharing social media



platforms. While capturing of community deaths remains a challenge, IPs are working with various facilities to support confidential inquiries on the causes of the community deaths. Various districts like Kiruhura continue to struggle with inadequate human resource at HC III coupled with delayed referrals from the community to the health facilities.

The Uganda MoH's response component of MPDSR Maternal and perinatal death review continues to be the driving factor to fostering an actionable response strategy. Over the last few years, the RHI division has strengthened various MPDSR implementation levels using an integrated approach; with the latest being community MPDSR. The National MPDSR Community of Practice remains the main linkage across the community, facility, sub-county, county and national levels.

This platform has also provided a response accountability forum for various IPs and MNCH partners. It encompasses monitoring of the MPDSR activities countrywide. This has included the initiation of weekly confidential inquiries supported by MoH to HC IV and HC II levels. Additionally, it has strengthened interdepartmental partnerships at MoH; with the dissemination of relevant MNCH specific multisectoral frameworks like the EMNC guidelines, etc and aligning them to achievement of MPDSR national objectives.

Implementing Partner support and participation at these meetings has also acted as an advocacy tool towards data guided-allocation of essential supplies and resources to support response as guided by the National MPDSR reports and technical guidance. This National MPDSR platform continues to provide national oversight of the MPDSR implementation process through monitoring of the MPDSR indicators to identify high burden MoH regions for focused response and technical support. This accountability platform has continued to strengthen the collaborative learning and adaptation practices, nationally, sub-nationally and at facility level: with various RRHs spearheading the sharing presentations as highlighted in the Table 2:

Table 2: Collaborative learning and adaptation practices shared by accountability platform

Health System Block	PROPOSED ACTION	RESULTS/ IMPLEMENTATION
Health Service Delivery & Health Care Workforce	Kampala District: Roll out of a CQI collaborative on Maternal and Newborn risk identification and management at 2 hubs and 6 spoke sites; PET, and PPH intervention frameworks at 6 high-volume facilities.	 Kampala: Atotal of 6 Obs/Gyn specialists were attached to the 6 high-volume health facilities in Kampala since April 2023 as a mode of transferring skills and institutionalizing high-impact practices for the prevention of PPH and PET. Through the hub and spoke model, health workers from 2 hub and 6 spoke sites have been trained and are receiving onsite mentorship and coaching on Maternal and New born risk identification and implementation of the CQI collaborative. KCCA and Ministry of Health, with support from partners, held three radio talk shows to create community awareness on increasing the utilization of MCH services and addressing maternal and perinatal deaths in Kampala.



Health System Block	PROPOSED ACTION	RESULTS/ IMPLEMENTATION
Health Services Delivery Kampala Region: The district successfully held 48 MPDSR meetings in collaboration with KCCA, Implementing Partners and the Private Sector.	These mainly focused on strengthening coordination between referring and referral sites and adopting a metropolitan approach to MPDSR through the Kampala Local Maternity and Neonatal System. These strategies have been highlighted below:	
		 Human Resources for Health (HRH): Successfully lobbied for an increase in staffing norms for critical cadres. In addition, KCCA recruited 2 Medical Officer and 5 Anesthetic Officers, enabling 24hour CEmONC functionality at the 2 KCCA Health Center IVs. Through targeted onsite mentorships on MNH clinical packages delivered through the hub & spoke approach, technical capacity of HRH was enhanced.
		 KCCA together with Kawempe National Referral hospital developed a customized protocol for identification, management, and referral of high-risk mothers to appropriate levels of care; procured 7 new ambulances; and strengthened coordination and linkages between referring and referral sites.
	Jinja: Limited involvement of the leadership of facilities in MPDSR discussions leading to delayed allocation of needed resources to implement MPDSR recommendations.	 As part of implementing agreed actions from MPDSR a weekly MPDSR report for Busoga region is generated and shared with all stakeholders every week for accountability purposes. Some districts have transferred midwives to high output facilities where MPSDR findings had showed staff were too few to attend to mothers. CMEs and mentorship of staff on
		neonatal resuscitation following over 32% of neonatal deaths due to asphyxia in the region.



Health System Block	PROPOSED ACTION	RESULTS/ IMPLEMENTATION
Health Information Systems	Ibanda District: Follow up on perinatal death reviews monthly for every reporting Health facility. Kiruhura District: Reported reduced perinatal deaths due to timely support to lower facilities.	 Ibanda: This is currently in implementation. The District Health Committee has gone ahead to support facilities to notify and review all maternal and perinatal deaths. Kiruhura District: This has mainly been attributed to Improved availability of resuscitation equipment at RBF supported facilities and improved timely mortality notifications of all deaths with maternal death reviews at 100%.
Leadership/ Governance	Kakumiro : Included the need to establish a PPH box to improve emergency preparedness, Increase and streamline communication and coordination among health cadres: Midwives were advised to always inform doctors whenever they faced challenges in managing specific cases including those tracked in the high-risk registers.	Kakumiro: This led to an emergency box being put in place, a facility mobile phone was bought and kept charged with airtime for ease of communication, coupled with scheduled CMEs being carried out as well as monitoring of essential supplies and consumables



2. 6 Collaborative learning and adaptation

LEVEL	REGION/ PLACE/ LOCATION	MoH & IMPLEMENTING PARTNER SUPPORT	PRESENTATION / TOPIC
GLOBAL	FIGO - Virtual	MOH, WHO, URMCHIP, USAID	Maternal and Perinatal Deaths Surveillance and Response (MPDSR) for health systems strengthening
	IMNHC - Cape town, South Africa	WHO & USAID MCHN Activity	International Maternal Newborn Conference: Strengthening the Quality of Practice of Maternal and Perinatal Death Surveillance and Response
	GLOBAL INNOVATIONS	• Global Health Uganda	VAYU Innovation: Presentation made on the Vayu bubble CPAP -high quality infant CPAP system that is able to provide blended oxygen at adjustable concentrations
NATIONAL	NASMEC	NASMEC PET- Subcommittee	Presentation of the Final PET Framework
	NASMEC	NASMEC PPH Sub- Committee	Use of misoprostol for induction of labour
	МОН	Commissioner Health Services/Emergency Medical Services, Ministry of Health	Strategies to improve community and Interfacility movement of obstetric emergencies
	МОН	National Malaria Control Programme	 Updated Severe Malaria in Pregnancy Case Management guidelines Malaria In Pregnancy Prevention and Treatment Protocols
	МОН	• MOH	The risk pregnancy Quality improvement collaborative



LEVEL	REGION/ PLACE/ LOCATION	MoH & IMPLEMENTING PARTNER SUPPORT	PRESENTATION / TOPIC
REGIONAL	BUNYORO	Baylor College of Medicine Children's Foundation Hoima RRH	 Bunyoro Tooro Mentorship approach & progress: Early Experiences in implementation of LMNS - The Bunyoro Region Experience (Hoima RRH) Bunyoro LMNS PPT: MoH through the Hoima RRH revitalised the Bunyoro Local Maternity and Neonatal Network System.
	LANGO	Lira Regional Referral Hospital	Interventions to reduce perinatal deaths in the Lango Sub-Region
	SOUTH CENTRAL REGION	Makerere University Child Health AndDevelopment Centre	Reproductive, Maternal, Newborn, Child And Adolescent Health Capacity Building Initiative In South Central Region
	KAMPALA	 Mulago Specialised Hospital- OBs-GYN Specialist Mulago SWH Paediatrician 	 Establishing a Center of Excellence for Maternal Foetal Medicine at Mulago Specialised Women and Neonatal Hospital Key Aspects in Caring For The Preterm Baby
	BUGISU	OBGYN Lead for ELMNS	Early Lessons, Successes, And Opportunities To Improve MNH Qoc : A Case Of Elgon LMNS
	ACHOLI	• Gulu RRH OBGYN	The role of G2G in strengthening MNH service delivery at regional level Gulu
	KAMPALA	• KCCA • CUGH- Naguru	Midwives Led Quality Improvement: MIDWIZE INITIATIVE
	MULTI- REGIONAL	Uganda Health Activity (UHA)	Uganda Health Activity Project Review on Regional Health Systems Strengthening in collaboration with MoH



LEVEL	REGION/ PLACE/ LOCATION	MoH & IMPLEMENTING PARTNER SUPPORT	PRESENTATION / TOPIC
PRIVATE SECTOR	MOH, UCMB, KCCA, Nsambya	Neonatal Sub- Committee,Nsambya Hospital	Strengthening Delivery Room Interventions to Reduce Neonatal Mortality
RESEARCH	DISTRICT	Kween District	Mother's Experiences in Receiving Male Midwives' Assistance During Birth: A Qualitative Study In Kween District





ANALYSIS OF THE REPORTED AND REVIEWED MATERNAL AND PERINATAL DEATHS

3.1 Introduction

his chapter looks at the maternal and perinatal death reports, death notification and death review trends and contributing factors in the reporting period of Financial Year 2022/2023 (FY 2022/23).

A total of 1,276 maternal deaths were reported through the monthly health facility reports (HMIS 105). Of these, 1,201 (94.1%) were notified and 1,137 (89.1%) were reviewed and electronically entered into the e-HMIS/ DHIS2 events report.

A total of 25,199 perinatal deaths were reported (HMIS 105). Of these, 15,983 (63.4%) were notified and 10,854 (43.1%) were reviewed and entered into the e-HMIS/ DHIS2 events report

3.2 Institutional maternal deaths

3.2.1 National trends in Institutional maternal deaths notified, reported, and review rates.

During the FY 2022/23, the health facility deliveries reduced by 34,052 (2.35%) from 1,446,894 (FY 21/22) to 1,412,842 (FY 2022/23) while the number of maternal deaths increased from 1,226 to 1,276 over the past two financial years (FY 2021/22-FY 2022/23). This translates into an Institutional Maternal Mortality Ratio (IMMR) of 90.3/100,000 deliveries, a rise from 84.7/100,000 deliveries registered in the previous year (FY 2021/22).

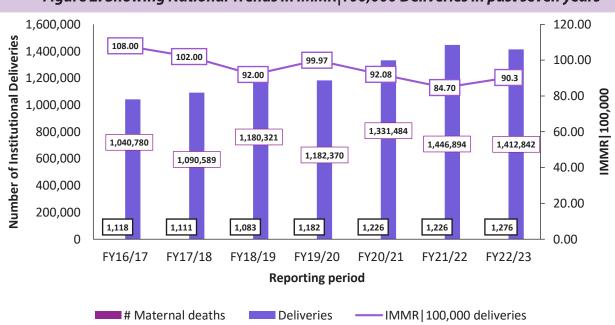


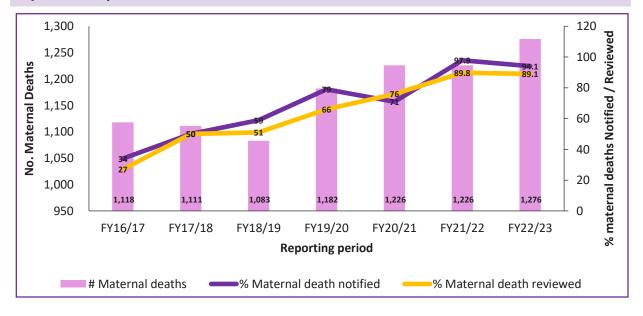
Figure 2: Showing National Trends in IMMR 100,000 Deliveries in past seven years



Over the past seven years (2016-2023), the IMMR has reduced by 16.4% (from 108 to 90.3 per 100,000 deliveries). However, there was a 6.6% increase in IMMR between FY 2021/22 and FY 2022/23.

Although there was improved reporting of maternal deaths per region due to establishment and operationalisation of the regional LMNS networks, the facility deliveries reduced by 2.3%. This was attributed to stock-out of HMIS reporting tools. In addition, the incentivization process of RBF implementation mechanism was tagged to proper documentation and reporting. The end of the RBF program had a negative impact on reporting. This highlights the need to emphasise the importance of accurate documentation and reporting in routine service delivery.

Figure 3: Showing National Trends in Maternal Deaths Reporting, notification and reviews in past seven years.



Data source: DHIS2, FY2016/17-FY2022/23

Over the past seven years, maternal death notification increased by 60.1% (from 34% to 94.1%) and maternal deaths reviews increased by 62.1% (from 27% to 89.1%). However, there was a 2.9% and 0.7% reduction in the maternal death notification and reviews respectively between FY 2021/22 and FY 2022/23. This coincides with the end the of the RBF and RHITES programmes.

Table 3: Maternal mortality by Age category

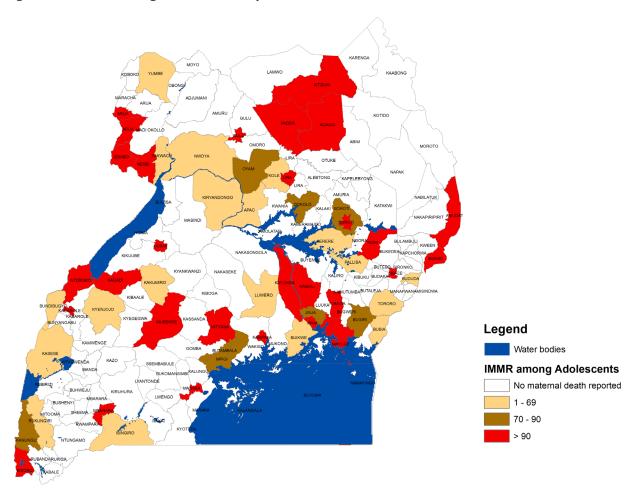
	FY2019	/20	FY20	020/21	FY202	1/22	FY2022	/23
Maternal age cate- gory	No. (propor- tion) of mater- nal deaths	IMMR/ 100,000 deliveries	No. (pro- portion) of maternal deaths	IMMR/100,000 deliveries	No. (pro- portion) of maternal deaths	IMMR/ 100,000 deliveries	No. (pro- portion) of maternal deaths	IMMR/ 100,000 deliver- ies
≤ 19 Yrs	131 (11.1%)	61.3	148 (12%)	63.2	122(10%)	46.5	152 (12%)	62.9
20 - 24 Yrs	301 (25.5%)	74.9	273 (22%)	60.5	272(22%)	56.6	284(22%)	61.3
≥ 25 Yrs	750 (63.4%)	132.4	805 (66%)	125.4	832(68%)	118.2	840 (66%)	118.7
Overall	1,182	99.97	1,226	92.4	1,226	84.7	1,276	90.3



During FY 2022/2023, there was a notable increase in the IMMR among the adolescent girls and young women from 46.5/100,000 deliveries to 62.9/100,000 deliveries and 56.6/100,000 deliveries to 61.3/100,000 deliveries respectively. The IMMR among the >25yrs remained relatively the same.

This indicates gaps in access to and utilization of quality SRH information and services among adolescents and young women, and correlates with high teenage pregnancy in the country. It also highlights the need to identify the adolescent girls as a high-risk category, and strengthen provision of quality age-appropriate services.

Figure 4: IMMR among Adolescents by District



3.2.2 Regional trends in Institutional maternal deaths reported, notifications and review rates.

Table 4: Regional breakdown of maternal deaths reported, notified and reviewed for the last three financial years

0000		No. Materi	No. Maternal deaths		% mat	ternal dea	% maternal death notifications	ations	u %	naternal d	% maternal death reviews	- MS
SOB-REGION	FY19/20	FY20/21	FY21/22	FY22/23	FY19/20	FY20/21	FY21/22	FY22/23	FY19/20	FY20/21	FY21/22	FY22/23
Acholi	48	62	29	99	%0.96	81.0%	104.5%	%5'86	%0.86	74.0%	%0.76	101.5%
Ankole	80	91	91	89	71.0%	73.0%	126.4%	77.5%	%0.95	85.0%	113.2%	97.8%
Bugisu	63	89	29	114	98.0%	100.0%	106.0%	100.0%	83.0%	108.0%	103.0%	%9:56
Bukedi	41	39	39	46	80.0%	64.0%	89.7%	106.5%	83.0%	82.0%	87.2%	95.7%
Bunyoro	106	105	102	103	87.0%	85.0%	87.3%	%9.62	64.0%	20.0%	%9.89	74.8%
Busoga	88	105	63	116	80.0%	71.0%	86.0%	92.2%	94.0%	89.0%	87.1%	81.9%
Kampala	177	187	196	180	94.0%	%0.07	98.5%	99.4%	%0.65	%0.62	%6:36	98.3%
Karamoja	24	28	23	12	38.0%	%0.27	108.7%	108.3%	28.0%	104.0%	108.7%	91.7%
Kigezi	45	46	30	38	78.0%	91.0%	106.7%	84.2%	%0.79	98.0%	100.0%	94.7%
Lango	09	44	22	45	83.0%	%0'52	107.3%	106.7%	75.0%	111.0%	105.5%	104.4%
North Central	107	132	122	126	%0'.29	49.0%	%0.89	77.0%	46.0%	61.0%	%6.89	80.2%
South Central	109	84	122	87	68.0%	27.0%	88.5%	%8.06	39.0%	40.0%	64.8%	%0.77
Teso	52	37	58	63	29.0%	43.0%	106.9%	117.5%	104.0%	105.0%	89.7%	95.2%
Tooro	66	89	92	96	70.0%	78.0%	118.4%	94.8%	33.0%	47.0%	98.7%	%8'69
West-Nile	83	88	85	95	87.0%	28.0%	%9'.26	107.4%	93.0%	72.0%	%9'.26	%8.96
Uganda	1,182	1,226	1,226	1,276	78.0%	71.0%	97.5%	94.1%	%0.99	76.0%	89.4%	89.1%

Color Key	
	>100
	90-100
	65 -90
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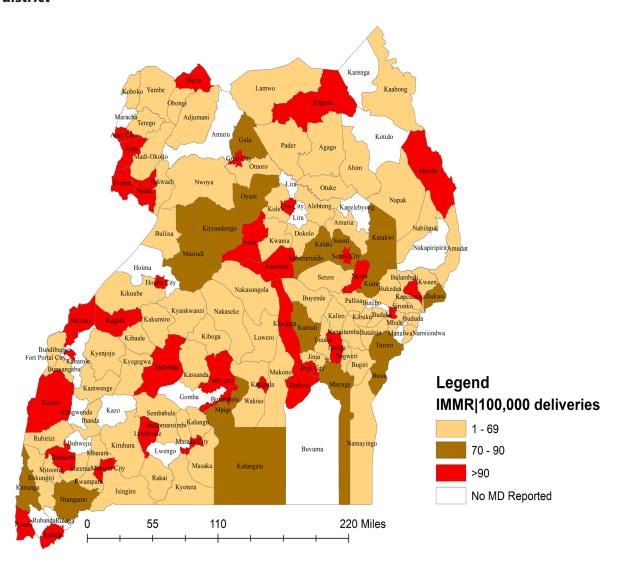


During the FY 2022/23, four out of fifteen regions (Bukedi, Karamoja, Lango and South Central) achieved the IMMR target of 70/100,000 deliveries (MoH Sharpened Plan II, 2022/23-2027/28). However, the regions of Acholi, Bugisu, Bunyoro, Busoga and Kampala had their IMMR above 90/100,000 deliveries in the FY2022/23. The regions of Ankole, Karamoja, Lango, South Central and Kampala had their IMMR reduced between the FY 2021/22 and FY 2022/23.

