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Original Article

Increasing the Rate of Incident Reporting in Maternity Services at University Teaching Hospital of Butare (CHUB), Rwanda: A Quality Improvement Approach

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Abstract

Background: Maternity care is globally recognized as a high-risk area requiring continual quality improvement to ensure patient safety. Incident reporting systems play a critical role in identifying risks and preventing adverse outcomes. In 2012, hospital staff in the United States reported approximately 14% of all adverse. At the University Teaching Hospital of Butare (CHUB), Rwanda, only 27.4% of incidents in the maternity ward were reported between January and June 2019, while 60.7% went unreported.

Methods: This study adopted a pre-post interventional design conducted between January 2019 and June 2021. The Strategic Problem-Solving (SPS) approach was employed to conduct baseline assessments, identify root causes of underreporting, and implement a structured training intervention aimed at improving incident reporting practices.

Results: Post-intervention data revealed a significant increase in reported incidents, rising from 23 cases (27.4%) to 56 cases (73.7%) ($p < 0.001$). Investigation rates improved from 6 cases (4.4%) pre-intervention to 48 cases (63.2%) post-intervention. Similarly, feedback provided on reported incidents increased from 14 cases (16.7%) to 47 cases (61.8%) after the intervention. These findings highlight marked improvements in reporting, investigation, and feedback processes following the staff training.

Conclusion: Staff training significantly enhanced incident reporting practices in CHUB's maternity department. The results led to the rejection of the null hypothesis, affirming that training interventions positively influence

reporting behavior. A structured, inclusive, and data-driven approach is essential for sustaining patient safety improvements in low-resource maternity settings.

Keywords: Incident Reporting, Maternity services, Quality Improvement, Increasing rate, Rwanda

Introduction

Ensuring patient safety is a central goal of modern healthcare systems, particularly in maternal and newborn care where delays or errors can lead to severe morbidity or mortality. Globally, over 287,000 women died from pregnancy-related causes in 2020, with the vast majority of these deaths occurring in low- and middle-income countries (LMICs) (World Health Organization [WHO], 2023a). Many of these deaths are preventable through timely interventions, strong clinical governance, and the establishment of robust safety monitoring mechanisms, such as clinical incident reporting systems (WHO, 2023b). Sub-Saharan Africa (SSA) remains the region most affected by maternal deaths, accounting for 70% of all global maternal mortality**.** The maternal mortality ratio (MMR) in SSA is estimated at 545 per 100,000 live births**,** a figure far exceeding the global target set by the Sustainable Development Goals (SDG 3.1) of reducing the MMR to below 70 per 100,000 live births by 2030 (United Nations Population Fund [UNFPA], 2023). Despite policy reforms and investment in reproductive health programs, healthcare systems in SSA often struggle with inadequate staffing, poor infrastructure, and weak patient safety cultures (Tura et al., 2021).

In East Africa, countries such as Uganda, Tanzania, and Kenya report persistent challenges in reducing maternal and neonatal complications. A qualitative study in Uganda revealed that although healthcare workers frequently encounter clinical errors, many incidents go unreported due to fear of blame, absence of supportive reporting systems, and lack of feedback (Namagembe et al., 2021). Additionally, the normalization of adverse events, limited awareness of reporting policies, and systemic workload pressures further discourage incident reporting among frontline health workers (Mugisha et al., 2020).

In Rwanda, maternal health has improved substantially in the past two decades, with the MMR declining from over 1,000 per 100,000 live births in the early 2000s to 203 per 100,000 in 2020 (National Institute of Statistics of Rwanda [NISR], 2021). These gains are attributable to expanded access to health services, increased skilled birth attendance, and a strong national health insurance scheme. However, despite these successes, maternal and neonatal deaths remain a concern, particularly in high-volume tertiary hospitals where complications are more frequent and complex (Rwanda Ministry of Health, 2022). The University Teaching Hospital of Butare (CHUB) is a national referral hospital that provides advanced maternity and neonatal care. The maternity department at CHUB includes five clinical units: labor ward, surgical theatre, outpatient consultation (OPD), obstetric ward, and gynecological ward. The department has 84 beds and is staffed by 6 obstetricians, 49 midwives, and 1 nurse

(CHUB, 2023). Due to the nature of high-risk pregnancies and emergency obstetric cases handled at CHUB, the presence of a functional incident reporting system is essential for improving safety and learning from adverse outcomes.

