Oromia Health Bureau

Healthcare Quality Bulletin

Whole System Thinking for Improved Health Outcome

July 2024

Table of Contents

Message from Oromia Health Bureau Head

Unlocking Healthcare Excellence: Oromia's Path to Quality and Equity

As we convene at the 3rd Annual Healthcare Quality Improvement Summit, it's an opportune moment to reflect on Oromia's journey towards unparalleled healthcare excellence, safety, and equity. Under the leadership of the Oromia Health Bureau, our efforts have focused on elevating health quality, ensuring patient safety, promoting equity, fostering innovation, and cultivating impactful leadership programs.

One of our primary objectives has been the strategic expansion of healthcare infrastructure to cater to the needs of diverse communities. Through meticulous planning and resource allocation, we have facilitated the establishment of new health facilities in underserved areas, ensuring that every individual, regardless of location, has access to essential healthcare services. This expansion has been complemented by the availability of state-of-the-art medical equipment, supplies, and medicines, as well as the equipping of our facilities with the tools necessary to deliver high-quality care. Human resource recruitment and retention of a skilled and diverse healthcare workforce are central to our efforts. Our over 94,900 workforce is the backbone of our healthcare system. Targeted capacity-building programs and continuous professional development initiatives empower healthcare professionals to deliver comprehensive and compassionate care to those in need.

Equity lies at the heart of our healthcare philosophy, helps to address disparities, and promotes inclusivity at every level. Through targeted health insurance initiatives, we seek to ensure that financial barriers do not hinder access to essential healthcare services. Additionally, we actively address geographical and town-rural disparities and gender-related challenges to ensure everyone has equitable access to quality care. Innovation serves as a driving force in our quest for healthcare excellence, and we are committed to harnessing the power of technology and innovation to improve service delivery and patient outcomes. From the pioneering Health Extension Program to the integration of digital health solutions, we are continually exploring new avenues to enhance the efficiency, accessibility, and effectiveness of healthcare delivery in Oromia.

Accreditation and leadership development are integral to our strategy to foster a culture of excellence and accountability within the healthcare sector. By creating centers of excellence and investing in high-impact leadership programs, we are nurturing a new generation of healthcare leaders equipped to drive meaningful change and innovation in the field. At the Annual Healthcare Quality Improvement Summit, let us reflect on our collective achievements and reaffirm our commitment to advancing healthcare excellence, safety, and equity in Oromia and beyond. Together, we can continue to push the boundaries of what is possible and create a future where everyone has access to the quality healthcare they deserve.

Sincerely,

Mengistu Bekele (MD, MPhil-HE)
Head, Oromia Health Bureau

Foreword

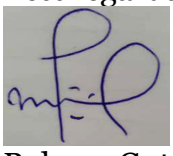
As the Vice Head of the Oromia Regional Health Bureau, I am pleased to introduce this Regional Healthcare Quality Bulletin. In our relentless pursuit of excellence in healthcare delivery, this bulletin serves as a beacon of knowledge, innovation, and collaboration. Within the pages of this bulletin, you will find a rich tapestry of insights, initiatives, and projects aimed at elevating the quality of healthcare services across our region.

From the meticulous efforts of our healthcare professionals to the strategic partnerships forged with various stakeholders, each contribution underscores our unwavering commitment to enhancing healthcare quality for all residents of Oromia. I sincerely appreciate all individuals and organizations who have contributed to the creation of this bulletin. Your dedication, expertise, and collaborative spirit have brought valuable insights and best practices. I also commend the authors of the quality improvement projects and studies featured in this bulletin for their innovative approaches and dedication to advancing healthcare quality. By sharing your experiences and lessons learned, you inspire us to strive for continuous improvement and excellence in our respective fields.

I am particularly grateful to the Health Service Quality and Equity Unit experts and the technical core group for their diligent efforts in compiling and reviewing this bulletin's content. Your expertise and guidance have ensured the information's quality and relevance.

Finally, I would like to thank the Different stakeholders, especially Fenot-Harvard project, for their support in printing this publication. Together, we stand at the forefront of healthcare quality improvement, united in our mission to provide equitable, accessible, and high-quality healthcare services to the people of Oromia. This bulletin will serve as a valuable resource for healthcare professionals, policymakers, and stakeholders, inspiring collaboration, innovation, and continuous improvement in healthcare quality throughout our region.

Best regards,



Bokona Guta (MD)
Vice Head, Oromia Health Bureau

Acknowledgment

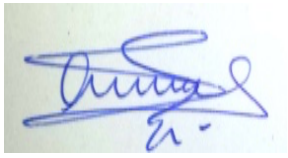
As we eagerly anticipate the release of the upcoming Oromia Health Bureau Quality Summit Bulletin, I am honored to extend my heartfelt appreciation to all who have contributed to its creation and publication. Thank you to the authors who have generously shared their expertise and experiences.