All regions except Ankole, Bunyoro, Kigezi and North Central had more than 90% of their maternal deaths notified. Similarly, all regions except Bunyoro, Busoga, North Central, South Central and Tooro had their reported maternal deaths reviewed above 90%. Notably, there was a reduction in the number of regions that notified and reviewed more than the reported maternal deaths (>100%).

3.2.3 District level Institutional maternal deaths reported and review rates.

Figure 5: Map showing Institutional Maternal Mortality Ratio per 100,000 deliveries by district



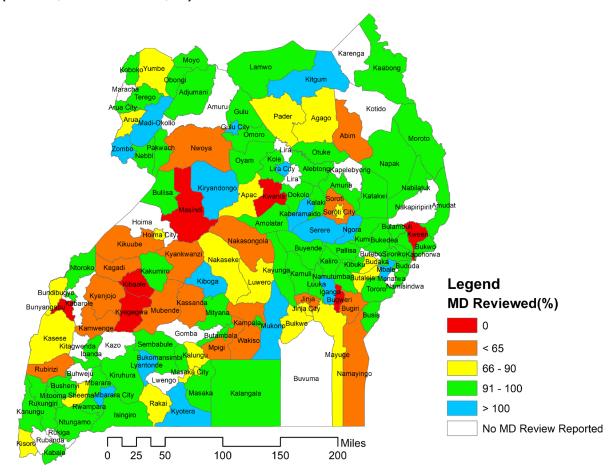
In FY2022/23, 51% (75) of the districts achieved the annual RMNCAH Sharpened Plan (2022/23-2027/28) IMMR target of 70/100,000 deliveries.

Thirty-four districts (23%) including all those with regional referral hospitals had high IMMR above 90/100,000 deliveries. Nineteen districts (13%) did not report any maternal death throughout FY2022/23.

The Local Maternity and Neonatal Systems should work with these nineteen districts that did not report any maternal death to further evaluate their maternal health care services and understand the situation including contributing factors.

District level maternal death review rates

Figure 6: Map showing the proportion of maternal deaths reviewed by districts (FY2020/21 and FY2022/23)



During FY 2022/23, 66 districts (45%) reviewed at least 90% of their reported maternal deaths while sixteen districts (11%) reviewed more than 100% of their reported maternal deaths. 24 districts (16%) reviewed less than 65% of their reported maternal deaths, including seven districts (Kween, Kibaale, Kyegegwa, Bugweri, Bunyangabu, Kwania, and Masindi) that did not review any. The end of the RBF program had a negative impact on the functionality of the MPDSR committees.

The sixteen districts that reviewed more than 100% indicate under reporting of maternal deaths in HMIS 105.

3.2.4 Institutional maternal deaths reported by health facility level

Table 5: Institutional Maternal Mortality Ratio by Health facility level FY2019/20, FY2020/21 and FY2022/23

Health	Ž	No. health facility deliveries	lity deliverie	S		No. mater	No. maternal deaths		Institut	ional mate	Institutional maternal mortality ratio	ty ratio
Level	2019/20	2020/21	2021/22	2022/23	2019/20	2020/21	2021/22	2022/23	2019/20	2020/21	2021/22	2022/23
Referral and Large PNFP Hos- pitals	107,163	98,740	127,446	115,694	370	521	566	648	345.3	527.6	444.1	560.1
GHs	216,512	219,386	217,520	234,267	457	471	387	380	211.1	214.7	177.9	162.2
HC IVs	216,944	243,586	276,168	287,647	178	169	186	172	82.0	69.4	67.4	59.8
HCIIIs	475,284	595,083	226'629	646,619	29	53	61	64	14.1	6.8	9.0	6.6
HC IIs / Clinics	137,737	151,239	146,163	128,615	30	14	26	12	21.8	6.3	17.8	9.3
Total	1,153,640	1,308,034	1,446,874	1,412,842	1,102	1,228	1,226	1,276	95.5	93.9	84.7	90.3

Data source: DHIS2, FY2019/20-FY22/23.

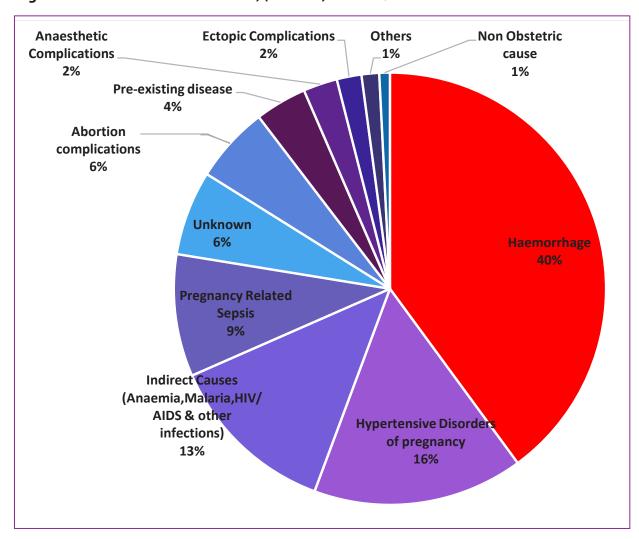


Over the past four financial years, IMMR has consistently been highest at referral and large PNFP hospitals. In the FY 2022/23, about 50% (648) of maternal deaths occurred at referral and large PNFP hospitals. This reflects gaps in the quality of care at these referral sites but also the quality and challenges in referral system.

Focus should be on operationalisation of HC IVs by implementing the recommended staffing norms especially for critical cadres including anaesthetic officers, midwives and medical doctors. Advocacy for implementation of the new staffing norms. Furthermore, availing adequate equipment and supplies, strengthen leadership, support supervision and accountability and reorganisation of care processes at CEmONC sites should be undertaken.

3.2.5 Causes of maternal deaths

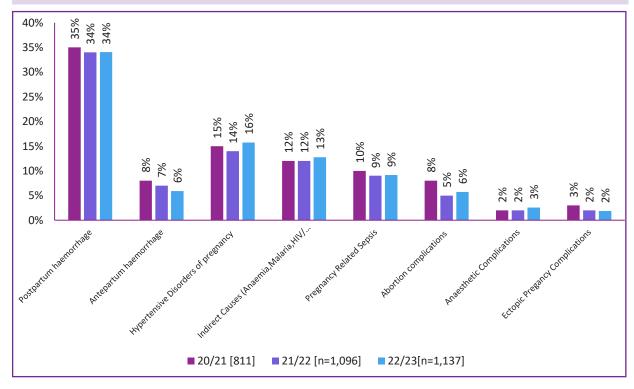
Figure 7: Causes of Maternal Death, (n=1137) FY 2022/20223



Haemorrhage was the leading cause of maternal deaths during FY 2022/23 at 40%, followed by Hypertensive disorders of pregnancy at 16%, pregnancy-related sepsis 9%, abortion Complications at 6% and indirect causes including malaria, HIV/AIDS, anaemia and other infections at 13%. The remaining 16% was contributed by other causes including pre-existing diseases (4%), ectopic pregnancy complications (2%), anaesthetic complications (2%), unknown/undetermined causes (6%), non-obstetric (1%) and others (1%).

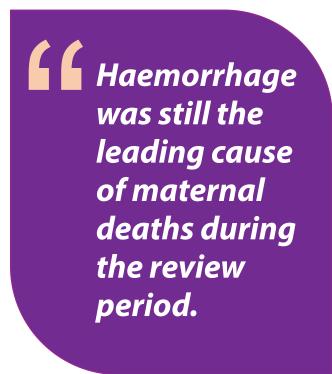


Figure 8: Causes of Maternal Deaths in the last 3 financial years



Overall, the causes of maternal deaths have remained unchanged over the past three years (FY2020/21 to FY2022/23). Haemorrhage was still the leading cause of maternal deaths during the review period.

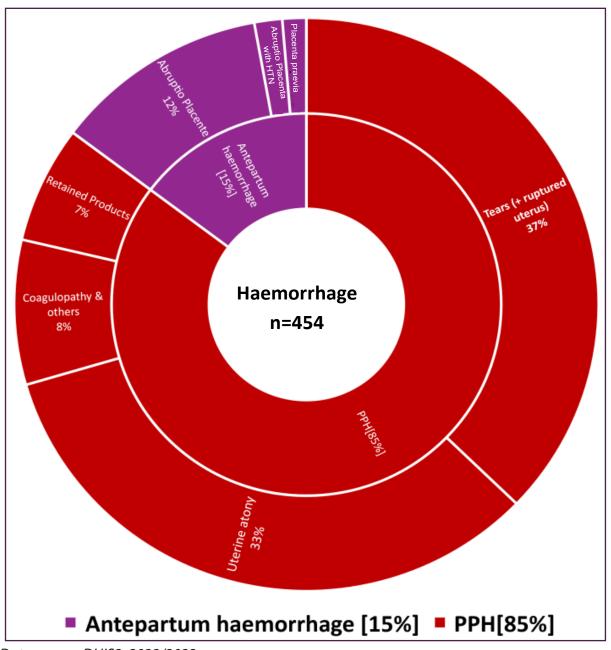
There was a slight reduction in cases of maternal deaths due to obstetric haemorrhage as a result of adopting a cold chain for oxytocin and use of misoprostol at lower health facilities. Mothers with hypertensive disorder reach the regional and national referral hospitals in critical condition and having very little intervention to reverse the complications. Regarding hypertensive disorders, screening and diagnostic equipment must be availed at all levels of health care.





Deep-dive analysis of maternal deaths due to haemorrhage

Figure 9: Classification of Haemorrhage Cases, n=454



Data source: DHIS2, 2022/2023

Postpartum haemorrhage accounted for 85% of all maternal deaths due to haemorrhage (FY 2022/23). Among the causes of PPH, tears accounted for 37% followed by uterine atony (33%), coagulopathy (8%) and retained products (7%). Antepartum haemorrhage accounted for 15% of all the maternal deaths due to haemorrhage with abruptio placente contributing to 14% and Placenta praevia contributing to 1%. Postpartum haemorrhage due to cervical and perineal tears are attributed to poor obstetric practices and that due uterine atony is mostly attributed to low potency of uterotonic drugs (oxytocin). There is need to implement the policy on utilisation of heat-stable carbetocin.

Causes of death by region

Table 6: Causes of maternal deaths by region FY2022/2023

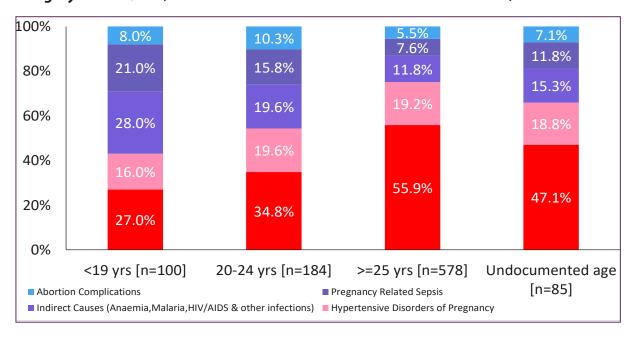
Regions	Haemorrhage	Hypertensive Disorders of Preg- nancy	Indirect Causes (Anaemia, Malaria, HIV/AIDS & other infections)	Pregnancy Related Sepsis	Abortion com- plications	Pre-ex- isting disease	Anaesthetic Complications	Ectopic Pregnancy Complications	Others	Non Obstet- ric cause	Unknown
Acholi	25.4%	%0.9	11.9%	26.9%	13.4%	7.5%	1.5%	4.5%	1.5%	1.5%	%0.0
Ankole	32.2%	23.0%	%6:9	9.5%	4.6%	1.1%	%6.9	2.3%	2.3%	1.1%	10.3%
Bugisu	33.0%	16.5%	13.8%	11.9%	7.3%	7.3%	1.8%	%0.0	%6:0	3.7%	3.7%
Bukedi	52.3%	13.6%	%8.9	9.1%	%0:0	4.5%	4.5%	2.3%	2.3%	%0.0	4.5%
Bunyoro	44.2%	7.8%	19.5%	15.6%	6.5%	7.6%	1.3%	1.3%	%0.0	%0.0	1.3%
Busoga	45.3%	21.1%	11.6%	5.3%	5.3%	2.1%	2.1%	1.1%	1.1%	1.1%	4.2%
Kampala	37.9%	22.0%	10.7%	8.5%	%8'9	5.1%	2.3%	1.7%	1.7%	%9:0	2.8%
Karamoja	27.3%	9.1%	27.3%	%0:0	%0:0	%0.0	9.1%	9.1%	9.1%	%0.0	9.1%
Kigezi	44.4%	13.9%	8.3%	8.3%	2.6%	8.3%	%0:0	%0.0	2.8%	%0:0	8.3%
Lango	34.0%	4.3%	21.3%	6.4%	4.3%	2.1%	4.3%	4.3%	4.3%	%0.0	14.9%
North Central	57.4%	19.8%	%6.9	4.0%	4.0%	2.0%	%0:0	%0.0	%0.0	%0:0	2.9%
South Central	41.8%	22.4%	%0.9	7.5%	3.0%	1.5%	%0:0	3.0%	1.5%	1.5%	11.9%
Teso	35.0%	13.3%	16.7%	8.3%	3.3%	3.3%	%0:0	2.0%	1.7%	%0.0	13.3%
Tooro	37.3%	7.5%	22.4%	4.5%	11.9%	3.0%	3.0%	1.5%	%0:0	%0.0	%0.6
West Nile	42.4%	10.9%	17.4%	6.5%	2.2%	4.3%	6.5%	1.1%	%0.0	%0:0	8.7%
National	39.9%	15.7%	12.8%	9.1%	5.7%	3.9%	2.6%	1.8%	1.3%	0.8%	6.3%



In all regions except Acholi, haemorrhage was the leading cause of maternal deaths with North Central region having the highest percentage at 57.4% followed by Bukedi at 52.3% and Busoga at 45.3%. The leading cause of maternal death in Acholi region was Pregnancy related sepsis at 26.9% while the national average for sepsis was 9.1%. Hypertensive disorders were highly reported in the regions of Ankole (23.0%), South Central (22.4%) and Kampala (22.0%). Regarding post-abortion related complications, Acholi had 13.4%, while Tooro had 11.9% and Bugisu at 7.3%. It is also important to note that the national average of maternal deaths due to anaesthetic complication contributed to 2.6% with Karamoja having 9.1%, Ankole (6.9%) and West Nile (6.5%).

Maternal deaths by age category

Figure 10: Proportional contribution of five leading causes of death by maternal age category FY2022/23 (Total N= 947 cases due to exclusion of other causes of death)



Data source: DHIS2, 2022/2023

Haemorrhage was the leading cause of death among all age groups (<19yrs, 27.0%; ≥25yrs, 55.9% and 20-25yrs, 34.8%). However, among the less than 19 years, indirect causes (anaemia, malaria, HIV/AIDS & other infections) contributed 28.0%.

Maternal deaths due to abortion complications were highest among adolescents and young women which points to low coverage of SRH services among this age category. Adolescent responsive services should be strengthened in all health facilities to increase uptake of SRH services.

Sepsis was among the leading causes of maternal death in the adolescents and young women; this is because they are prone to difficult deliveries and poor health seeking behaviour. Increasing early risk identification during ANC, labour and delivery to prevent and appropriately manage maternal infections.



Table 7: Breakdown of indirect causes of maternal deaths by age FY2022/23

Age Group	Malaria	HIV/AIDs	Severe Aneamia	Other	Grand Total
<19 yrs	24 (17%)	0%	2(1%)	2 (1%)	28 (19%)
20-24 yrs	26 (18%)	1 (1%)	5 (3%)	4(3%)	36 (25%)
>=25 yrs	27 (19%)	11 (8%)	17 (12%)	13(9%)	68 (47%)
Undocumented age	9(6%)	1 (1%)	2 (1%)	1 (1%)	13(9%)
Grand Total	86 (59%)	13(9%)	26(18%)	20(14%)	145 (100%)

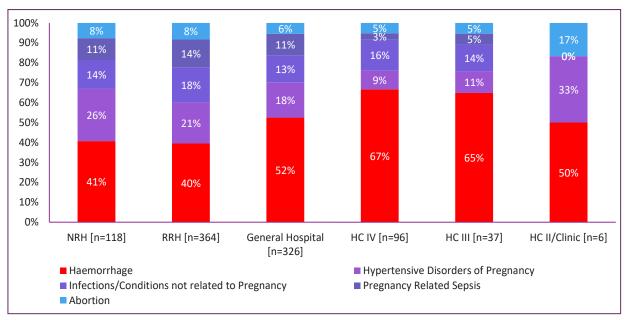
Malaria was the leading cause of death (59%) across all age groups among the indirect causes of maternal deaths, followed by severe anaemia (18%). The most affected age group was >=25yrs.

Malaria, being among the leading indirect cause of maternal deaths across all age groups, indicates that there are still gaps in the uptake of malaria interventions such as IPT and LLINs. There is need to continuously sensitise mothers on proper and consistent use of LLINs and adherence to IPT.