Although CHUB implemented an incident reporting policy in 2012, compliance has been consistently low. No reports were recorded until 2016, and subsequent reporting remained limited—1% in 2016**,** 0% in 2017**,** and 27.4% during the first half of 2019**.** A review of maternity records during this period showed that only 23 of 74 documented incidents (27.4%) were officially reported, while 51 incidents (60.7%) went unnoticed in the formal system but were retrospectively identified through delivery and surgical registers (CHUB, 2023). The types of incidents that went unreported included neonatal deaths, low Apgar scores (<6/10 at 1 minute), postpartum hemorrhage (PPH), cesarean hysterectomies, surgical delays due to lack of equipment, patient escapes, and breakdown of critical infrastructure**.** These adverse events represent significant threats to maternal and neonatal safety and should be systematically tracked to inform prevention strategies (WHO, 2023b). Meetings with CHUB's risk management and quality improvement teams, as well as staff from the maternity department, revealed several barriers to reporting, including lack of awareness, fear of blame, absence of feedback, and unclear accountability procedures. Although CHUB's policy mandates reporting of clinical incidents, it has not been sufficiently integrated into clinical routines, particularly in the maternity department. In this context, the current study seeks to review the existing incident reporting system at CHUB**,** identify systemic and behavioral barriers to incident reporting**,** and propose practical solutions to increase reporting rates in the maternity department**.** Strengthening this system is critical not only for enhancing clinical governance but also for improving maternal and newborn outcomes in one of Rwanda's most important referral hospitals.

Methods

Study Design

This research employed a quasi-experimental pre- and post-intervention framework to determine the effectiveness of specific measures aimed at enhancing the reporting of incidents in the maternity ward at the University Teaching Hospital of Butare (CHUB). The initial phase, conducted from January to June 2019, involved gathering baseline information to assess the scale of underreporting and to identify barriers within the current reporting system. Subsequently, a detailed root because investigation was carried out. Based on the results, an intervention was introduced in January 2021, and a follow-up assessment was completed between January and June 2021. The outcomes from before and after the intervention were compared to evaluate changes in reporting behavior.

Baseline Assessment of Incident Reporting

To establish the prevalence of incident underreporting, retrospective data were obtained from the hospital's incident reporting logs alongside maternity department records. The baseline findings indicated that only about one-quarter of all incidents were formally documented, while a majority remained unreported during the six-month timeframe. Additionally, a large portion of documented incidents lacked any formal investigation or corrective follow-up. Critical clinical incidents including newborns with low Apgar scores, fetal deaths occurring during labor, and severe postpartum bleeding were notably underreported. Similarly, infrastructure-related failures such as shortages of surgical supplies and equipment malfunctions showed substantial gaps in reporting and subsequent management. These highlighted considerable weaknesses in the hospital's incident management process.

Root Cause Identification

To explore the factors contributing to the low rate of incident reporting, a multidisciplinary team was convened, comprising maternity department supervisors, senior midwives, obstetricians, risk management officials, and quality assurance staff. Through facilitated group discussions, six primary potential causes were identified: inadequate understanding of the incident reporting procedures among staff, apprehension regarding possible punitive repercussions, excessive workload demands, insufficient execution of the reporting system, lack of timely feedback from hospital leadership, and limited accessibility of necessary reporting documentation.