Your dedication to advancing healthcare quality is greatly appreciated. Your contributions have enriched the content of this bulletin, providing valuable insights and inspiration for quality improvement initiatives across our region.

I sincerely thank our esteemed partners and stakeholders for their unwavering support and collaboration. We have worked tirelessly to drive progress and foster innovation in healthcare quality, equity, and patient safety. A special acknowledgment goes to the organizing committee for the Oromia Health Bureau Quality Summit. Your meticulous planning and execution of this event have created a platform for meaningful dialogue, learning, and collaboration among healthcare professionals and stakeholders. Furthermore, I express my appreciation to the leadership of the Oromia Health Bureau for their vision and guidance in prioritizing healthcare quality improvement. Your steadfast commitment to excellence has been instrumental in shaping the direction of our efforts and ensuring the success of initiatives such as this summit and the accompanying bulletin.

Finally, I extend my gratitude to those who have provided technical and financial support for preparing and publishing this bulletin. Your contributions have been essential in bringing this valuable resource to fruition and disseminating knowledge and best practices in healthcare quality improvement across our region. In conclusion, the Oromia Health Bureau Quality Summit Bulletin will catalyze continued progress and excellence in healthcare quality, ultimately leading to better health outcomes for the people of Oromia. Together, let us continue to strive towards our shared vision of a healthier, more equitable future.

Warm regards,



Dereje Abdissa (MPH)
Head, Healthcare Quality, Equity, and Patient Safety Unit

Oromia Healthcare Quality Bulletin Core Team

Name	Organization	Position
Dr Bokona Guta	OHB	Deputy Bureau Head
Daniel Tesfaye	OHB	Medical Service and Higher Health Facilities Directorate Director
Dereje Abdissa	OHB	Head, Healthcare Quality, Equity, and Patient Safety Unit
Meaza Hailu	OHB	Healthcare quality officer, IA Scientific Committee Coordinator
Dr. Tizta Tilahun	Fenot-Harvard Project	Senior Scientific Advisor
Teshome Oljira	IHI	Improvement Advisor
Wondwosen Retta	Nutrition International	Senior Program Officer-MNHN
Omer Hussen	WHO	WHO-RMNCAH Consultant
Tekalign Woldesemayat	OHB/CDC	HIV/AIDS Program QI officer
Gemechis Mesfin	OHB	Speciality and Rehabilitation Expert
Muzemil Kemal	JSI/QHA	Primary Healthcare Specialist
Dr. Birhanu Tekele	ICAP-Ethiopia	Senior Quality Improvement Advisor and IPC Lead
Dr. Kananisa Layo	OHB	Emergency and Critical Care Officer
Mestawot Getachew	JSI/QHA	Area Manager
Mitiku Uma	PSI/Ethiopia	Quality Assurance and Training Coordinator
Galmesa Bekana	WHO	Immunization TA
Birehanu Kenate	OHB	Health research team coordinator
Chala Bafikadu	OHB	Research officer
Tarekegn Jabara	Cordaid	Cordaid, Clinical Quality Improvement Specialist
Thomas Mohammed	OHB	Communication Designer
Adisu Tesfaye	OHB	System Administrator
Heyo Garedew	OHB	Healthcare Quality officer
Gemechu chala	OHB	Healthcare Quality officer
Tadele Debebe	OHB	Healthcare Quality officer
Mohammedamin Adem	IHI	Improvement Advisor

Section I – Lesson from Quality Improvement Projects

Improving Pain-Free Medical Care Implementation: The Case of Wallaga University Comprehensive Specialized Hospital, June 2023

Authors: *[1]Gedefa Bayisa, [1]Temesgen Tilahun, [1]Amsalu Takele, [1]Indalkachew Shifera, [1]Kebena Limenu, [1]Mohamademin Tafese, [1]Mulugeta Ababa, [1]Diriba Fayisa, [1]Nemomsa Dugasa, [1]Bikila Regassa, [1]Asefa Negari, [1]Habtamu Deressa*
Affiliation: *[1]Wallaga University Comprehensive Specialized Hospital*

Abstract

Background: Pain is among the most common reasons patients visit hospitals and other health facilities. However, because of different factors, pain management practices are found to be poor and inconsistent, particularly in resource-limited settings. This increases patient suffering, decreases satisfaction, and results in a negative patient experience.

Objectives: This quality improvement project aims to increase pain-free hospital implementation from 21% to 80% at Wallaga University Comprehensive Specialized Hospital (WUCSH) from January 1 to June 30, 2023.

Methods: A hospital-based baseline survey was conducted at WUCSH. A fishbone and driver diagrams were used to identify root causes and develop changes. The Plan-Do-Study-Act (PDSA) cycle was used to test change ideas. Major interventions included training health professionals, initiation of pain as the fifth vital sign, policy and protocol development, and regular supportive supervision.