Haemoglobin testing during ANC among the reviewed maternal deaths was still very low at 12%. Severe anaemia contributing to 18% of indirect causes of maternal deaths points to gaps in early identification and management. There is need to increase availability of HB diagnostic equipment at points of for MCH services.

Leading causes of maternal deaths by health facility level

Figure 11: Showing five leading causes of maternal deaths by Health Facility level, FY2022/23



Data source: DHIS2, 2022/23



Across all levels of care, haemorrhage was the leading cause of death with the highest contribution reported at HC IV (67%) and HC III (65%) levels.

This is attributed to varying skills of service providers, gaps in emergency preparedness to handle the obstetric haemorrhage and timely referrals.

Hypertensive disorders of pregnancy are second leading causes of maternal deaths in the hospitals. This points to gaps in early identification and management of PET cases, emergency readiness and varying skills of health care providers. The LMNS should strengthen mentorship in emergency preparedness, skills of service providers and timely referrals for obstetric emergencies.

Characteristics of maternal deaths reported / reviewed

Table 8: Characteristics of Maternal Deaths Reviewed in FY 2022/23 (N= 1137*)

Item	Frequency (n=1137)	Frequency (%)
Age category	<u> </u>	
<19 yrs	121	10.6%
20-24 yrs	223	19.6%
>=25 yrs	684	60.2%
Missing age	109	9.6%
Parity at death (Computations included the Unknown	/Missing data n= 35, 3%)	
Para 1	220	19%
Para 2-4	496	44%
Para 5-6	219	19%
Para 7+	167	15%
Referral status to facility (NB: Computations included the Unknown)		
Referred	698	61%
Not referred	366	32%
Duration of stay between	admission and death	
<1 Hr	819	72.0%
1 - 6 Hrs	216	19.0%
6 - 24 Hrs	28	2.5%
> 24 Hrs	1	0.1%
Missing data	73	6.4%



Mode of delivery		
Vaginal delivery	344	30.3%
Assisted vaginal delivery	4	0.4%
Ceasarian Section	444	39.1%
Not Applicable (e.g. Abortion)	238	20.9%
Unknown/ Missing	107	9.4%
Antenatal care attendance of thi	s pregnancy	
Yes	660	58%
No	138	12%
Unknown/Missing data	339	30%
Investigations done during Ante	natal care of this pregnancy	
Hepatitis B testing (Computations in	cluded the Unknown/Missing data n= 84	0, 74%)
Yes	126	11%
No	171	15%
Urinalysis-Protein/Sugar/casts		
Yes	137	12%
No	173	15%
Unknown/missing	827	73%
HIV testing		
Yes	590	52%
Test result Positive	54	9%
Test result Negative	536	91%
No	26	2%
Unknown/ Missing data	521	46%
Syphilis testing		
Yes	400	35%
Test result Positive	22	2%
Test result Negative	366	32%
No	64	6%
Unknown/missing data	673	60%
Hemoglobin testing		
Yes	132	12%
No	177	16%
Unknown/Missing	828	72%
V		

^{*}Unknown /undocumented and missing data category included in the computations to total up to 1137 deaths, but unknown/missing category is not presented in the table



Among the maternal deaths reviewed, 10.6% were adolescents (<19 years) while the combined contribution including young women (20-24 years) was 30.2%.

The majority of the maternal deaths reviewed (44%) had a parity 2-4; sixty one percent (61%) were referred; 52% were tested for HIV of which 9% tested HIV+. Thirty-five (35%) were tested for syphilis and 2% tested positive. Only 12% had an HB test, 11% had Hep-B test conducted while 12% had Urinalysis-Protein test.

Majority (39.1%) of mothers who died had C-section done, 30.3% had vaginal delivery, while 20.9% were not due for delivery.

The majority of the reviewed maternal deaths had low parity indicating the gap in the quality of services. Sixty one percent of the maternal deaths reviewed had been referred indicating gaps in the timeliness and effectiveness of the referral system.

The key drivers for the above results included: low availability of diagnostic equipment for routine investigations, long waiting times, non-functional point of care at MCH unit at most of the health facilities and high cost of testing among private health facilities.

Avoidable factors

Table 9: Avoidable factors FY2022/2023

	Number	of avoida grouped	ble factors I		% Contr	ibution of	the delays'
Regions	Delay 1	Delay 2	Delay 3	Total	Delay 1	Delay 2	Delay 3
Acholi	70	8	72	150	46.7	5.3	48.0
Ankole	109	12	101	222	49.1	5.4	45.5
Bugisu	106	25	166	297	35.7	8.4	55.9
Bukedi	60	13	48	121	49.6	10.7	39.7
Bunyoro	78	13	101	192	40.6	6.8	52.6
Busoga	128	18	160	306	41.8	5.9	52.3
Kampala	181	22	198	401	45.1	5.5	49.4
Karamoja	17	4	18	39	43.6	10.3	46.2
Kigezi	33	10	40	83	39.8	12.0	48.2
Lango	57	8	44	109	52.3	7.3	40.4
North Central	133	29	118	280	47.5	10.4	42.1
South Central	33	7	48	88	37.5	8.0	54.5
Teso	85	18	105	208	40.9	8.7	50.5
Tooro	64	13	77	154	41.6	8.4	50.0
West Nile	100	17	165	282	35.5	6.0	58.5
National	1254	217	1461	2932	42.8	7.4	49.8

The delay to provide appropriate care at health facilities (Delay 3) was the major contributor (49.8%) among avoidable factors that led to maternal deaths in FY2022/23. This was closely followed by the delay to make a decision to seek health care (delay 1) at 42.8%.

Delay 3 was least reported in Bukedi, Lango and North central regions while delay 1 was least reported in West Nile, Bugisu and South-Central regions. The regions of West Nile (58.5%), Bugisu (55.9% and South Central (54.5%) reported the highest proportions of Delay 3; while

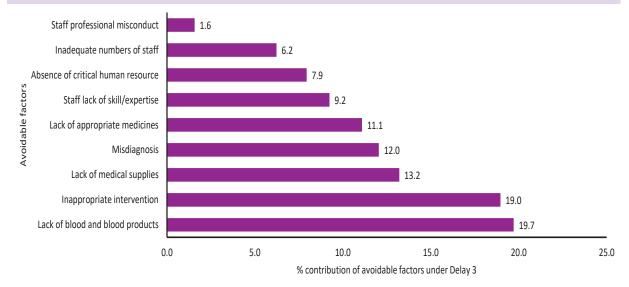


Lango (52.3), Bukedi (49.6%) and Ankole 49.6%) reported the highest proportions of Delay 1. The least contribution to avoidable factors for maternal death was the delay to reach the health facility (Delay 2) at 7.4%.

Delay 3 being the major avoidable factor indicates the need to improve timeliness and responsiveness at the facility level as well ensuring the provision of quality care to every mother.

In regions where Delay 1 significantly contributed to maternal deaths, there is need to strengthen facility and community structures for wide-spread sensitisation on birth and emergency preparedness at individual, family and community level, as well as community-to-facility linkages and referrals.

Figure 12: Deep-dive of avoidable factors under delay 3, FY2022/23



Lack of blood and blood products and inappropriate intervention were the leading avoidable factors associated with Delay 3 at 19.7% and 19.0% respectively. This was followed by lack of medical supplies at 13.2% (such as suture materials, IV-fluids, surgical gloves, parenteral antibiotics, safe obstetric anaesthesia medicines, uterotonics).

Several Regional Referral Hospitals, vital in the healthcare system, lack essential facilities like blood banks (3/17) and blood collection/ distribution centres, despite their central roles in patient referrals. Challenges persist, including irrational blood use, insufficient

availability of blood fridges, hoarding, and persistent shortages of blood and related products. Inadequate interventions result from a lack of essential knowledge, skills, and necessary equipment, compounded by issues in appropriate consultation channels and accountability. The absence of crucial human resources, including medical doctors and anaesthetic officers, leads to significant delays in maternal management, even when patients seek prompt care. Addressing these gaps is crucial for ensuring timely and effective healthcare, particularly in critical maternal care scenarios.



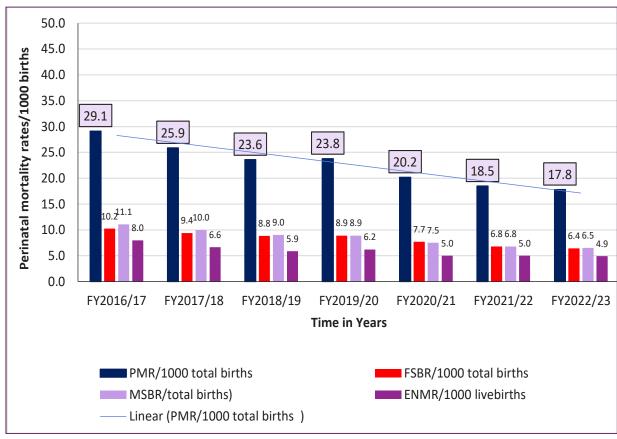
3.3 Institutional Perinatal Deaths

3.3.1 National trends in Institutional Perinatal Mortality Rates (per 1000 births)

During the FY 2022/23, the institutional births reduced by 3.13% (45,677) from 1,459,434 (FY 21/22) to 1,413,757 (FY 2022/23) while the number of perinatal deaths reduced by 6.67% (1,800) from 26,999 deaths (FY 21/22) to 25,199 (FY 2022/23). This translates into a 3.7% reduction in Institutional Perinatal Mortality Ratio (IPMR) from 18.5/1,000 total births registered in the previous year (FY 2021/22) to 17.8/1,000 total births (FY 2022/23).

There is increased attention to empowering communities to attend ANC early and deliver at health facilities. Additionally, efforts to improve intrapartum care including labour monitoring, timely and appropriate referral have also contributed to these gains. The RBF mechanism has further strengthened intrapartum monitoring using partograph. The reduction in IPMR is attributed to strengthened efforts to increase perinatal death reviews at health facility level and capacity building on the provision of essential newborn care, newborn resuscitation and care of small and sick newborns.

Figure 13: Trends in Institutional Perinatal Mortality Rates (per 1000 births) in Uganda (FY2016/17 to FY22/23)



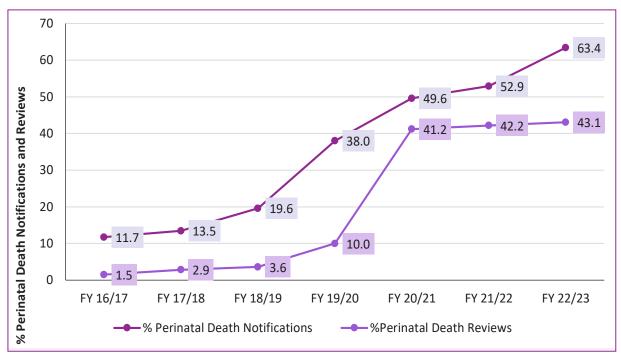
Data source: DHIS2, FY2016/17 to FY2022/23



Over the past seven financial years (FY 2016/17-FY 2022/23), the IPMR has reduced by 38.8% (from 29.1 to 17.8 per 1,000 total births). The greatest reduction has been registered among the Macerated still births (41.4%) followed by Early Neonatal Deaths (38.8%) and Fresh Still Births (37.3%) A 3.8% reduction (from 18.5/1000 to 17.8/1000 total births) in IPMR was noted between FY 2021/22 and FY 2022/23.

The slight decline in macerated still births is attributed to improved quality of ANC including provider-initiated testing and treatment, following scale-up of syphilis dual-testing kits, strengthened interventions to prevent malaria pregnancy, as well as increased awareness for the need to accurately diagnose by use of Ultrasound scans and treat other conditions such as diabetes, hypertension and viraemia. Additionally, interventions such as operationalising of more HC IV's may have contributed to the slight reduction in the FSB mortality rates. The slight reduction in neonatal mortality may be attributable to the establishment of the level II (secondary) newborn care throughout the country and upgrading the National referral hospital to level III (tertiary) newborn care.

Figure 14: Trends in Perinatal Death Notifications and Reviews (FY2016/17 to FY2022/23



Data source: DHIS2, (FY2016/17 to FY2022/23)

Over the last seven years, there has been a six-fold increase in the perinatal death notification rate from 11.7% (FY 2016/17) to 63.4% (FY 2022/23) and a 20% increase in the last two financial years (FY 2021/22 to FY 2022/23).

Similarly, in the last seven years there has been a remarkable improvement in the perinatal death reviews from 1.5% (FY 16/17) to 43.1% (FY 2022/23) and a 2%

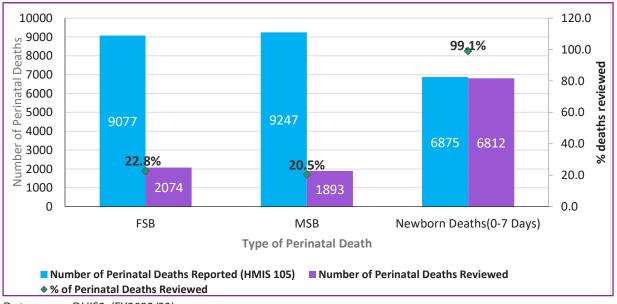
increase in the past two years (FY 2021/22 to FY 2022/23).

This is attributed to strengthening reviews at the national and regional referral hospitals where most of the perinatal deaths are being reported. This has been done through identifying focal persons for perinatal reviews at each of these sites to spearhead and be accountable for the performance in Perinatal Death Surveillance Report (PDSR).



At the national level, the neonatal subcommittee as part of the national MPDSR committee was constituted to coordinate and follow up the notifications and reviews of perinatal deaths across the country. There has also been deliberate efforts by partners to support the perinatal notification and review processes at selected health facilities by availing tools and incentives such as meals, human resources.

Figure 15: Type of Perinatal deaths reported and reviewed FY2022/2023



Data source: DHIS2, (FY2022/23)

Among the perinatal deaths reported in FY 2022/23, 9247 were MSBs (36.7%), 9077 were FSBs (36%) and 6875 were Newborn deaths (27.3%). The newborn deaths (0-7 days) had the highest review rate at 99.1% while the FSBs and MSBs had relatively much lower review rates.

The statistics reflect that health facility committees are prioritising review of ENND over the still births. Some health facilities having more than one review team.

MPDSR should committees review categories of perinatal deaths prospectively by one multidisciplinary MPDSR committee. Perinatal deaths are indicators of the quality-of-care mothers receive during pregnancy and at the time of birth. Consequently, there is need to harness efforts towards improved quality and experience of care.

Perinatal Deaths in FY 2022/23

MSBs 9247 (36.7%)

FSBs 9077 (36%)

Newborn deaths 6875 (27.3%)

3.3.2 Institutional Perinatal Mortality Ratio by Region

Table 10: Showing the IPMR by Region between FY2021/22 and FY2022/23

	FY2021 /2022	FY2022 /2023	FY2021 /2022	FY2022 /2023	FY2021 /2022	FY 2022 /2023	FY2021 /2022	FY 2022 /2023	FY2021 /2022	FY 2022 /2023	%Diff. in IPMR
Region	Total I	Total Births	MSB/10	MSB/1000 Births	FSB/1000 Births	0 Births	ENND/1000 Live Births	Live Births	IPMR/1000 births	00 births	
Acholi	65817	64129	7.9	7.3	6.3	6.1	8.0	7.4	22.1	20.8	-6.04
Ankole	113116	114088	6.1	5.4	6.3	5.4	3.7	2.3	16.0	13.1	-18.62
Bugisu	100671	92823	4.4	5.5	4.5	5.0	1.0	1.3	10.0	11.8	17.94
Bukedi	91892	84427	4.5	4.0	4.6	4.5	2.3	2.5	11.4	10.9	-4.27
Bunyoro	90743	84253	7.5	9.0	10.4	10.2	5.0	5.7	22.8	24.9	90.6
Busoga	125914	124731	7.1	7.0	7.0	7.0	5.4	5.4	19.4	19.2	-1.12
Kampala	89253	89845	11.9	11.2	10.7	8.8	16.6	18.6	38.8	38.2	-1.43
Karamoja	34293	34963	4.1	3.6	8.8	6.5	5.2	4.0	18.1	14.1	-22.01
Kigezi	55941	53911	5.3	5.4	5.4	4.4	6.7	5.2	17.3	14.8	-14.42
Lango	79416	74782	6.1	5.3	6.4	5.6	4.3	4.1	16.7	15.0	-10.52
North Central	149389	146767	8.2	7.2	8.4	7.9	4.4	3.4	21.0	18.4	-12.30
South Central	146472	141233	7.6	6.7	6.0	6.7	4.6	4.3	18.2	17.6	-2.99
Teso	74745	73733	5.6	6.0	5.5	5.6	3.2	3.4	14.2	14.9	5.59
Tooro	127028	121567	5.5	5.3	6.3	5.1	3.1	3.5	14.9	13.9	-6.42
West Nile	114744	112505	6.9	6.8	5.9	6.1	5.1	5.3	17.8	18.1	2.09
National	1459434	1413757	6.8	6.5	6.8	6.4	2.0	4.9	18.5	17.8	-3.65

FSBR, MSBR,	FSBR, MSBR, ENND/1000	IPMR	IPMR/1000
	<6/1,000		<15
	6-12/1,000		15-25/1000
	>12/1,000		>25

Data source: DHIS2, FY2021/22 – FY2022/23

Over the past two years (FY 2021/22 and FY 2022/23), the regions of Bugisu, Bukedi, Tooro, Kigezi, Teso, Ankole and Lango have had their perinatal mortality rates generally below the national average. However, the regions of Kampala and Acholi are still burdened by high Early Newborn Mortality Rate of 18.6 per 1,000 and 7.4 per

1,000 live births respectively. The highest fresh still birth rates (above the national average of 6.4 per 1,000 total births) were observed in the regions of Bunyoro, Kampala, North Central, Busoga, South Central and Karamoja respectively.