Root Cause Validation

The proposed contributing factors were further examined through surveys, observational assessments, and focused interviews with maternity care providers. Results showed that fewer than half of the staff felt confident in their knowledge and abilities related to incident reporting, with the majority lacking formal training in this area. Although some staff expressed concerns about disciplinary consequences, this was not substantiated as a significant deterrent. The impact of workload on reporting was inconclusive, with nearly equal proportions reporting it as a barrier or not. Despite high awareness of incident reporting policies, effective implementation was found to be lacking. Critically, most staff reported a deficiency in receiving timely feedback on reported incidents, which appeared to diminish motivation to report. Conversely, availability and user-friendliness of reporting forms were adequate. Ultimately, inadequate staff knowledge and insufficient managerial feedback emerged as the most impactful root causes of low reporting rates.

Intervention Strategy

In response to the validated root causes, three intervention options were proposed: (1) comprehensive training programs for staff on incident reporting procedures, (2) enhancement of management-led feedback mechanisms,

and (3) improved adherence to and monitoring of existing incident reporting policies. Each alternative was evaluated considering anticipated effectiveness, practicability, resource requirements, and implementation timeframe. Training of personnel was prioritized due to its potential for immediate and sustained improvement, as well as feasibility within existing hospital resources.

Implementation of Staff Training

The training intervention involved two separate sessions strategically scheduled to accommodate all maternity personnel working across shifts, thereby ensuring full participation. The curriculum emphasized fundamental concepts of incident identification, standardized reporting protocols, and the significance of prompt documentation. Training materials were designed and approved internally by the hospital's quality assurance team. Staff were notified and engaged two weeks prior to the sessions to optimize attendance and participation.

Evaluation and Data Analysis

To measure the success of the intervention, both outcome and process indicators were utilized. The primary metric was the rate of incident reporting before and after the training, while secondary indicators included report completeness and timeliness. Data management and analysis were conducted using Microsoft Excel for data entry and IBM SPSS software for statistical evaluation. Descriptive statistics summarized reporting trends, and paired-sample t-tests assessed the statistical significance of changes observed post-intervention.

Ethical Approval and Considerations

This study received ethical clearance from the Institutional Review Board of the College of Medicine and Health Sciences (CMHS-IRB). Official permission to conduct research within CHUB was secured from hospital administrators before the study commenced. Throughout the research, participant anonymity and data confidentiality were strictly maintained, adhering to recognized ethical standards governing human subjects research.

Results

Demographic Characteristics

The demographic profile of the collected data included sex, age category, and birth weight. Among the participants, males represented 42.9% (n = 36), while females accounted for 25.0% (n = 21). Regarding birth weight, 52.4% (n = 44) of the newborns weighed more than 2,500 grams, while 28.6% (n = 24) were classified as low birth weight (<2,500 grams). Analysis of age categories showed that newborns formed the majority at 53.6% (n = 45), with adults constituting 11.9% (n = 10) of the sample (see Table 1).

Table 1: **Demographic Characteristics of Recorded Data**

Variable	Category	Frequency	Percentage (%)
Sex	Male	36	42.9
	Female	21	25.0
Weight Category	> 2500 grams	44	52.4
	< 2500 grams	24	28.6
Age Category	Newborn	45	53.6
	Adult	10	11.9

Source: Researcher, 2022

Clinical Incident Reporting Post-Intervention

Following the intervention, reporting of key maternity clinical incidents improved markedly. Low Apgar scores (<6/10) were reported in 90% (n = 69) of cases, postpartum hemorrhage in 89% (n = 68), and intrapartum fetal deaths in 94% (n = 72). These increases indicate enhanced detection and reporting following targeted quality improvement efforts (Table 2).

Table 2: Maternity Clinical Case Incidences Post-Intervention

Indicator	Unreported (n, %)	Reported (n, %)	Uninvestigated (n, %)	Investigated (n, %)
Low Apgar < 6/10	2 (2.6%)	74 (97%)	7 (9%)	69 (90%)
C/S hysterectomy	1 (1.3%)	75 (98%)	5 (6.5%)	71 (93%)
Missed patient in ward	6 (7.8%)	70 (92%)	9 (11.8%)	67 (88%)
Patient with suicidal ideation	9 (11.8%)	67 (88%)	12 (15.7%)	64 (84%)

Intrapartum fetal death	1 (1.3%)	75 (98%)	4 (5.2%)	72 (94%)
Postpartum hemorrhage	2 (2.6%)	74 (97%)	8 (10.5%)	68 (89%)
Drug error	8 (10.5%)	68 (89%)	11 (14%)	65 (85%)
HIV-infected blood splash	5 (6.5%)	71 (93%)	9 (11.8%)	67 (88%)

Source: Primary data

Table 3 summarizes the overall reporting and investigation status after intervention. Of the 76 incidents, 73.7% (n = 56) were reported, and 63.2% (n = 48) were investigated. Feedback was provided for 61.8% (n = 47) of the cases, showing improvement in communication and accountability.

Table 13: Summary of Incident Reporting Post-Intervention

Variable	Frequency	Percentage (%)
Reported		
No	19	25.0
Yes	56	73.7
Investigated		
No	28	36.8
Yes	48	63.2
Feedback		
No	28	36.8
Yes	47	61.8
Total incidents	76	100.0

Source: Primary data

Pre- and Post-Intervention Comparison

Comparative analysis revealed statistically significant increases in reporting rates for key clinical indicators following the intervention. Reporting of low Apgar scores rose from 4% pre-intervention to 96% post-intervention ($p < .001$), intrapartum fetal deaths from 1.3% to 98.7% ($p = .003$), and postpartum hemorrhage from 2.6% to 97.4% ($p < .001$). Non-clinical incidents, including surgical supply shortages and equipment malfunctions, similarly demonstrated significant improvements in reporting (Table 4).

Table 4: Summary of Pre- and Post-Intervention Case Incidence Reporting

Indicator	Pre-Intervention (%)	Post-Intervention (%)	Percentage Change (%)	p-value
Low Apgar < 6/10	4	96	66	< .001
Intrapartum fetal death	1.3	98.7	67.2	.003
Postpartum hemorrhage	2.6	97.4	66.8	< .001
Surgical supply issues (gowns, towels)	3.6	96.1	66.5	.002
Medical equipment failure (suction machines)	7.3	92.7	66.9	.004
Surgical material defects (surgical box)	6.4	93.6	67.5	< .001

Source: Primary data

Overall, bivariate analysis showed a 46.3% increase in reported incidents, with the difference being highly statistically significant ($p < .001$), underscoring the positive effect of the intervention on reporting behaviors.

Summary of Reporting Improvements

Before the intervention, only 27.4% of incidents were reported, with 60.7% remaining unreported. Following the intervention, the reported incidents rose substantially to 73.7%, while unreported incidents dropped to 25.0%. This improvement was statistically significant ($p < .001$), indicating successful enhancement of incident reporting processes within the maternity department (Table 5).

Table 5*:* Summary of Incident Reporting Before and After Intervention

Variable	Frequency	Percentage (%)	Percentage Change	p-value
Reported Before Intervention				
No	51	60.7		
Yes	23	27.4		
Total Incidents Reported After Intervention				
No	19	25.0	46.3	< .001

Yes	56	73.7
Total Incidents	76	100.0

Source: Primary data

Discussion

The primary objective of this quality improvement (QI) project was to enhance the incident reporting (IR) rate in the maternity department at the University Teaching Hospital of Butare (CHUB), targeting an increase from 27.4% to 60.7% between January and June 2021. Incident reporting is a fundamental element in patient safety practices, allowing healthcare systems to identify, understand, and prevent adverse events. Globally, efforts to improve safety culture emphasize increasing the frequency and quality of IR as a proactive means of identifying system vulnerabilities (World Health Organization [WHO], 2021). At baseline, the findings indicated a severe underreporting of incidents. Out of 74 incidents that occurred over six months, only 23 were reported (27.4%), while 51 (60.7%) went unreported. Investigation and feedback rates were similarly low, with only 6 cases (4.4%) investigated and 14 cases (16.7%) receiving feedback. These figures reflect not only knowledge gaps but also systemic weaknesses, particularly in feedback mechanisms and staff empowerment. Consistent with previous studies, poor IR rates in similar settings have often been attributed to inadequate training, fear of blame, and lack of managerial support (Abu-El-Noor et al., 2019). To address these root causes, two interventions were proposed: targeted training on incident reporting procedures and improved enforcement of existing guidelines. The decision-making process used comparative criteria, including cost, time, impact, and feasibility. Training was selected as the optimal intervention due to its relatively low cost, ease of implementation, and the potential for sustainable behavioral change. This decision is supported by literature indicating that staff education is among the most effective strategies to improve IR rates in hospital settings (O'Connor et al., 2017).