 Table 11: Showing the Perinatal Death Notifications and Reviews by Region between FY2021/22 and FY2022/23

	FY2021/2022	FY 2022/2023	FY2021/2022	FY2022/2023	FY 2021/2022	FY2022/2023	2,500,000	3:0
					Perinatal death	Perinatal death	% DIII Perinatai	% DIII Perinatai
Region	Total Perin	Total Perinatal Deaths	Perinatal death No	th Notification rate (%)	Review rate (%)	Review rate (%)	Death Notification	Death Review
Acholi	1455	1332	54.5	73.4	62.2	68.8	34.6	10.7
Ankole	1814	1489	8.79	9.78	75.9	67.4	29.1	-11.3
Bugisu	1006	1094	45.9	95.1	74.9	47.3	107.2	6'98-
Bukedi	1046	920	71.8	41.2	68.0	36.3	-42.6	-46.6
Bunyoro	6907	2095	24.8	53.5	8.8	13.1	115.5	49.0
Busoga	2446	2396	31.3	46.9	31.9	17.3	49.8	-45.6
Kampala	3463	3436	106.8	86.8	48.5	70.1	-18.7	44.4
Karamoja	620	493	92.6	45.0	70.8	61.9	-51.4	-12.6
Kigezi	026	800	92.8	87.5	73.3	79.1	-8.7	7.9
Lango	1328	1119	66.4	64.5	69.5	72.1	-2.8	3.7
North Central	3137	2703	32.8	57.0	21.2	22.6	73.9	6.5
South Central	2661	2489	24.9	51.7	17.9	16.4	107.8	-8.1
Teso	1058	1102	60.2	51.3	79.1	55.5	-14.9	-29.8
Tooro	1887	1690	14.2	58.7	10.1	23.9	314.8	137.3
West Nile	2039	2041	33.9	50.2	31.2	59.1	48.2	89.2
National	26999	25199	50.8	63.4	41.2	43.1	25.0	4.5

<25% 25-50% PDN/ PDR (%) >20%



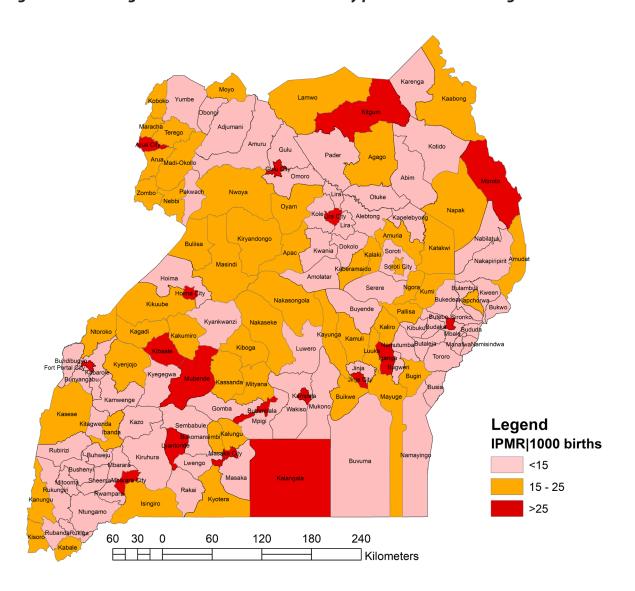
In FY 2022/23, there was great improvement in both perinatal death notification and reviews in the regions of Tooro, Bunyoro, West Nile, Acholi and North Central respectively. There was reduction in both perinatal notifications and reviews in the regions of Bukedi, Karamoja and Teso in the same reporting period.

Although Karamoja and Teso continued to perform above the national average, the results showed a decline in both notification and reviews. A reduction in both perinatal notification and reviews was also observed in Bukedi region. The regions of Bunyoro, Busoga, South Central, North Central, and Tooro are still performing below 25% in reviewing their perinatal deaths.

The positive performance trends in Acholi, Bunyoro, North Central Tooro and West Nile in both perinatal death notification and reviews are attributed focused support from stakeholders and partners. Root cause analysis among the poorly performing regions need to be conducted to understand the bottlenecks to reporting. There is a need for quarterly compilation of district performance.

3.3.2 Institutional perinatal deaths reported, notifications and review rates by District.

Figure 16: Showing Institutional Perinatal Mortality per 1000 births during FY2022/23





During FY 2022/23, 82 districts (56.2%) achieved an IPMR of less than 15 per 1,000 births while eighteen districts (12.3%) had an IPMR above 25 per 1,000 births.

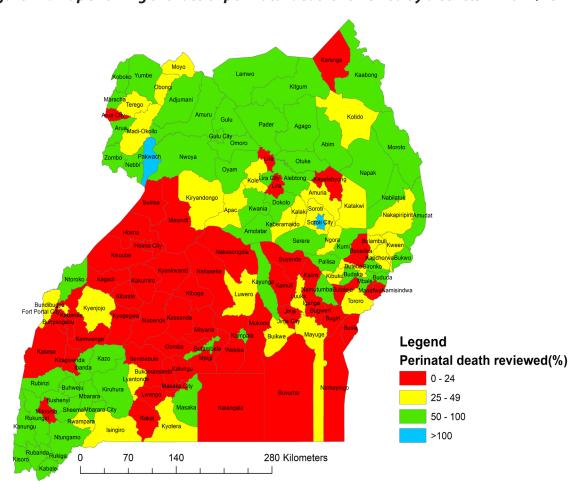
The high burdened districts have been found to have either limited RMNCAH partner support or are found in fragile/ humanitarian settings.

The map indicates more deaths in districts and cities with regional and district general

hospitals. This could speak to gaps in functionality of HC IVs that ideally should be able to manage a significant proportion of obstetric and newborn emergencies. Additionally, most advanced neonatal units are situated at RHHs and district hospitals. Other contributors to more deaths at the Referral Hospitals include gaps in interfacility referral system from lower-level facilities as well as delays and suboptimal quality of care at referral sites.

Perinatal Death Reviews by District

Figure 17: Map showing the rate of perinatal deaths reviewed by districts FY2022/23



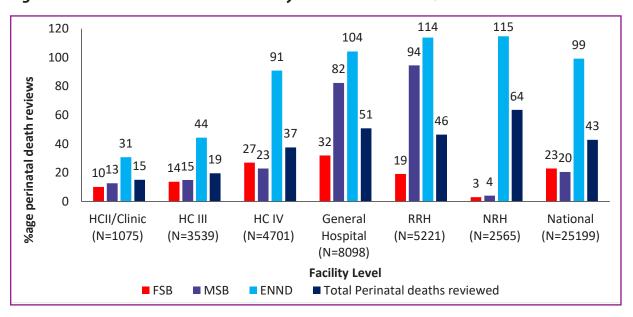
In FY 2022/2023, all districts reported at least one perinatal death in HMIS 105. A total of 36 districts (24.7%) reviewed more than 50% of the perinatal deaths reported while 52 districts (35.6%) reviewed less than 25%. Out of the 52 districts that reviewed less than 25%, 13 districts (8.9%) did not report any perinatal death reviews.

Districts in the South Central, North Central, Tooro and Bunyoro regions had suboptimal (<25%) perinatal death review rates. This is attributed to the regions with inadequate RMNCAH partner support. Mentorships are key in improving reporting across the sub optimally performing districts through the LMNS networks.



3.3.4 Perinatal death review rates by level of care

Figure 18: Perinatal death review rates by level of care FY2022/23



The NRH and GH reviewed more than half of their reported perinatal deaths (64% and 51% respectively). Early Neonatal Deaths were the most reviewed, followed by MSBs and FSBs at CEmONC health facilities. Perinatal death reviews relatively remained low at BEMONC health facilities.

In spite of the National Referral Hospital's incredible success of reviewing 115% of the ENNDs, they remain challenged with the FSB and MSBs. A similar picture has also been observed at the rest of the CEmONC site levels with the same success trends in ENND reviews but challenges in the MSBs and FSBs.

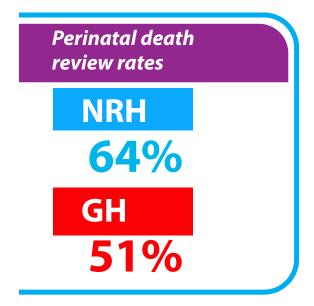




Table 12: Showing	Porinatal	mortality rates	hy level	of Health Eacility
iable 12: Showing	ı Permatai	mortanty rates	ov ievei	oi neaitti raciiity

Facility Level	Total Births	Total Live births in Unit	Total Perinatal Deaths	IPMR/ 1000 births	FSBR/ 1000 births	MSBR/ 1000 births	ENMR/ 1000 Livebirths
HC II/Clinic	126,486	125,620	1,075	8.5	3.5	3.3	1.7
HC III	642,703	639,776	3,539	5.5	2.0	2.5	1.0
HC IV	290,173	286,367	4,701	16.2	6.8	6.3	3.1
General Hospital	236,193	230,358	8,098	34.3	12.6	12.1	9.8
RRH	93,728	90,019	5,221	55.7	20.1	19.4	16.8
NRH	24,474	23,293	2,565	104.8	20.6	27.7	59.4
National	1413757	1395433	25199	17.8	6.4	6.5	4.9

FSBR, MS	SBR, ENND/1000	IPMR/1000	
	<6/1,000		<15
	6-12/1,000		15-25/1000
	>12/1,000		>25

Data source: DHIS2, 2022/23.

In the FY 2022/23, health centre IIIs had the lowest IPMR at 5.5 per 1,000 total births followed by HC II/ clinics at 8.5 per 1,000 live births. The highest IPMR was reported at national referral hospital (104.8 per 1,000 total births). High rates of FSB, MSB and ENND were reported at GH, RRH and NRH. For lower-level Health Facilities, (HC IIIs and IIs/clinics) the highest contribution to IPMR was due to FSB and MSB.

The observed mortality rates at the different levels of care are consistent with the referral patterns of obstetric and newborn emergencies and indicating that most mothers and newborns with complications end up at the higher-level facilities.

3.3.5 Characteristics of the perinatal deaths reviewed

Birth weight

Table 13: Perinatal Deaths Reviewed by Birth Weight (BWT)

Type of Perinatal Death	Fresh Still Birth (%)	Macerated still Birth (%)	Early Neonatal Death (%)	Total (%)
<1000g	2	4	6	5
1000-1499g	5	12	16	13
1500-2499g	18	32	25	25
2500-3499g	55	41	40	43
>=3500g	19	11	13	14

Data source: DHIS2, 2022/23



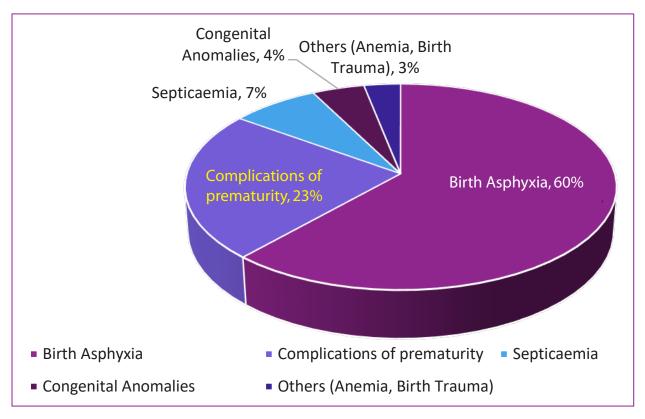
During the FY 2022/23, the highest percentage (57%) of perinatal deaths occurred among the normal weight babies (≥2500g). Among the normal weight babies, the highest percentage (74%) was contributed by the fresh still births followed by the early neonatal deaths (53%).

This points to gaps in the quality of intrapartum and immediate postpartum care. In addition, the macerated still birth contributed to 52% among the normal

weight babies; this also implies that gaps still exist in the quality of antenatal care. Interventions to address adverse perinatal outcomes should focus on improving timeliness and appropriate management of obstetric emergencies. In addition, there is need to enhance capacity of health care providers to identify and manage small and sick newborns (including asphyxiated babies), as well as equip neonatal care units across all levels of care.

3.3.5 Causes of perinatal deaths

Figure 19: Causes of death among the Reviewed Early Neonatal Deaths during FY2022/2023 (n=6132)

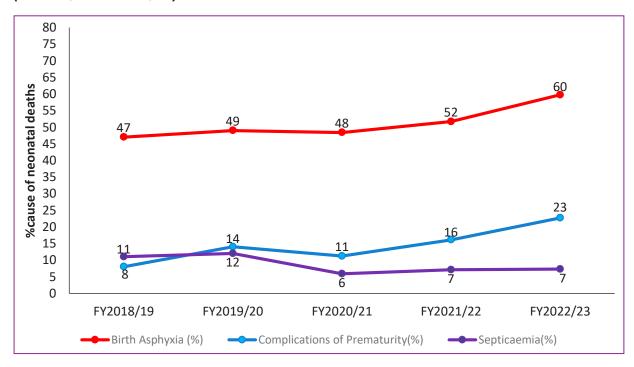


Birth asphyxia accounted for 60% (3,664) of ENND followed by prematurity complications 23% (1,391) and Septicaemia at 7% (446).

This still emphasises the gaps in intrapartum care, neonatal resuscitation, and sub-optimal referral systems.

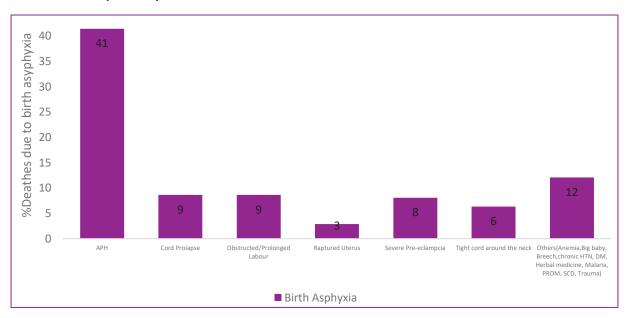
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Figure 20: Trends in the leading causes of Neonatal deaths over the past 5 years (FY2018/19-FY2022/23)



Birth asphyxia remains the leading cause of ENND followed by complications of prematurity and Septicaemia over the past 5 years. Both birth asphyxia and complications of prematurity show an increasing trend over the past 5 years.

Figure 21: Predisposing factors to Birth Asphyxia among the Early Neonatal Deaths FY2022/2023 (N=466)

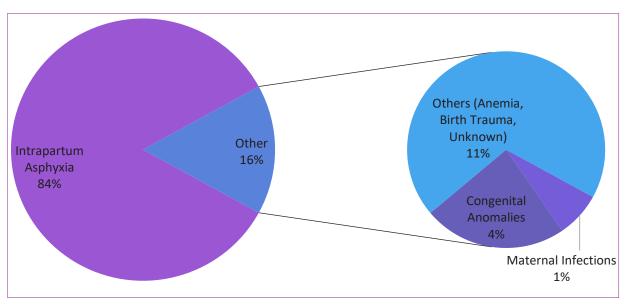


Antepartum haemorrhage (41%) was the highest documented predisposing factor, followed by obstructed labour, cord prolapse and severe pre-eclampsia that led to birth asphyxia among the early neonatal deaths reviewed.



Consistent with previous literature and data, maternal high-risk factors directly affect perinatal outcome. For FY 2022/23, while obstetric haemorrhage remains the leading cause for maternal deaths, it also remains a leading predisposing factor for poor perinatal outcome. Specifically, APH contributed to the highest number of birth asphyxia related perinatal deaths.

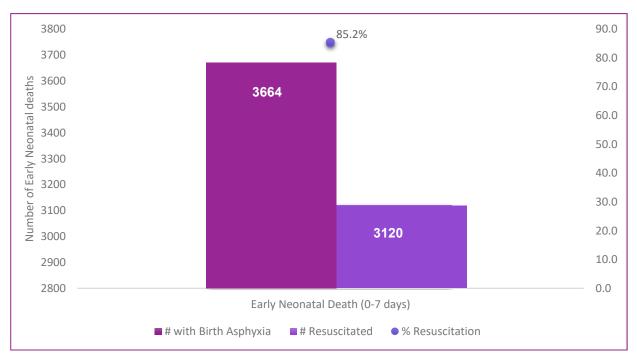
Figure 22: Underlying factors among the reviewed Fresh Still Births FY2022/2023 (N=1548)



Intrapartum Asphyxia contributed 84% of the underlying factors among the reviewed fresh still births during FY2022/23. Notably, 4% were due to congenital anomalies.

This points to poor quality of care during the intrapartum period especially delay to make timely interventions and improper use of partograph to make appropriate lifesaving decisions.

Figure 23: Percentage of Early Neonatal deaths with birth asphyxia that were resuscitated (n=3664)



Although 85% of the babies with asphyxia were resuscitated, they all died. This indicates a gap in the quality of neonatal resuscitation at birth. This is further coupled by the inadequate equipment such as ambu bags, radiant warmers needed for neonatal resuscitation.

Maternal characteristics of the perinatal deaths reviewed

) Age, parity, and type of pregnancy

Table 14: Showing maternal characteristics associated with perinatal deaths reviewed (n=10854**)

		Maternal age	al age			Mother's parity	; parity				ANC contacts	ıtacts			Type of Pr	Type of Pregnancy**
Type of perinatal death	≥19	20-24	25-49	50+	1	2-4	5-7	7+	0	1-3	4	5-7	8	**	Multiple	Singleton
Fresh Still Birth (n=2074)	14.3%	25.8%	53.5%	%0:0	27.8%	42.4%	21.0%	5.7%	0.2%	33.7%	18.4%	19.2%	1.1%	0.3%	6.5%	89.4%
Macerated still Birth (n=1893)	14.6%	25.9%	23.6%	%0:0	30.8%	42.0%	19.4%	4.5%	0.1%	34.4%	18.2%	18.0%	1.3%	0.3%	5.8%	%9:06
Neonatal Death (n=6812)	15.5%	25.0%	45.7%	0.0%	32.0%	38.9%	12.8%	3.4%	0.0%	26.6%	14.2%	14.4%	1.1%	0.2%	10.0%	82.5%
Unclassified (n=75)	13.3%	22.7%	53.3%	%0:0	30.7%	44.0%	13.3%	4.0%	0.0%	21.3%	26.7%	13.3%	0.0%	%0.0	0.0%	89.3%
Total (10854)	15.1%	15.1% 25.3%	48.6% 0.0%	0:0%	31.0%	40.2%	15.5%	4.1%	0.1%	0.1% 29.3%	15.8%	15.9%	1.1% 0.2%	0.2%	8.5%	85.3%

**The undocumented category is not reflected in the table but data was used in the analysis



During FY2022/23, 15.1% of the perinatal deaths reviewed were deliveries adolescent girls (≤19 yrs) and 25.3% by young women aged 20-24 years. Nearly half of all the perinatal deaths reviewed (49%), happened for women aged 25-49 years.