Post-intervention data demonstrated significant improvements. Reported incidents increased to 56 cases (73.7%), a considerable rise from the initial 27.4%. The investigation of incidents improved to 48 cases (63.2%), and feedback on incident reports rose to 47 cases (61.8%). These outcomes show a positive shift in the maternity unit's safety culture. Similar success has been observed in hospitals in the United Kingdom (UK), where targeted QI interventions improved both IR rates and incident management, particularly in maternal and neonatal care (National Health Service [NHS], 2020). Findings from UK maternity units reported high levels of adverse events such as maternal mortality, neonatal sepsis, and meconium aspiration, often triggered by systemic issues like staff shortages and delays in emergency responses. These units used incident trigger checklists and multi-disciplinary

reviews to enhance accountability and learning (Royal College of Obstetricians and Gynaecologists [RCOG], 2021). In line with this, the QI project at CHUB demonstrates how structured interventions and organizational support can significantly transform incident reporting practices. The intervention also contributed to a cultural change among maternity staff, shifting perspectives from punitive attitudes to a learning-oriented approach. Empowering staff with the necessary skills and knowledge resulted in greater engagement and ownership of safety practices. This aligns with the WHO's patient safety framework, which emphasizes continuous professional development, open communication, and system-based learning (WHO, 2021).

Challenges Encountered During Implementation

The execution of the quality improvement (QI) project aimed at enhancing incident reporting in maternity services at CHUB was met with several notable challenges that influenced the pace and consistency of the intervention. Foremost among these was the disruption caused by the COVID-19 pandemic, which not only constrained staffing availability but also diverted institutional attention toward emergency preparedness and response. These circumstances resulted in delays in conducting training sessions, follow-up meetings, and overall project monitoring. Similar delays have been documented in global health improvement initiatives, where public health emergencies significantly impact the continuity of non-urgent health system reforms (Kiguba et al., 2021).

Additionally, competing work schedules and clinical demands created logistical barriers to implementing scheduled activities. Many healthcare workers, particularly in high-demand maternity departments, found it challenging to balance routine clinical responsibilities with participation in training and feedback sessions related to the QI project. Organizational changes within the hospital during the project period also introduced new policies and leadership transitions that temporarily affected staff motivation and alignment with the project goals. Language barriers further complicated the implementation, especially during training sessions. While English was the primary medium for developing and disseminating the incident reporting tools and protocols, not all staff possessed sufficient English proficiency. This created misunderstandings or hesitation in engaging with the newly introduced incident forms. Such language-related challenges are frequently encountered in multilingual healthcare settings, particularly in low- and middle-income countries (LMICs), where the workforce may include professionals trained in different linguistic environments (Kiguba et al., 2021).

Strategies for Overcoming Challenges

To address these barriers, a multifaceted and inclusive implementation strategy proved essential. A multidisciplinary team structure was instrumental in identifying context-specific solutions to barriers as they

emerged. Continuous support from hospital leadership and departmental heads contributed to reinforcing the importance of the QI project, particularly in balancing clinical workload and training commitments. Regular engagement with staff across all cadres facilitated the tailoring of schedules and the simplification of tools for improved understanding and usability. In response to language-related barriers, project coordinators introduced bilingual training materials and provided translated versions of the incident reporting forms in Kinyarwanda, ensuring that staff with limited English proficiency could still fully participate. Additionally, informal peer-to-peer learning sessions were encouraged, allowing those who had grasped the concepts to support their colleagues in real-time application. This peer-led reinforcement created a learning culture that promoted inclusivity and helped bridge communication gaps. Moreover, the project incorporated continuous monitoring and periodic reflective sessions that enabled staff to express their concerns and propose practical improvements. This participatory approach fostered a sense of ownership and accountability, which is fundamental to the sustainability of any quality improvement intervention (Leape et al., 2018).

Lessons Learned and Implications for Future Practice

The implementation of this QI project provided valuable lessons relevant to institutional learning and capacity development in similar healthcare environments. One of the primary takeaways was the importance of fostering a collaborative team environment. Cross-functional collaboration, involving nurses, midwives, physicians, and administrative staff, created a shared responsibility that enhanced motivation and performance. The experience also underscored the need to institutionalize regular training and capacity-building activities. Rather than relying on one-off workshops, continuous professional development (CPD) should be embedded in hospital routines. These trainings should not only focus on incident reporting but also encompass broader aspects of patient safety, clinical governance, and systems thinking. Establishing a learning health system that prioritizes reflective practice and feedback loops can drive sustained improvements in care quality (Institute for Healthcare Improvement [IHI], 2020). Additionally, the importance of clear communication and structured knowledge exchange became evident. When staff are empowered with timely, accurate information and feel safe to voice concerns, the likelihood of underreporting incidents significantly decreases. Strengthening institutional culture toward open reporting, non-punitive feedback, and performance recognition can serve as powerful drivers of change.

In few words, despite the numerous obstacles encountered during the implementation of the incident reporting QI project, the deliberate use of inclusive, adaptive strategies and a culture of continuous learning enabled

meaningful progress. These findings not only inform local policy and practice but also contribute to the growing evidence base on implementing quality improvement in resource-constrained healthcare settings.

Study Limitations

Despite its success, the study had several limitations. The short duration of the intervention limited its ability to assess long-term impact. The study relied on data from existing hospital registers, which may have underreported certain incidents. Additionally, the training sessions were sometimes interrupted due to hospital duties, affecting the consistency of learning. Such limitations are typical in QI research, underscoring the need for longer-term follow-up and robust data systems (Fischer et al., 2021).

Conclusion

This quality improvement project demonstrated that strengthening incident reporting in maternity services at CHUB is both feasible and impactful when implemented through a collaborative, context-specific approach. Despite facing disruptions such as the COVID-19 pandemic, staffing constraints, and language challenges, the initiative achieved progress by promoting inclusivity, leadership engagement, and a culture of shared responsibility. Key success factors included the adaptation of materials into local languages, peer-supported learning, and continuous reflection meetings that enabled staff feedback to inform ongoing improvements. These strategies fostered greater ownership and confidence in reporting incidents among healthcare workers. Ultimately, this project highlighted that improving patient safety requires not only technical tools but also a supportive institutional culture. Future quality improvement efforts in similar settings should prioritize regular training, non-punitive environments, and active staff participation. The lessons from CHUB can serve as a model for enhancing safety practices in other resource-limited maternity care settings.

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Conflict of Interest Disclosure

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References:

Abu-El-Noor, N. I., Abu-El-Noor, M. K., Aljeesh, Y. I., & Amer, N. (2019). Attitudes of Palestinian nurses toward reporting errors: A cross-sectional study. *Journal of Nursing Management,* 27*(5), 1061–1069. https://doi.org/10.1111/jonm.12765*

CHUB. (2023). Annual service performance report: 2022–2023. University Teaching Hospital of Butare.

Fischer, M. A., Jones, M. M., & Hatfield, L. A. (2021). Improving patient safety through quality improvement interventions: A systematic review. BMJ Quality & Safety, 30*(1), 11–23. https://doi.org/10.1136/bmjqs-2020-011457*

Institute for Healthcare Improvement (IHI). (2020). Quality improvement essentials toolkit. *https://www.ihi.org/resources/Pages/Tools/Quality-Improvement-Essentials-Toolkit.aspx*

Institute for Healthcare Improvement. (2020). *Quality improvement essentials toolkit*. https://www.ihi.org/resources/Pages/Tools/Quality-Improvement-Essentials-Toolkit.aspx