Of the perinatal deaths reviewed, 40.2% were among mothers whose parity was 2-4 and 31% for prime paras.

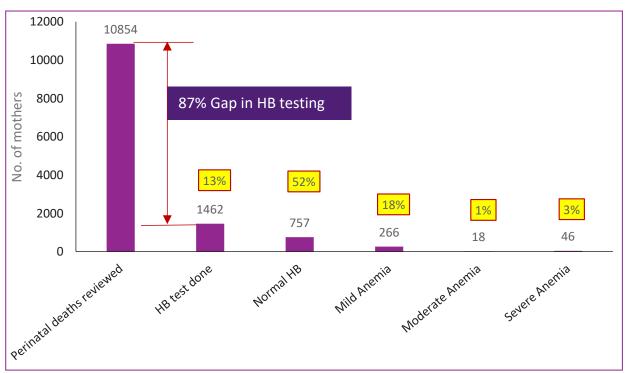
Among the perinatal deaths reviewed, 29.3% were for mothers who had attended 1-3 ANC visits and 16% had completed the 4th ANC visit. Only 1.1% had attended the recommended 8 visits.

Out of the reviewed perinatal deaths, 8.5% occurred among mothers who had multiple pregnancy and 85.3% in singleton.

There is still a high proportion of teenage pregnancies resulting into poor perinatal outcomes. Efforts towards reduction of teenage pregnancy will directly contribute to reduction in perinatal mortality. There was about 20% of mothers with parity of 5 and above highlighting the need to focus on improving family planning services uptake. Only about 33% of the mothers had attended 4+ ANC contacts indicating the need for further efforts to improve early initiation and retention of antenatal care.

ANC interventions

Figure 24: Showing HB Testing and level of anaemia during ANC for mothers with reviewed perinatal deaths FY2022/2023 (n=10854)

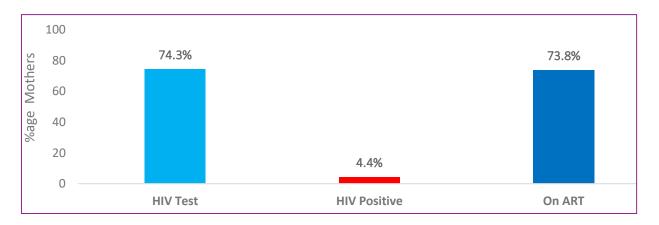


Data source: DHIS2, 2022/2023

Among mothers with reviewed perinatal deaths, only 13% were tested for HB. Of these, 3% had severe anaemia in pregnancy. There are still low levels of HB testing during ANC which predisposes mothers with anaemia in pregnancy to poor perinatal outcomes. Focus should be put at increasing HB testing coverage in all health facilities providing ANC services. Making ANC clinics as point of care testing for all the relevant laboratory investigations.

DATA-DRIVEN RESPONSE

Figure 25: HIV cascade FY2022/2023 (n=10854)

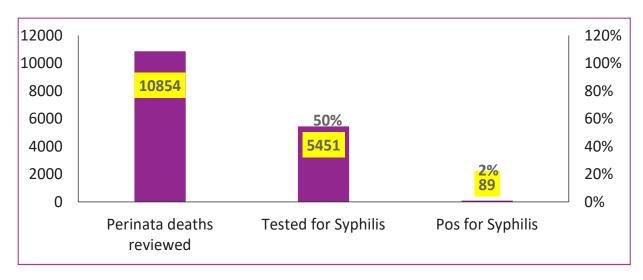


Of the perinatal deaths reviewed, 74.3% had mothers tested for HIV, of which 4.4% were found to be HIV+ and 73.8% were on ART.

The significant proportion of mothers who were not tested and positive mothers not

initiated on ART points to gaps and missed opportunities in eMTCT programme which puts the babies at risk of adverse outcomes. As part of the efforts to address these gaps, the Ministry of Health is scaling up eMTCT interventions at all high-volume HC IIs.

Figure 26: Syphilis testing and result FY2022/2023 (n=10854)

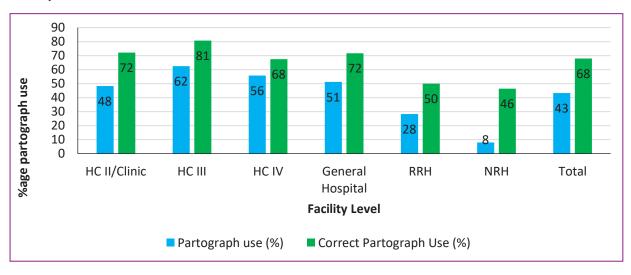


Of the perinatal deaths reviewed, 50% had mothers tested for syphilis, of which 2% tested positive. Despite the fact that the Ministry of Health is implementing use of HIV-Syphilis dual test-kits, the syphilis

testing rate is still lower than that of HIV. This is partly as a result of stock-outs of dual test-kits where health workers resort to using HIV-only test kits.

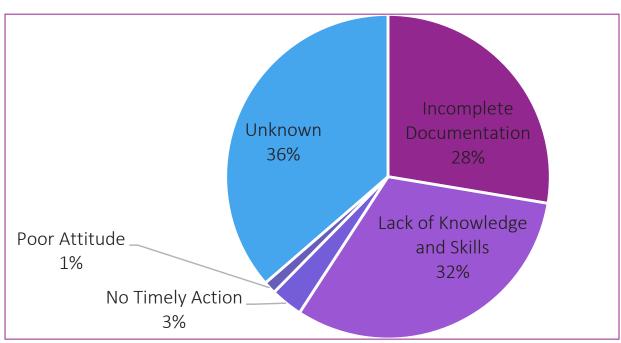
(ii) Partograph use among mothers of the reviewed perinatal deaths

Figure 27: Partograph use among mothers of the reviewed perinatal deaths by health facility level (n=8393)_FY2022/23



In FY 2022/23, among the perinatal deaths reviewed, only 43% had mothers monitored using a partograph and 68% of these had partograph used correctly. Partograph use was higher at HC III and lowest at the NRH.

Figure 28: Reasons for incorrect Partograph use among mothers of the reviewed perinatal deaths (n=561)_FY2022/23



This still indicates gaps in the quality of labour monitoring across all levels.

There is need to continuously emphasise the importance of monitoring labour using a partograph in early identification of obstetric complications. There is need to avail adequate supply of partographs at all levels of care. Decongesting higher level facilities (hospitals and regional referrals) will contribute improved partograph use at these sites.

i) Complications during Pregnancy

Table 15: Showing complications experienced during pregnancy FY2022/2023

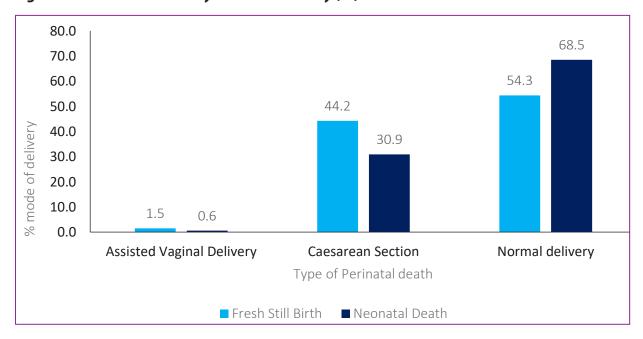
					Complicatio	Complications during Pregnancy	gnancy			
Perinatal Death Type	АРН	HTN in pregnancy	PROM	DM in pregnancy	Anaemia in pregnancy	UTI in pregnancy	Malaria in pregnancy	Trauma- accidental	GBV in pregnancy	Drugs/ Medicines
Fresh Still Birth (764)	21.7%	10.6%	8.6%	2.4%	7.6%	22.6%	21.7%	1.0%	0.9%	2.7%
Macerated still Birth (934)	7.9%	11.0%	2.9%	2.4%	5.8%	25.1%	35.5%	3.1%	1.3%	2.0%
Neonatal Death (2257)	15.1%	15.3%	10.8%	2.6%	4.8%	21.4%	24.4%	1.6%	0.9%	3.2%
Total (3955)	14.7%	13.4%	9.5%	2.5%	2.6%	22.5%	26.5%	1.8%	1.0%	2.8%

Of the reviewed perinatal deaths, 26.5% occurred among women who suffered malaria in pregnancy, followed by UTI (22.5%) and APH (14.7%). Malaria in pregnancy accounted for the highest proportion of MSBs (35.5%). About twenty-four (24.4%) percent of the neonatal deaths occurred among mothers who had malaria in pregnancy, whereas 22.6% of FSBs occurred among mothers who had a UTI.

Despite all the interventions geared towards malaria prevention like IPTp, LLIN, malaria in pregnancy and other infections still predispose mothers to poor perinatal outcomes. There is need to improve the quality of antenatal care; prevention, screening, early identification of danger signs, diagnosis and management of complications including malaria in pregnancy.



Figure 29: Perinatal death by Mode of Delivery (%)

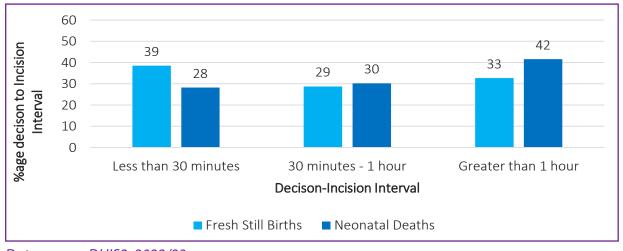


In FY 2022/23, majority of the FSBs and ENNDs reviewed were normal deliveries. Under normal delivery, ENND accounted for the highest percentage (68.5%) while for caesarean section it was fresh still birth at 44.2%.

This implies that more mothers who had a normal delivery would have benefited to a timely EMCS to have better perinatal outcome. Similarly, the 31% mothers who had a caesarean delivery with poor outcomes could have benefited if this was done on time.

(i) Decision to incision interval

Figure 30: Showing Decision to Incision Interval among perinatal deaths delivered through C/S FY2022/23



Data source: DHIS2, 2022/23

Majority of the fresh still births (68%) and the early neonatal deaths (58%) were delivered more

than 1hr, while 39% of the Fresh still births and 28% of the Neonatal deaths were delivered in less than 30mins. This exhibits a gap in making correct and timely decisions for caesarean sections. Implement quality improvement projects at CEmONC facilities to reduce decision to incision interval.

(ii) Referral status

Table 16: Referral status for perinatal deaths FY2022/23

Type of	Referra	al Status (%)		Referral fro	om (%)	
Perinatal Death	Yes	No	GH	Health Centre	VHT	ТВА
Fresh Still Birth	22	78	7	88	1	4
Macerated still Birth	16	84	7	91	1	1
Neonatal Death	35	65	21	76	1	2
Total	29	71	17	79	1	2

More than half (71%) of the perinatal deaths delivered at health facilities were not referrals while 29% had been referred. Majority (79%) of the referrals were from lower health centres, and Referrals from TBAs accounted for 2% of the perinatal deaths reviewed.

This highlights significant delays to provide quality and timely care at health facility level and points to the need for concerted effort to address gaps in human resource (limited numbers, absenteeism, and skills), essential medicines, equipment and supplies, and transportation from the lower health units to the higher levels of care.



Avoidable/modifiable factors by the level of care

Table 17: Avoidable factors for perinatal deaths FY2022/2023

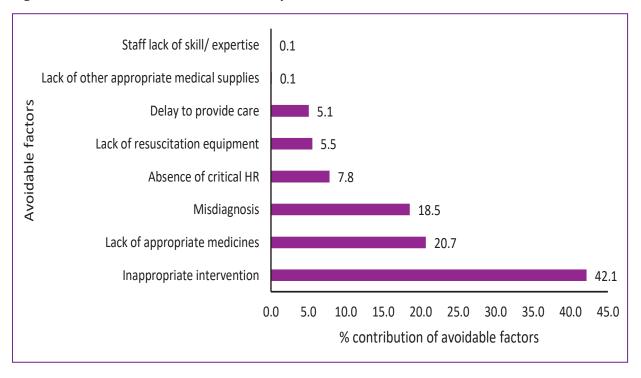
No. of a	No. of avoidable factors grouped					tribution delays'	of the
	Delay 1	Delay 2	Delay 3	Total	Delay 1	Delay 2	Delay 3
Acholi	825	3	269	1097	75.2	0.3	24.5
Ankole	703	0	269	972	72.3	0.0	27.7
Bugisu	401	0	158	559	71.7	0.0	28.3
Bukedi	395	0	120	515	76.7	0.0	23.3
Bunyoro	233	0	104	337	69.1	0.0	30.9
Busoga	234	0	145	379	61.7	0.0	38.3
Kampala	1455	0	1157	2612	55.7	0.0	44.3
Karamoja	279	2	85	366	76.2	0.5	23.2
Kigezi	353	0	174	527	67.0	0.0	33.0
Lango	594	0	227	821	72.4	0.0	27.6
North Central	487	0	158	645	75.5	0.0	24.5
South Central	278	0	87	365	76.2	0.0	23.8
Teso	671	0	176	847	79.2	0.0	20.8
Tooro	252	2	128	382	66.0	0.5	33.5
West Nile	871	0	421	1292	67.4	0.0	32.6
Total	8031	7	3678	11716	70.8	0.1	29.1

In the FY 2022/23, the leading avoidable factor for perinatal deaths was delay to seek health care (Delay1) at 70.8% across all regions. There is a need to scale up community level interventions to raise

awareness on the importance of birth and emergency preparedness, early health seeking behaviour, and identification of danger signs at individual, family and community level.



Figure 31: Avoidable factors under delay 3 FY2022/2023



The leading avoidable factor under delay 3 was the inappropriate interventions by health workers at 42.1% followed by lack of appropriate medicines (20.7%) and misdiagnosis (18.5%).

Inappropriate intervention has been linked to inadequate knowledge and skills (intrapartum care, newborn resuscitation, care of small and sick newborn), but also absence of the appropriate equipment and supplies to use (oxygen, CPAP, radiant warmers, caffeine, surfactant), as well as nonresponsiveness to consultation calls and lack of accountability.

Avoidable factors under delay 3 FY2022/2023

Inappropriate interventions by health workers

Lack of appropriate medicines

Misdiagnosis



RECOMMENDATIONS

HEALTH SYSTEM BUILDING BLOCKS	ISSUES	RECOMMENDATIONS
Service Delivery Maternal	 High IMMR >90 per 100,000 deliveries in 34 districts (23%) High IPMR above 25 per 1,000 births in 18 districts (12%) 	 Conduct referral mapping for maternal and perinatal deaths at high-volume health facilities. Strengthen skills in management of the obstetric and newborn complications at the referral sites. Operationalise HC IVs to offer CEmONC services. Utilise the ambulances attached to the EMS departments to ensure timely referrals to the next level of health care.
	 Inadequate review of maternal deaths in 24 districts (16%) Nineteen districts (13%) did not report any maternal death throughout FY 2022/23 52 districts that reviewed less than 25%, 13 districts (8.9%) did not report any perinatal death reviews 	 Conduct a data quality assessment on all reported maternal deaths. Focus on districts with low review rates. The LMNS to work with these nineteen districts to evaluate their maternal health care processes and understand the situation including contributing factors. Conduct targeted mentorships to improve reporting across the sub optimally performing districts through the LMNS networks. To improve the proportion of MSBs and FSBs reviewed, we should encourage the



LIEALTH CYCTEM	ICCUITC	DECOMMEND A FLONG
HEALTH SYSTEM	ISSUES	RECOMMENDATIONS
BUILDING		
BLOCKS		
		availability of both the paediatric and Obsgyn teams during the review of perinatal deaths. Additionally, there is need to engage stakeholders at all levels to implement the response actions from the reviews.
	 Unchanged causes of maternal deaths over three years Postpartum haemorrhage due to poor obstetric practices and uterotonic drug potency issues 	 Due to the challenges in implementing cold chain for oxytocin, implement the policy on utilization of heat-stable carbetocin. Conduct Simulation trainings on AMTSL and PPH management at all levels of care. Advocate for improved management of blood and blood products at regional level and strengthening of the regional blood management system. Step up community awareness programmes on PPH. Establish and equip point-of-care labs within MCH departments for better diagnostic services like HB
	Hypertensive disorders	 Improve availability of screening and diagnostic equipment for hypertensive disorders at all levels of healthcare such as Urine dipsticks, BP machines. Scale up mentorships/simulation



HEALTH SYSTEM	ISSUES	RECOMMENDATIONS
BUILDING		
BLOCKS	 Pregnancy related Sepsis 	trainings on management of hypertensive disorders. Avail guidelines on Preeclampsia and eclampsia management at all levels of care. Avail adequate stocks of antihypertensive and anticonvulsants for PET management. Step up community awareness programmes on hypertensive disorders Implement the policy on ETOO trainings for in service health care providers. Increase budget allocation for antibiotics, surgical gloves and suture materials in CEmONC sites. All facilities MUST conform to the WASH standards and MUST implement the IPC guidelines.
	 Post-abortion complications among AGYWs 	 Strengthen provision of adolescent responsive SRH services in all health facilities. Engage stakeholders to scale up provision of Adolescent tailored SRH information at school and community level (revamp the ABC approach). Standardise and scale up effective service delivery approaches to meet the diverse needs of young women and men.



HEALTH SYSTEM BUILDING	ISSUES	RECOMMENDATIONS
BLOCKS		
		 Conduct simulation trainings (counselling and safe provision of PAC services) for in-service health care providers at all levels of care with special focus on the districts that reported high Adolescent maternal mortality rates. Conduct simulation trainings (counselling and safe provision of PAC services) for in-service health care providers at all levels of care. Increase budget allocation for MVA kits, misoprostol, and FP commodities to all levels of care. All facilities MUST have running water with adequate IPC and WASH facilities.
Service delivery Newborn	o Increasing trends of birth asphyxia and complications of prematurity as cause of newborn deaths	 Improve the quality of antenatal care; prevention, screening, early identification of danger signs, diagnosis and management of complications including malaria in pregnancy. Implement the intrapartum quality of care labour standards. All mothers in labor must be monitored using a partograph/labor care guide to improve early identification of obstetric complications. Avail adequate supply of partographs at all levels of care.



HEALTH SYSTEM	ISSUES	RECOMMENDATIONS
BUILDING		
BLOCKS	 Neonatal Sepsis 	 All facilities should have a national quality improvement program on partograph use, and decision to incision interval. Establish a national newborn resuscitation program that is scaled up across all levels of care and operationalise skills labs (Simulation units) to enhance the skills of service providers in the quality of newborn resuscitation. Increase budget allocation for newborn resuscitation equipment such as radiant warmers, CPAPs and Ambu bags. Establish designated neonatal resuscitation teams at higher levels of care to improve newborn outcomes. Implement the Interventional framework for reduction of perinatal mortality and morbidity. Strengthen provision of a complete essential newborn care and small and sick newborn care packages at all levels of care Increase budget allocation for alcohol sanitizers, JIK and Cidex (glutaraldehyde) for all newborn units.
		 Increase budget allocation for antibiotics for management of neonatal sepsis.



HEALTH SYSTEM BUILDING	ISSUES	RECOMMENDATIONS
BLOCKS	 Low levels of testing for HB, Blood Grouping, Gestational DM, Urine proteins, Hep B, SCD and HIV-syphilis dual testing during ANC. 	 Improve the quality of intrapartum care including provision of prophylactic antibiotics in mothers at risk of infections Establish and equip point-ofcare labs within MCH departments for better diagnostic services
Health Workforce maternal	 Gaps in staffing norms and skills Variability in skills of 	 Operationalize EmONC facilities with recommended staffing norms with emphasis on anaesthetic officers, lab technologists and at least 2 medical officers and neonatal care nurses. Strengthen in-service
	service providers o High maternal deaths among C-sections, low parity, and referrals	training through onsite simulation trainings/mentorships, clinical placements in NICU, anaesthesia, surgical skills enhancement through ETOO training, emergency preparedness and dissemination of EmONC guidelines.
	o Inappropriate interventions by health workers (Lack of Knowledge and skills).	• Facilitate the Regional consultants (LMNS) to conduct quarterly onsite simulation trainings, review MPDSR actionable recommendations to inform quality improvement initiatives for improved quality of care.
Health Workforce	 Gaps in the capacity and skills of healthcare 	Establish a national newborn resuscitation program and



HEALTH SYSTEM	ISSUES	RECOMMENDATIONS
BUILDING BLOCKS		
Newborn	providers in newborn resuscitation.	operationalise skills labs to enhance the skills of service providers in the quality of newborn resuscitation. • Establish a designated neonatal resuscitation team (neonatal care nurses and medical officers) at level II and III neonatal care (refer to small and sick newborn guidelines) to initiate CPAP in the delivery room.
	 Delay in making correct and timely decisions for caesarean sections. 	 Track decision to incision time nationally in the HMIS tools Implement a national quality improvement program focused at reducing the decision to incision interval for caesarean sections. Conduct ETOO simulation trainings with emphasis on indications for EMCS and encouraging timely consultations and interventions.
Health Information Systems Maternal & perinatal	 Inadequate reporting and reviewing of Maternal and perinatal deaths in certain regions. Inadequate supply of HMIS tools 	 MoH should empower the regional consultants (LMNS) to support the regional MPDSR activities. Engage the Medical Records Officers in the review meetings to ensure the review reports are captured simultaneously. Increase resource allocation for printing and distribution of adequate HMIS tools.
		 MoH should urgently facilitate transition from





Appendix I: Case Studies

NWOYA DISTRICT LOCAL GOVERNMENT

Prioritizing Emergency Obstetric and Newborn Referrals; Lessons learnt from Anaka General Hospital, Nwoya District



Anaka General Hospital

Authors: Jolly Joe Lapat 1, Anena Consolata 1, Isaac Wonyima Okello 2, Hellena Kasaija 3 Affiliation: 1- Anaka General Hospital, 2 – DHO office, Nwoya District Local Government, 3 – USAID - Uganda Health Activity

Introduction:

ntrapartum referrals account for sixteen percent of admissions in Regional Referral Hospitals and other tertiary Hospitals. Approximately 90% of these referrals stem from labor complications, with approximately one in three cases experiencing multiple complications. The most common obstetric complications include obstructed labor, pre-eclampsia, intrauterine fetal death, and women with previous caesarean section scars. The outcomes for mothers in such situations are often poor; over seventy percent of all maternal deaths in tertiary hospitals consist of referrals from lower-level health facilities. Furthermore, many near-miss cases survive but with lifelong devastating complications. Fetal outcomes are similarly bleak; over ten percent of referred mothers experience stillbirth, and a significant percentage of live births suffer from birth asphyxia, resulting in high neonatal mortality rates. Those who survive often face immediate and long-term complications.

One critical strategic intervention to reduce the high maternal and perinatal mortality and morbidity among referred cases is the reduction of the second delay – the delay in transitioning from one facility to the next where life-saving interventions are sought. The establishment of a functional referral system is one of the key activities to address this issue.



Problem Statement:

ccording to records from referral receiving sites (Gulu RRH and Lacor Hospital) in 2019, referrals from Nwoya District experienced the worst maternal and perinatal outcomes. During a Maternal and Perinatal Death Surveillance and Response (MPDSR) review of two maternal deaths that occurred during transit, a glaring gap in referral delays was identified. The primary reason for referral delay was the constant lack of fuel in the ambulance, requiring patients to purchase fuel themselves. Further analysis revealed that Anaka General Hospital was not functioning to its full capacity. While it is supposed to serve as a referral site for all 17 health units within the district, patients often preferred to be transported directly to either Gulu RRH or Lacor Hospital due to the cost of ambulance services, further increasing the delay in intervention.

Objectives:

- To establish a standby ambulance equipped to always respond to emergency calls and eliminate out-of-pocket expenditures on referrals.
- To mitigate adverse maternal and newborn outcomes among referred cases by addressing second delay through operationalizing Anaka General Hospital as a referral site.

Interventions:

- Dedicate the ambulance solely responding to obstetric emergencies, excluding administrative duties.
- Allocate separate funds specifically for fueling the ambulance, distinct from the general hospital fund pool.
- Entrust the management of ambulance fuel to the Principal Nursing Officer (PNO).
- Implement a systematic process, including scheduled fueling of the ambulance (100-200 liters every Monday), taking the mileage reading before fueling, strict accountability for fuel use using a mileage logbook, withholding of fuel coupons from the driver, and scheduled vehicle maintenance (one general repair and quarterly maintenance).
- Allocate a budget for ambulance fuel, amounting to 5 – 8 million shillings per quarter (less than 5% of the quarterly Primary Health Care Infrastructure Project Fund). This budget is sufficient to cover a minimum of 100 referrals, considering the average mileage per patient.
- Motivate staff by budgeting and providing a safari day allowance for the driver and health workers involved in escorting referred cases.



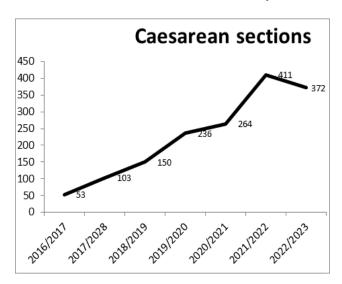
Results:

- All referrals are now transported freely and promptly, escorted by a midwife, with no out-of-pocket expenditure.
- Improvements in the Hospital and peripheral facilities' referral system, which has reduced referrals out from facilities within Nwoya district to Gulu RRH or Lacor Hospital. Most referrals within Nwoya district are now managed Anaka Hospital. at No maternal deaths in transit have been recorded since the implementation of these improved measures. There's ambulance management maintenance services.
- Exponential improvements in client volume, maternal neonatal outcomes at Anaka General Hospital, includina increased maternity admissions (from 1497 to 4979), deliveries (from 869 to 2552), and annual caesarean sections (from 150 to a maximum of 411).
- Referrals out of Nwoya district have drastically reduced, and both maternal and perinatal mortality ratios have decreased.

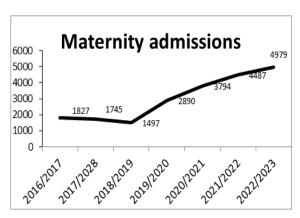
Trends in number of deliveries following the intervention



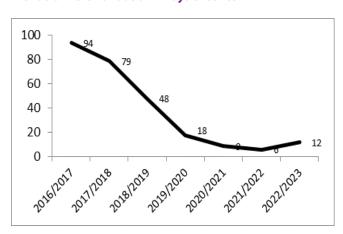
Trends of the number of Caesarean sections performed



Graph showing trends of admission in Maternity ward



Trends of Referral out of Nwoya District





Summary of morbidity and mortality statistics

SERVICES	2016/17	2017/18	2018/19	2019/20	2020/21	2021/2022	2022/2023
Total	1096	957	869	1378	1879	2247	2552
deliveries							
No.	53	103	150	236	264	411	372
C/Sections							
C/S rates	4.8%	10.8%	17.3%	17.1%	14.1%	18.3	14.6
NO.	1	2	1	2	0	1	2
Maternal							
deaths							
Maternal	91.2	209.0	115	145	0	44	78
mortality							
Rate							
(:100,000)							
No. live	1076	939	850	1361	1860	2225	2527
births							
No. still	20	18	19	17	19	22	25
births							
Still birt	18.6	19.1	22	12.5	10.2	9.7	9.7
rate							
(:1000)							

Key Lessons Learned:

- A dedicated leadership and management team are crucial in resource allocation and optimal utilization. Transparency and accountability are key principles.
- Prioritization is essential; it doesn't require substantial resources to run the ambulance system, and seeking external support is not always the solution.
- A streamlined system eliminates external interference from politicians and upper managers.

Conclusion:

Prioritizing emergency obstetric and newborn referrals is a cost-effective intervention that significantly improves access to emergency interventions, resulting in improved maternal and neonatal outcomes with no additional resources.



Formulating MPDSR Recommendations/ Actions And Tracking Actions

Authors: Dinah Amongin ^{1,3}, Benon Kisakye ¹, Grace Latigi ¹, Atnafu Getachew Asfaw ¹, Richard Mugahi ², Bruno Ssemwanga ²

Affiliation:

- 1. UNICEF Uganda
- 2. Reproductive & Infant Health Division, Ministry of Health Uganda
- 3. Makerere University School of Public Health

Background:

n recognition of the challenge in addressing the "R" in MPDSR, the Ministry of Health in partnership with UNICEF Uganda, developed an MPDSR digital action tracker/monitoring tool to enable tracking implementation of recommendations derived during the death reviews. This application enables health workers, health facilities, districts, and the Ministry track what has been implemented, the challenges in timely implementation of these actions, and provision of timely feedback. This innovation has 2 aspects: 1) mentorship on formulating SMART recommendations and 2) use of a digital action tracker to track implementation of the recommendations.

Summary of the Digital Monitoring Tool:

The main objective of developing a software application for monitoring MPDSR is to provide a platform for health facilities to follow-up on recommendations/actions made during maternal and perinatal death reviews. This is now hosted at Ministry of Health.

By leveraging on the existing Maternal and Perinatal death review events data in DHIS2, the digital monitoring tool provides the focal person at the facility with previously captured data to;

- a. Record separately each agreed action and recommendation.
- b. Classify and categorize each recommendation.
- c. Assign timelines and implementing persons to each recommendation.

With the above, the monitoring tool enables the facility and district to follow-up and track recommendations.

Important considerations when formulating recommendations

- There has to be an active MPDSR committee
- The MPDSR committee teams need to formulate recommendations that enable them address the gaps in health care received by the deceased; focus largely on those at the point of 3rd delay (at facility level)
- Formulation of the recommendation/action follows a mnemonic **SMART-PORTAL**. Teams need to ensure that as many of the elements, as possible, are included in a recommendation. This will ensure that recommendations/actions can actually get implemented.
- NB: The best recommendations are those that can be implemented using locally available resources.
- Avoid recommendations that need souring of resources externally. E.g. 'buy ambulances' or 'construct a larger maternity unit'. These, when not implemented, can demoralize the



team and yet, there are lots of gaps in care that can be addressed within local resources.

- Allow the team to start small! Arrive at manageable recommendations, at a time.
- The team can then increase on the complexity of the recommendations as they move along the improvement journey.

Acronym	Explanation
S	Specific : What was the exact gap in the care of the deceased and therefore, what needs to be done to prevent another death under the same/similar circumstances? Be exact in what you want to do/see to ensure that another death does not occur under similar circumstances. Ask yourselves: if we do this, can another similar death be prevented through implementation of this recommendation? Many times, there will be a number of actions arising from the gaps in care provided. In these scenarios/cases, breakdown the actions/recommendations into smaller actions. That is, be very specific.
M	Measurable : Be able to measure your action/recommendation once implemented. The team should be able to know that the action was implemented/completed.
A	Attainable/ Achievable : The team should be able to implement the recommendation. Ensure that it is possible to get this action done. Start small, with actions that teams can get done within their resources. Try to avoid recommendations that require external resources.
R	Relevant/Realistic : The recommendation needs to be relevant to what led to the death. It is important to ensure that the recommendation is within acceptable limits for the teams, i.e., it needs to be realistic to the local environment/area and norms.
Т	Time bound/ frame : State the DATE when the activity will be conducted. Please state actual date and not weeks or months.
P	Person overseeing/ responsible: State the team member who will be responsible for following up on the lead implementer to ensure that the recommendation is implemented. This person will help report back to the team at the scheduled date as to whether the recommendation has been carried out or not, in case the lead implementer has not done so. Even if the recommendation's date is not due, it will be good practice for the chair to remind them in all meetings to follow-up. They will also inform the lead implementer if the latter is not part of the review team. E.g. If the secretary is to report on a recommendation to be carried out in the maternity ward by the matron of the Maternity ward, the secretary will also have to make sure the matron knows what he/she is expected to do, the available resources to use and the timelines for completion.
0	Outcome : State the outcome of the recommendation/action: what do you want to see achieved?
R	Resources : Indicate the resources the team will need in order to be able to implement the recommendation. It is important that recommendations can be implemented using locally available resources. Avoid recommendations that require external support.
TA	Target Audience: State the persons that the recommendation/action targets.



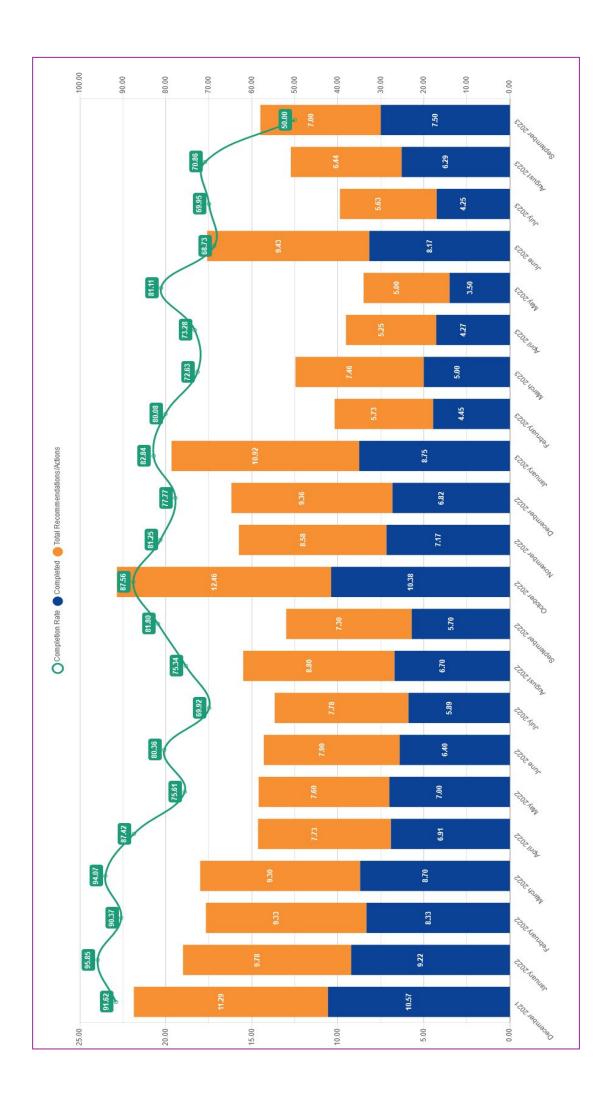
L **Lead implementer**: State the person in the facility who is supposed to make sure that the recommendation is carried out/implemented.

> Please note that the person might not be a member of the committee or be present during the session and so, must be informed about their responsibility and the timelines assigned to it.

Update on progress in pilot and initial scale-up facilities- Recommendations

Over 1500 actions have been implemented with around 30 yet to be completed. The rate of completion of implementation of the recommendations/actions have been over 60% with the exception of last month - September 2023.

	No. of Reviews	Recommendations or Actions	Completed	Under Implementation	Pending	Overdue
Total	1355	1486	1444	11	4	27
Aber Hospital	1	1	1	0	0	0
Aboke Health Centre IV	1	1	0	0	0	1
Adjumani Hospital	85	95	95	0	0	0
Angal Hospital	117	122	119	1	0	2
Arua Regional Referral Hospital	112	132	113	0	0	19
Goli HC IV	8	8	8	0	0	0
Kaabong General Hospital	7	7	7	0	0	0
Koboko Hospital	188	193	192	0	0	1
Kotido General Hospital	1	1	1	0	0	0
Kuluva Hospital	56	57	57	0	0	0
Lira Regional Referral Hospital	4	4	1	1	1	1
Moroto Regional Referral Hospital	107	127	126	0	1	0
Moyo Hospital	135	168	168	0	0	0
Mungula HC IV	6	6	6	0	0	0
Nebbi Hospital	126	137	135	0	1	1
Nyapea Hospital	117	123	118	3	0	2
Obongi HC IV	9	9	9	0	0	0
Pakwach HC IV	35	43	41	2	0	0
St. Josephs Maracha Hospital	186	193	188	4	1	0
Warr HC IV	2	4	4	0	0	0
Yumbe HC IV	10	11	11	0	0	0
Yumbe Hospital	42	44	44	0	0	0





Benefits of the innovations

The health workers in participating pilot sites reported the following:

1. Improved quality recommendations being formulated occurred. All were able to implement over 80% and the quality gradually improved with more specific actions to prevent a similar occurrence.