Kiguba, R., Karamagi, C., Bird, S. M., & Ojara, S. (2021). Patient safety and incident reporting in Uganda's healthcare system: A review of existing evidence. *BMC Health Services Research, 21*(1), 1–9. https://doi.org/10.1186/s12913-021-06745-9

Kiguba, R., Karamagi, C., Bird, S. M., & Waako, P. (2021). Reporting adverse drug reactions in a low-income country: Stakeholder views from Uganda. *BMC Pharmacology and Toxicology,* 22*(1), 1–10. https://doi.org/10.1186/s40360-021-00505-2*

Leape, L. L., Shore, M. F., Dienstag, J. L., Mayer, R. J., Edgman-Levitan, S., & Meyer, G. S. (2018). A culture of respect, part 2: Creating a culture of respect. Academic Medicine, 87*(7), 853–858. https://doi.org/10.1097/ACM.0b013e3182583536*

Leape, L. L., Shore, M. F., Dienstag, J. L., Mayer, R. J., Edgman-Levitan, S., Meyer, G. S., & Healy, G. B. (2018). A culture of respect, part 2: Creating a culture of respect. *Academic Medicine, 87*(7), 853–858. https://doi.org/10.1097/ACM.0b013e3182583536

Mugisha, J., Ssebunnya, J., & Kigozi, F. (2020). Health worker perspectives on clinical incident reporting in East Africa: A qualitative study. *BMC Health Services Research, 20*(1), 456. https://doi.org/10.1186/s12913-020-05305-7

Namagembe, I., Musoke, D., & Rutebemberwa, E. (2021). Barriers to incident reporting in maternal and child health services in Uganda. *African Health Sciences, 21*(2), 727–735. https://doi.org/10.4314/ahs.v21i2.38

National Health Service (NHS). (2020*).* Learning from patient safety incidents: Maternity and neonatal care. *https://www.england.nhs.uk*

National Institute of Statistics of Rwanda. (2021). *Rwanda Demographic and Health Survey 2020 Final Report*. https://www.statistics.gov.rw

O'Connor, P., Byrne, D., O'Dea, A., McVeigh, T., & Kerin, M. J. (2017). "Excuse me: Do any of you know what a root cause analysis is?": Assessing the effectiveness of a hospital-wide incident reporting system. *BMJ Open, 7(10), e017904. https://doi.org/10.1136/bmjopen-2017-017904*

Royal College of Obstetricians and Gynaecologists (RCOG). (2021). Each baby counts: 2020 final progress report. *https://www.rcog.org.uk*

Rwanda Ministry of Health. (2022). *Maternal and Child Health Annual Bulletin 2021/2022*. Kigali: MoH.

Say, L., Chou, D., Gemmill, A., Tunçalp, Ö., Moller, A. B., Daniels, J., ... & Alkema, L. (2014). Global causes of maternal death: A WHO systematic analysis. *The Lancet Global Health, 2*(6), e323–e333. https://doi.org/10.1016/S2214-109X(14)70227-X

Tura, G., Deressa, W., & Alemayehu, T. (2021). Risk factors and quality of maternal care in sub-Saharan Africa: Systematic review. *Reproductive Health, 18,* 75. https://doi.org/10.1186/s12978-021-01109-7

UNFPA. (2023). *State of the World Population 2023: 8 Billion Lives, Infinite Possibilities*. https://www.unfpa.org/sowp

United Nations Children's Fund (UNICEF). (2023). *Progress on maternal health: 2023 update*. https://www.unicef.org/reports

World Health Organization (WHO). (2021). Global patient safety action plan 2021–2030: Towards eliminating avoidable harm in health care. *https://www.who.int/publications/i/item/9789240032705*

World Health Organization. (2023a). *Maternal mortality*. https://www.who.int/news-room/fact-sheets/detail/maternal-mortality

World Health Organization. (2023b). *Patient safety incident reporting and learning systems: Technical report and guidance*. https://www.who.int/publications/i/item/9789240076246