...even now when you read those previous recommendations before SMART-PORTAL, you just laugh! this is what the approach has helped us with." Medical Officer from St Joseph's Hospital Maracha

"Sometimes people fear to get down to the specific causes of the death and thus, get more generic recommendations- they fear to be seen as' blaming' individuals with skills gaps." midwife from Nebbi General Hospital

2. A positive change in the quality of the work following implementation of the recommendations/actions derived from the death reviews. For example, following the improved team work, they were able to do a number of things such as: organize their emergency trays better, monitor women during labor, and have medical doctors examine patients in a timelier manner.

"Also people are now no longer telling lies about circumstances of the death! They own up about the gaps in care they gave such that they come up with SMART recommendations." mid wife from Yumbe RRH

3. Improved team work and motivation among the frontline MCH health workers because, the actions from the gaps in care were specific enough to be addressed within their resources. The administrators also came on board to support implementation of the actions; this promoted team work and accountability.

4. The assigned roles were easy to follow up; all lead implementers are clearly spelt and the timeliness made it easy to track timeline of implementation.

"People now have timeframe to get things done! Unlike before!!"

5. Death notification and attendance during the MPDSR sessions greatly improved; team members were more eager to attend and receive feedback about previous actions based on the allocation. For example, number of attendees to review sessions included medical doctors and in some facilities such as Adjumani hospital, administrator and superintendent; initially, it had been largely left to midwives.

"Due to the innovations, people are now reviewing deaths! No longer reviewing "people"! Before, it was about blaming and people would actually dodge coming for reviews. Now, they actually come---its easier to mobilize for a meeting!" Comment form midwife of Yumbe RRH

- 6. Allocation of roles/actions along with specific timelines, was reported to have promoted greater accountability among the health workers; they knew that feedback needed to be provided to the team members. This cut across up to management members such as the hospital administrators.
- 7. The digital action tracker has fields that require the recommendation to have components of the mnemonic SMART-PORTAL; these features help to guide the teams ensure they formulate SMART recommendations.
- 8. The mobile phone alerts help remind health workers of pending actions.
- 9. The presence of the Dashboard within the action tracker helps facility teams to view what is happening elsewhere, including the quality of their recommendations. This helps to provide a form of accountability, competition, and motivation.



Some pictorial moments



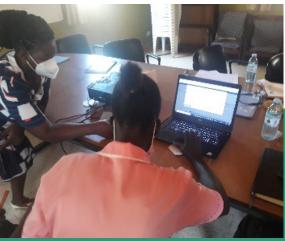
Attendance of national meetings virtually: Bwera Hospital team attending the morning weekly national MPDSR meeting. Present are UNICEF consultants mentoring the team on formulation of SMART recommendations. 17th Mar 2022.



MPDSR session at Bwera Hospital following the Thursday morning National MPDSR meeting: 17th Mar



Regional support: Obstetrician from Arua RRH, Dr Joseph Woira, conducting onsite feedback and guidance to Kuluva Hospital on maternal and perinatal death reviews.



Adjumani General Hospital: Midwife updates recommendations in their digital action tracker- the MPDSR tool



Success Story

Title: Empowering Collaboration Affordable and Innovations: Saving a Precious Life from Postpartum Hemorrhage

Key Issues: Collaboration and Coordination, the Local on Maternity and Neonatal System network-Acholi WhatsApp subregion to manage Postpartum Hemorrhage

Authors: Hellena Kasaija ², Akena Geoffrey ¹, Baifa Arwinyo ³, Judith Aloyo², Nicholas Kirirabwa², Francis Ojok², Daniel Kamya²

- 1. Kitgum General Hospital
- 2. USAID Uganda Health Activity, Acholi
- 3. Gulu Regional Referral Hospital

Headline: Uniting Forces: Beating Hemorrhage Postpartum Innovative, Low-Cost Technologies, Saving Lives Together

When 22-year-old Evelyne Akello arrived at Kitgum General Hospital, she was unconscious and had



lost a significant amount of blood. On that fateful night, Evelyne, a stay-at-home mother residing in Alima pot Ogali-Nyakidi, Pader district in the Acholi Region of Northern Uganda, woke up to breastfeed her 10-day-old third-born baby, only to discover that she was soaked in blood. "I got up and tried to make my way to the living room, but the bleeding was so heavy that I blacked out," recalls Evelyne. She regained consciousness a day later, only to find herself in the hospital.

When Duty Calls:

Dr. Geoffrey Akena, an Obstetrician and Gynecologist at the Maternity ward in Kitgum General Hospital, was at his home resting, with a plan to wake up and attend Sunday service when he received a call about an emergency at the ward. Evelyne had been admitted to Kitgum General Hospital as a referral from New Life Medical Center in Kitgum, where she had a normal delivery several days before the fateful Sunday morning of July 2023 when her husband rushed her back for help.





By the time Dr. Akena arrived at the facility, he found her still bleeding, in critical condition, cold, shivering, and had unrecordable blood pressure. He applied all his skills of managing Postpartum Hemorrhage (PPH) - PPH is excessive bleeding following childbirth. It became evident that this mother needed urgent blood transfusion.

The doctor sent one of the midwives to

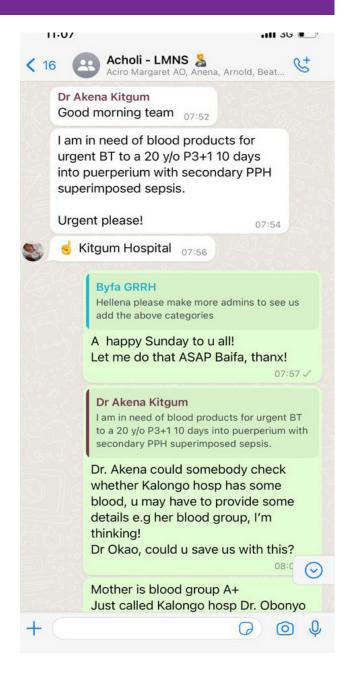
get blood from the laboratory, but she returned with bad news that they did not have any unit of blood available in the facility. Evelyne was blood group O positive (O+) which was not readily available at the time. Evelyne continued bleeding and shivering, since they had no antishock garment at the facility, they covered her with three heavy blankets. They tried to mobilize and look for blood from nearby facilities, but their efforts were in vain.

Pressed to the Wall

Determined to save the life of this young mother, Dr. Akena remembered that he had been recently added to a regional Local Maternity and Neonatal System (LMNS) WhatsApp group after attending an Essential Maternal and Newborn Clinical Care guidelines dissemination training organized by the USAID Uganda Health activity (UHA). Among the core modules covered and simulated during the dissemination of these guidelines was PPH and its management.

The regional LMNS is a Ministry of Health platform that bring together various stakeholders in the Acholi region, prompting them to utilize local data to identify gaps and come up with urgent interventions in reproductive, maternal, newborn, child, and adolescent service delivery. During his few days on this network, he had witnessed various challenges being solved. So, he decided to give it a try and posted that they urgently needed blood to save a mother with PPH at around 8 am. The quick response, collaboration, and coordination of the network members amazed him.

Within three hours of continuous coordination, the regional blood bank in Gulu confirmed availability of the required blood group. The USAID UHA, Gulu Regional Referral Hospital-Department, Maternity Regional





Blood Bank, Emergency Medical Services coordinator, and other stakeholders supported to deliver11 units of blood to Kitgum General hospital which is slightly above 100 km away from Gulu. When the bleeding was controlled, Evelyn received 2 units of blood.

A Life Saved

By the evening, the mother was seated, and indicating talking, eating, successful outcome of this collaboration that showcased the power of networking and timely intervention in saving lives. She expressed her gratitude, saying, "I am grateful for all the support the health workers provided to me in their efforts to save my life." Finally, Dr Akena remarked saying.

"I am happy that, after posting in the network, the response was very quick and good. I learned a lot that teamwork, networking, and collaboration are key, and our stocks must be checked regularly and replenished accordingly, not waiting for emergencies like this one. So, it was a good learning experience for me. Nobody wants to lose a mother; that's why we are here,"

A call to Action

In conclusion, to improve healthcare and save lives, it's crucial to take decisive actions in East Acholi. Firstly, the establishment of a blood collection and distribution center will ensure timely access to life-saving blood products, enhancing emergency response capabilities and meeting the blood demand of the region. This initiative can significantly reduce the risks associated with blood shortages during critical medical situations. However, creating a sustainable blood supply also relies on community participation. We earnestly encourage the people of East Acholi to also embrace the noble act of blood donation.

Background Information: The **USAID** Uganda Health Activity (UHA), aims to increase the survival and well-being of vulnerable populations, and improve the overall health system resilience in 67 priority districts and five cities in seven diverse subregions of the country.

"I am happy that, after posting in the network, the response was very quick and good. I learned a lot that teamwork, networking, and collaboration are key, and our stocks must be checked regularly and replenished accordingly, not waiting for emergencies like this one. So, it was a good learning experience for me. Nobody wants to lose a mother; that's why we are here," says Dr. Akena.

Appendix II: Avoidable factors for maternal deaths by region FY2022/2023

Table 18: Avoidable factors for maternal deaths by region FY2022/2023

Teso Tooro West Nile	13.5 20.1 17.4	9.1 11.7 9.9	2.9 1.3 0.7	9 1.9 0.7	2.4 0.6 1.8	11.1 5.8 5.0	4.8 3.9 3.2	3.8 4.5 2.8	9.1 13.0 6.7	6.3 5.8 4.6	7.7 5.8 7.1	6.7 5.8 7.1	7.2 9.7 14.9	3.4 3.2 5.7	4.3 1.3 4.3	
South Central	15.9 13	9.1	2.3 2.	4.5	3.4 2	2.3	2.3 4	5.7	13.6	4.5 6.	8.0 7.	5.7 6.	6.8	3.4	5.7 4	
Morth Central	18.9	14.3	3.2	4.6	1.8	4.6	3.2	7.1	8.2	8.9	6.4	5.7	7.5	2.1	2.1	
ogueJ	23.9	16.5	6.0	1.8	6.0	8.3	4.6	2.8	11.0	1.8	5.5	3.7	8.3	6.0	2.8	
izəgiX	13.3	7.2	3.6	3.6	2.4	9.6	2.4	9.6	8.4	4.8	4.8	7.2	12.0	3.6	2.4	
Karamoja	17.9	15.4	0.0	0.0	2.6	7.7	5.1	5.1	12.8	5.1	5.1	2.6	5.1	5.1	5.6	
Kampala	20.9	11.7	1.5	2.0	1.5	7.5	1.0	4.5	8.0	3.5	5.5	7.5	10.2	3.0	7.2	
Busoga	17.3	11.4	1.3	2.6	2.9	6.2	2.9	2.9	11.1	6.5	8.2	3.6	9.8	3.9	3.9	
Bunyoro	20.3	12.0	0.5	0.5	0.5	6.8	1.6	5.2	10.9	6.3	6.8	4.7	10.4	5.2	4.7	
Bukedi	25.6	12.4	0.8	2.5	0.8	7.4	4.1	9.9	11.6	8.3	6.6	2.5	3.3	4.1	1.7	
usigua	16.8	9.8	1.3	1.0	0.7	6.1	3.4	5.1	10.4	7.7	7.4	8.4	10.8	1.7	4.4	
Ankole	18.5	11.3	1.8	5.0	3.2	9.5	1.4	4.1	10.8	4.1	6.8	6.8	7.7	0.5	2.3	
ilodəA	16.0	14.0	2.7	3.3	1.3	9.3	3.3	2.0	10.0	5.3	4.0	5.3	8.7	2.0	4.0	
Avoidable factors	Delay of the woman seeking appropriate healthcare	Delay to reach HFs	Refused transfer to higher facility	Woman use of herbal medication	Refusal of treatment or admission	Lack of partner support	Lack of transport from home/community to HF	Lack of transport between health facilities	Lack of blood products, supplies & consumables	Lack of appropriate medicines for client management including Lab Supplies	Lack of other medical supplies, equipment & consumables for use in patient care	Misdiagnosis	Inappropriate intervention/ treatment / doses given	Inadequate numbers of staff	Absence of critical human resource	
			Personal/Family	Factors			Contribution	LOGISTICAL SYSTEMS		Supply Health system factors						_

Appendix III: Avoidable factors by region FY2022/2023

Table 19: Avoidable factors by region FY2022/2023-

əliNtsəW	42.1	25.2	0.1	0.0	0.0	0.1	0.0	0.0	1.5	0.0	3.5	0.0	7.6	16.6	0.0	1.9	0.0	0.0	1.5
Tooro	36.9	27.5	0.5	0.5	0.3	0.3	0.3	0.3	1.3	0.3	7.3	0.8	11.0	9.7	0.3		0.3	0.0	0.3
osəT	43.9	35.3	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.0	2.7	0.0	4.7	9.6	0.0	1.1	0.0	0.0	6.0
South Central	41.6	34.5	0.0	0.0	0.0	0.0	0.0	0.0	1:1	0.0	3.3	0:0	4.1	10.4	0.0		0.0	0.0	
Morth Central	44.5	31.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	0.0	9.8	0.0	4.0	4.8	0.0	3.3	0.0	0.0	1.1
obue7	44.6	27.8	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0	5.6	0:0	5.8	11.7	0.0	6.0	0.0	0:0	9.0
izəgiX	42.1	24.9	0.0	0.0	0.0	0.0	0.0	0.0	2.1	0.0	4.0	0:0	8.7	14.0	0.0	1.9	0.0	0.0	
Karamoja	42.1	33.9	0.0	0.0	0.0	0.3	0.3	0.3	1.4	0.0	3.0	0.0	8.9	8.5	0.0	2.7	0.0	0.0	0.8
Kampala	31.5	24.2	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	11.8	0:0	4.6	21.5	0.0	3.1	0.0	0:0	1.9
ebosng	38.8	23.0	0.0	0.0	0.0	0.0	0.0	0.0	4.5	0.0	9.2	0:0	4.7	17.2	0.0	2.1	0.0	0.0	0.5
Bunyoro	38.6	30.6	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	4.7	0:0	8.0	12.2	0.0		0.0	0.0	2.7
Bukedi	42.7	34.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	0.0	8.2	0.0	5.2	5.4	0.0	2.1	0.0	0.0	0.8
usigua	41.5	30.2	0.0	0.0	0.0	0.0	0.0	0.0	2.5	0.0	4.7	0.0	8.9	8.8	0.0	2.9	0.0	0.0	2.7
Ankole	42.7	29.6	0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.0	5.2	0.0	4.5	8.6	0.0	4.0	0.0	0:0	3.4
ilodəA	43.0	30.7	0.4	0.0	0.3	0.8	0.1	0.2	1.0	0.0	3.1	0.1	6.2	10.8	0.0		0.1	0:0	0.8
Avoidable factors	Delay to seek health care	Delay to reach the health facility	Refusal of treatment or admission	Use of herbal medication on Mother of Baby	Refused transfer to higher facility	Lack of partner support	Lack of transport from home to health facilities	Lack of transport between health facilities	Lack of resuscitation equipment(Avoidable factors)	Lack of blood products, blood supplies & consumables	Lack of appropriate medicines and drugs for client management including Lab Supplies	Lack of other appropriate medical supplies, equipment & consumables for use in Patient care	Misdiagnosis	Inappropriate intervention / treatment/ doses given	Inadequate numbers of staff	Absence of critical human resources(Avoidable factors)	Staff lack of skill/ expertise	Staff professional misconduct	Delay to provide care
			Personal/Family /	Community Factors			Suctain Suctain	בסקופנוכמו סאפנפווופ			Supply Health system factors					Personnel Health			

Appendix IV: National Annual FY2022/2023 MPDSR Report Data Set

Table 20: National Annual FY2022/2023 MPDSR Report Data Set

PDR (%)	3%	9%	%68	1%	3%	%6	20%0	28%	2%	%8	%6	74%	2%	%	78%	9%	%9	%	4%	2%	%	40%	0/0	%7Q	0% 0%	61%	38%	3%	%	2%	3%	%	%8	% <u>0</u>	%	2%	5%	44%	%	%	84%	0/0	3%	%0	1%
	╫	2	8	2	6	2	n	2	œ.		2		6		7	- S	Ĕ	0	7.	4	∞ ,	4		o l	3.	9	33	-		7	3.	0	5	\		7	2	4	7	m d	ά				2
PDR (#)	39	99	147	26	74	36	44	29	37	79	51	49	47	30	14	110	10	0	14	18	2	2	> 8	7	55	135	10	2	0	36	104	0	312	59	0	100	96	121	47	1 5) S/	0 0	26	31	45
IPMR/1000	7.4	9.4	18.5	7.7	14.0	21.3	0./1	8.3	14.9	31.9	24.0	5.0	17.0	12.1	5.8	19.6	8.4	15.5	5.3	5.1	18.3	8.7	5.5	13.7	13.8	31.7	6.8	4.5	5.2	7.7	30.7	4.7	40.0	66.3	7.2	16.9	28.3	14.5		10.1	6.4 6.4 8.6	23.0	15.1	24.9	15.1
ENND/ 1000	0.9	2.0	7.4	1.7	3.7	4.3	2.0	1.8	5.7	10.4	5.9	0.6	1.5	2.8	1.6	4.3		1.7		0.4	3.9	0.1	J. C.	V.C	5.7	9.5	0.8	0.0	0.4	1.0	9.2	0.7	17.6	22.5	9.0	4.6	8.6	1.8		2.1	11.0	2:1-		4.3	3.0
FSB/1000 Rirths	4.0	3.9	4.5	2.4	0.0	500	9.9	3.0	3.7	11.4	9.8	2.6	%3 %3	00.00	2.6	6.9	2.6	6.5	2.8	2.4	6.8	0.0	 	5.5	0	13.4	3.1	00,	2.2	3.9	9.8	1.7	10.6	23.6	4.0	7.2	6.6	7.3	12.0	3.0	7:7	0.0	5.6	11.8	5.5
MSB/1000 Rirths	2.5	3.5	6.7	3.6	4.4	9.9	V.0	3.5	5.5	10.3	9.7	1.8	 	5.6	1.6	8.5	5.1	7.3	1.7	2.3	7.7	0.0	1.7	5.4	4.0	9.1	2.9	1.8	2.6	2.9	13.2	2.2	12.2	21.2	2.6	5.2	6.6	5.5	13.0	5.0	C. 2	5	4.1	8.9	9.9
Total PD	42	117	165	51	80	130	130	20	105	432	87	99	51	61	18	303	49	22	19	38	62	123	14 5	160	125	223	26	15	2 02	48	315	19	542	615	36	134	444	272	682	74	251	5	67	312	213
Total	5690	12443	8929	6635	5701	7756	00//	6003	7033	13555	3619	13323	10437	5034	3123	15493	7597	3554	3595	7511	3387	7700	11710	16407	10497	7032	3847	3297	13416	6196	10264	4054	13565	9276	4986	7934	15694	18757	14206	7352	45/5	0000	4400	12526	14078
ENND (0-7 days)	5	25	65	11	21	7 2	<u>c</u>	17	40	138	21	∞ ;	79	14	5	65	2	9	3	3	13	0 5	0	69	0 80	65	m	m	9	9	92	3	233	199	m	36	132	33	328	15	117		16	53	42
MSR	14	43	09	24	25	91	40	21	39	140	35	24	12	28	5	131	39	26	9	17	26	24	0	20	40	64	11	9	35	18	135	6	165	197	13	41	156	103	184	37	9	5 0	27	111	93
A S	23	49	40	16	34	30	,	18	26	154	31	34	100	19	8	107	20	23	10	18	23	15	C {	14	48	94	12	9	29	24	88	7	144	219	20	57	156	136	170	22	53	, <	75	148	78
Live	5653	12351	8829	6595	5642	7633	/033	5964	8969	13261	3553	13265	10402	4987	3110	15255	7538	3505	3579	7476	3338	9514	11670	16221	10331	6874	3824	3285	13352	6154	10041	4038	13256	8860	4953	7836	15382	18518	13852	7293	10398	7306	4449	12267	13907
MDR (%)	50%	100%	83%	100%	100%	%001 100%	%001		%98	92%	75%	75%	100%	%0		87%	100%	100%	100%	100%	100%	80%	0,10	%]6	%001 %U%	100%			100%	100%	95%		106%	85%		100%	117%	100%	73%	40%	100%	0/001	125%	63%	100%
MDR (#)	-	7	2	2	9	7 -	-	-	9	77	9	m	7 4	0	0	13	7	-	3	1	7	4 0	> £	2 5	<u>C</u>	-	0	С	2	2	33	0	37	51	0	4	21	4	36	7	_ {-	2 0	2 1/1	10	4 %
MM	34.3	15.9	67.4	29.9	105.5	0./9	17.0	0.0	99.3	177.1	221.8	29.9	19.0	19.9	0:0	9.76	26.3	28.4	83.6	13.2	59.5	50.9	12.3	74.1	89.2	99.1	0.0	0.0	14.9	32.5	367.0	0.0	257.5	653.1	0:0	50.2	119.1	21.5	343.9	67.3	21.9		89.3	127.7	28.5
Maternal	2	2	9	2	9	7	-	0	7	24	80	4	7 8) (0	15	2	1	3	1	2	0 -			<u>ה</u> ת	6	0	С	2	2	36	0	35	09	0	4	18	4	49	. 5	_ (-	2 6	0 4	.10	۲ %
Deliveries	5836	12589	8899	6693	5688	7887	779/	5994	7051	13549	3607	13380	10510	5032	3120	15365	7614	3522	3588	7549	3364	9814	3130	1693	10465	7062	3847	3318	13411	6162	8086	4040	13591	9187	4969	7961	15113	18627	14248	7429	4568	7,40	4478	12531	14040
tiatio	Abim District	Adjumani District	Agago District	Alebtong District	Amolatar District	Amudat District	Amuria District	Amuru District	Apac District	Arua City	Arua District	Budaka District	Bududa District	Bugweri District	Buhweju District	Buikwe District	Bukedea District	Bukomansimbi District	Bukwo District	Bulambuli District	Buliisa District	Bundibugyo District	Bunyangabu District	Busnenyi District	Busia District	Butambala District	Butebo District	Buyuma District	Buyende District	Dokolo District	Fort Portal City	Gomba District	Gulu City	Hoima City	Hoima District	Ibanda District	Iganga District	Isingiro District	Jinja City	Jinja District	Kaabong District	Nabale District	Kaberamaido District	Kagadi District	Kakumiro District

9	5																																													
PDR (%)	7%	16%	1%	%0Z	24%	%17	41%	2%	10%	14%	%0	29%	02%0	74%	%01 %00	%09C	40%	<u>826</u>	48%	63 %	%0	<mark>%88</mark>	81%	44%	33%	73%	%89	36%	10%	35%	43%	%89	94%	%9	%47 %97	%U	27%	39%	21%	87%	%9	<u>%29</u>	%0	39%	41%	73%
PDR (#)	3	16	-	2407	81	159	51	-	2	74	0 !	165	00 1	25	200	0 (2 σ	29	106	102	0	193	145	17	24	105	57	ט ע	- α	103	78	29	302	2	73	5 0	43	30	6	128	36	9	- i	74	702	309
IPMR/ 1000	30.5	15.3	15.3		17.9	9.0	21.3	6.9	11.2	15.2	14.3	21.9	0.01	7.5	72.2	3.0	19.0	3.5	19.6	14.2	5.0	26.1	20.3	2.0	11.1	15.2	13.0	4.3	17.1	17.5	18.2	14.5	26.6	6.9	18.0	116	35.4	14.5	4.7	24.9	45,4	4.5	21.8	14.5	58.0	27.8
ENND/ 1000 Live Births	13.0	6.0	2.3		3.2	5.5 7.9	4.6	1.6	3.8	4.8	1.3	5.9	0,4	0.7	7.3	0.0		0.7	6.0	2.7	0.4	6.9	8.5		3.2	4.2	2.3	0.3	1.0	2.7	3.4	4.4	3.1	0.4	7.0	1.0	193	2.9				1.0	2.8	2.9	1.7	2.3
FSB/1000 Births	8.5	8.0	5.7	8.8	7.5	4.1	9.5	2.9	4.8	5.7	5.6	6.7	6:7	4.9	10.1	10.1	11 6	1.7	5.4		1.0	8.0	6.3	2.6	6.5	4.7		7.7	4.1	67	7.5	2.0	11.8	3.0	6:/ 6: 4	1 7	16.2	4.8	00.	5.6	14.1	1.0	8.6	6.2	16	11.4
MSB/1000 Births	9.2	6.4	7.3	11.2	7.2	7.7	7.3	2.3	2.7	4.8	7.5	9.4	0.0	2.4	0.0	†. ¢	5.4	1.0	8.2	6.5	3.5	11.3	5.6	1.7	1.4	6.4	4.9	/	5.7	200	7.4	5.2	11.8	3.4	× ×	4.6	7.2	6.9	2.8	7.5	11.3	2.5	10.5	5.5	9.7	14.2
Total PD	43	103	132	3436	342	183	123	21	21	515	146	161	200	34	180	38	241	30	219	163	24	219	178	39	73	143	84	52	102	791	180	87	321	34	303	88	167	76	43	147	576	6	217	188	045 54	423
Total	1410	6723	8628	89845	19104	8430	5772	3061	1869	33837	10176	7367	00001	4536	0/10	0660	17688	8582	11193	11454	4846	8398	8790	7729	6578	9407	6466	2800	10201	16626	9894	2996	12081	4937	72103	7616	4578	5251	9232	5898	12701	2000	9943	12959	0547	15230
ENND (0-7 davs)	18	9	20	1639	61	44	26	5	7	160	13	43	90,	- ;	44	⁴ د	75	9	99	31	2	57	74	9	21	39	15	7 ,	2 2	43	33	26	37	7,	10	2 7	- 5	15	0	70	253	2	27	37	13 44	34
MSB	13	43	63	1008	137	67 69	42	7	5	161	76	69	ţ;		55	700	69	6	92	74	17	95	46	13	6	9	32	2 2	67	136	73	31	142	17	135	35	3 6	36	26	4	144	5	104	7.1	354	216
FSB	12	54	49	789	144	55	55	6	6	194	57	110	2 8	22	- X	1, 0,	147	15	61	28	5	- 67	22	20	43	44	37	2 (23	117	74	30	142	15	39	30	74	25	17	33	179	2	98	80	797	173
Live	1385	6626	8516	88048	18823	8313	5675	3045	1855	33482	10043	7249	13004	4503	6040	9200	17477	8558	11040	11322	4824	8236	8686	7696	6526	9303	6397	5///	18737	16378	9747	5935	11797	4905	71844	7542	4471	5190	9189	5821	12378	1993	9753	12808	9506	14841
MDR (%)	100%	100%	%29	%86	94%	30% 100%	100%			71%	43%	100%	0,56	/00	1250%	100%	33%	100%	113%	83%		108%	100%	100%		100%	%0	%0	20% 0%	%60	200%	100%	138%		%001 %2%	220	117%	200%			72%	100%	%0	82%	%CK	102%
MDR (#)	-	-	2	177	16	- -	, 9	0	0	22	ω,	9	/7	0	0 4	- ا	-	- 2	6	10	0	14	9	-	0	7	0	۰ ر	-	0 ^	7 7	2	18	0	- o	/-	-	4	0	0	28	1	0	6	26	47
MMR	71.5	14.9	35.0	204.8	88.3	85.0	103.6	0:0	0.0	8.06	68.2	78.6	7.007	0.0	33.2	10.3	24.0	23.4	71.6	105.8	0.0	156.3	6.79	12.7	0.0	75.0	15.8	7.7	30.1	49.2	10.2	33.0	108.4	0.0	20.3 50.8	00	1303	38.4	0.0	0.0	306.5	50.1	80.0	83.1	10.3	301.2
Maternal	-	-	3	180	17	7 /	, 9	0	0	31	7	9	67	0	7 <	t -	- ~	5 2	8	12	0	13	9	-	0	7	.	– c	7 0	۷ ۲		2	13	0	- ;	<u> </u>	9	2	0	0	39	1	8 ;	11	76	46
Deliveries	1398	6708	8569	87879	19252	8237	5792	3102	2144	34151	10263	7636	13920	4516	6027	0000	17573	8565	11167	11343	4807	8318	8840	7883	6645	9333	6323	5813	18200	17011	9837	6909	11991	4945	4926 21656	26212	4536	5212	9252	5891	12723	1997	6666	13245	1/01/	15270
District	Kalangala District	Kaliro District	Kalungu District	Kampala District	Kamuli District	Kanımanı District	Kapchorwa District	Kapelebyong District	Karenga District	Kasese District	Kassanda District	Katakwi District	Kayunga District	Kazo District	Kibaale District	Kibuku District	Kikuube District	Kiruhura District	Kiryandongo District	Kisoro District	Kitagwenda District	Kitgum District	Koboko District	Kole District	Kotido District	Kumi District	Kwania District	Kween District	Kyankwanzi District	Kveniojo District	Kyotera District	Lámwo District	Lira City	Lira District	Luuka District	I wendo District	I vantonde District	Madi-Okollo District	Manafwa District	Maracha District	Masaka City	Masaka District	Masindi District	Mayuge District	Mbale District	Mbarara City

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PDR (%)	%98	%0	13%	62%	46%	%5	22%	23%	%08	47%	%6	%0	%0	%6	%08	72%	89%	%87	93%	%1/	%cq	29%0	0,000	%/0	%69	108%	26%	17%	85%	%09	94%	83%	37%	%51	62%	%86	92%	125%	39%	0/1/7	35%	11%	0/00	43%
PDR (#)	38	0	36	57	36	9	106	29	12	17	18	0	0	4	44	61	727	30	28	97,	4/	0 20	000	230	43	79	135	14	17	28	17	137	/	\	26	201	48	243	22	33	73	80	140	10854
IPMR/ 1000	11.5	3.9	22.0	29.3	18.9	12.6		11.8	6.2	13.4	24.9	19.9	11.4	3.6	9.3	16.6	23.0	20.3	0.01	17.0	6.71	10.0	110	216	11.2	11.2	21.4	9.8	3.0	13.8	6.2	11.9	5.0	 8	7.6	6.11	4.5	24.4	10.4	15.9	10.5	13.4	10.4	17.8
ENND/ 1000 Live Births	2.6	0.7	3.4	10.4	6.5	2.4	0.9	2.3		3.4	3.3	2.6	1.4	0.3	1.9		0.0	8.9	4.9	<u> </u>	/:/	4.2	C.2	10.9	1.6	3.3			6.0		0.3	4.2	0.3	1.7	1.4	2.4		2.8	2.4	2.2	2.2	7.5	7.7	4.9
FSB/1000 Rirths	5.2	1.1	11.6	10.8	5.6			4.1	2.9	6.7	10.9	8.1	4.7	1.4	3.6	6.2	6.7	4.X	6.1	4.0	5.7	4.7	0.1	5.0	6.1	2.5	7.2	3.9	1.3	9.1	3.1	2.2	00.	2.9	2.5	3.1	2.3	10.7	5.2	5.1	4.6	5.6	4.0	6.4
MSB/1000 Births	3.6	2.1	7.1	8.3	6.9	6.4	10.4	5.4		3.3	10.9	9.2	5.3	1.9	3.9	4.9	10.3	6.7	5.7	χ. 10,00	6.7	5.7	7.5	2.3	3.4	5.5	9.8	5.0	0.7	4.1	2.8		2.9	5.5	ω, (γ	6.4	1.5	10.9	2.8	5.7	ω, Υ	6.4	4.9	6.5
Total PD	44	22	283	92	74	125	492	286	15	36	211	142	83	44	55	85	784	60.	41	1//	113	40	200	318	62	73	228	83	20	47	18	165	19	48	91	601	52	194	26	171	210	746	165	25199
Total	3839	5628	12890	3140	3922	9915	15155	24209	2431	7897	8479	7143	7309	12302	2908	5133	12332	5370	2464	18332	1059	2020	27.40	14708	5538	6507	10634	8454	6899	3407	2898	13905	3823	2920	11904	8/16	11649	7956	5362	7610	19992	55477	19999	1413757
ENND (0-7 davs)	10	4	43	32	25	24	88	55	4	6	27	18	10	4	=	28	90	/4/	71	34	84,	0 0	2 0	159	6	21	09	8	9	2	-	58	- ;	01	16	77	∞	22	<u>2</u> 2	39	43	2 2	25	6875
MSB	14	12	91	56	27	63	157	131	4	6	92	99	39	23	23	25	/7	30	4 (69	47	4 5	11	- 22	19	36	91	42	5	14	8	9/	-	7.	45	59	1	87	5	43	76	353	77	9247
FSB	200	9	149	34	22	38	247	100	7	18	92	28	34	17	21	32	76	7,0	2	44	57	7 20	70	2 6	34	16	77	33	6	31	6	31	7	-	200	87	27	88	78	39	91	309	2 5	9077
Live	3805	5610	12650	3080	3873	9814	14751	23978	2420	7660	8295	7019	7236	12262	5864	5076	12108	5308	2435	18189	0230	2397	2200	3200 14549	5485	6455	10466	8379	5/99	3362	2881	13798	3805	2885	11829	1.606	11605	7784	5319	7528	19825	54815	11061	1395433
MDR (%)	100%	100%	100%	100%	100%	%89	53%	167%	100%		%08	20%	%05	100%	100%	100%	11100	%111	%001	%00I	20%	100%	100%	%C6	%29	100%	100%	%29		20%		100%	100%	%00L	125%	%5/	100%	87%	25%	100%	100%	%9 5	107%	%/OI 86%
MDR (#)	-	_	16	4	4	2	17	2	_	0	4	1	_	2	_	7	<u>α</u>	2	٠,	2	- -	-	7 -	- =	7	4	4	2	0	1	0	6	-	-	ا ک	η,	-	70	_	7 5	17	000	0 4	1137
MM	26.0	17.8	122.7	126.3	101.2	9.62	213.0	12.4	43.5	0.0	59.3	28.1	27.6	16.1	16.7	39.3	147.0	109.8	701.7	71:0	51.9	0.12	24.2	81.0	54.3	61.5	37.7	35.8	0.0	29.0	0.0	65.1	25.8	16.9	33.6	43.4	8.5	284.9	74.5	26.3	84.1	28.9	20.0	90.3
Maternal	-	_	16	4	4	_∞	32	3	1	0	2	2	2	2	_	7	<u>∞</u>	ז ע	ئ ک	<u>~</u>	7 -	- (7 -	-12	! m	4	4	3	0	2	0	6	.	_	4	4,	-	23	4 (7,	17	16	2 5	1276
Deliveries	3850	5622	13037	3168	3954	10053	15027	24177	2301	2774	8429	7117	7248	12412	2986	5094	12195	5301	24/9	18306	62/4	2022	2242	14873	5523	6209	10618	8387	8899	3391	2894	13830	3883	5916	11913	7776	11803	8072	5369	809/	20220	55269	0666	1412842
District	Mbarara District	Mitooma District	Mityana District	Moroto District	Moyo District	Mpigi District	Mubende District	Mukono District	Nabilatuk District	Nakapiripirit District	Nakaseke District	Nakasongola District	Namayingo District	Namisindwa District	Namutumba District	Napak District	Nebbi District	Ngora District	Ntoroko District	Ntungamo District	Nwoya District	Oborigi District	Olliolo District	Oldke District	Pader District	Pakwach District	Pallisa District	Rakai District	Rubanda District	Rubirizi District	Rukiga District	Rukungiri District	Rwampara District	Sembabule District	Serere District	Sheema District	Sironko District	Soroti City	Soroti District	lerego District	Tororo District	Wakiso District	Tumbe District	Grand Total