Results: Pain as 5th vital sign implementation increased from 14.7% to 92.3%. Standardized treatment protocols for chronic and acute pain for adults and pediatrics have been developed, and pain-free focal persons have been established. Regular pain assessment and management audits have improved from 28% to 82%. More than 80% of healthcare providers were trained in appropriate pain assessment and management. Overall, pain-free proper implementation was increased from baseline data of 21% to 88.7 % after completion of this project.

Conclusion: Compliance with pain-free hospital implementations was significantly improved in the study area. This was achieved by applying multidimensional change ideas related to health professionals, standardized guidelines and protocols, supplies, and leadership. Therefore, we recommend providing regular technical updates and conducting a frequent clinical audit on pain management.

Keywords: *Pain-free hospital, Quality improvement project, PDSA cycle, Ethiopia*

Introduction

Pain is a distressing sensory and emotional sensation connected to, or like, existing or potential tissue injury. It can be classified as acute or chronic based on its time course. Acute pain has an abrupt onset and may last up to 6 months if poorly managed (1). All persons experience pain differently, and biological, psychological, and social variables all have an impact. People come to understand the concept of pain because of their experiences in life. It is important to respect someone's right to describe something as painful (2).

The American Pain Society has designated pain as the fifth vital sign due to its significant prevalence and suffering to enhance awareness of pain management among medical professionals, improve patient care, and increase the likelihood that patients will receive effective treatment. Most patients report pain, which is one of the most prevalent symptoms. Assessing the patients' pain before and after an intervention is one of the pain management techniques. Different factors affect pain management. Any healthcare system has three main obstacles: patients, facilities, and staff (3).

Developing countries tend to prioritize the eradication of poverty and hunger and the reduction of maternal and child mortality and pay little attention to pain management. However, the Ethiopian Federal Ministry of Health (FMOH) launched the Pain-Free Hospital Initiative (PFHI) in 2014, where pain management was integrated into other services. Still, pain management needs attention in different health facilities (4). Hence, the Wallaga University Comprehensive Specialized Hospital Quality Improvement Team conducted a baseline survey on Pain-free hospital implementations and identified low compliance.

Context

This project was conducted in Wallaga University Comprehensive Specialized Hospital by a multidisciplinary team (MDT) from the quality improvement unit, anesthesia, physicians, nurses, and pharmacists. The team consists of 2 senior physicians (1 anesthesiologist, 1 emergency critical care medicine specialist), 7 different professionals from the quality improvement unit (1 general practitioner, 1 pharmacist, 1 laboratory technologist, 1 midwifery professional, 4 nurse professionals), and 1 nurse (from Oncology Unit). It was led by the clinical quality coordinator of the hospital.

Problem statement

The Pain-Free Hospital Implementation rate at Wallaga University Comprehensive Specialized Hospital was 21%. Low compliance with pain assessment and management leads to increased patient suffering, poor quality of care, and negative patient experience.

Aim of Statement

Wallaga University Comprehensive Specialized Hospital Pain-Free Implementation Quality Improvement Team aims to increase the pain-free implementation rate from the baseline of 21% to 80% from 1 January to 30 June 2023.

Assessment of the problem and analysis of its causes

Five departments were selected based on high reports of moderate to severe pain. Fifty (50) charts (10 from each department) were selected. Additionally, 25 patients (5 patients from each department) and 25 health professionals (5 from each department) were selected for interview. Physical observations like pain as the 5th vital sign, protocol availability, meeting agenda, and letter of pain-free focal person assignment were also assessed. The overall compliance with Pain-Free Hospital Implementations was 21%, with specific compliance rates of 14.7% for Pain as the 5th vital sign and 28% for regular patient assessment and management audits. There were no trained health professionals on pain assessment and management, no approved standardized pain treatment protocol, and no assigned focal person for pain assessment and management (Figure 1).

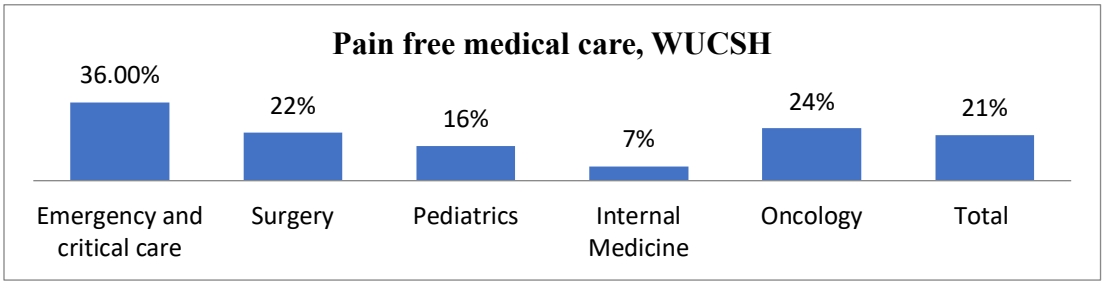


Figure 1: Baseline data of pain-free medical care at Wallaga University Comprehensive Specialized Hospital, 2022

Intervention

Using a fishbone diagram, the root causes of the problem were identified.

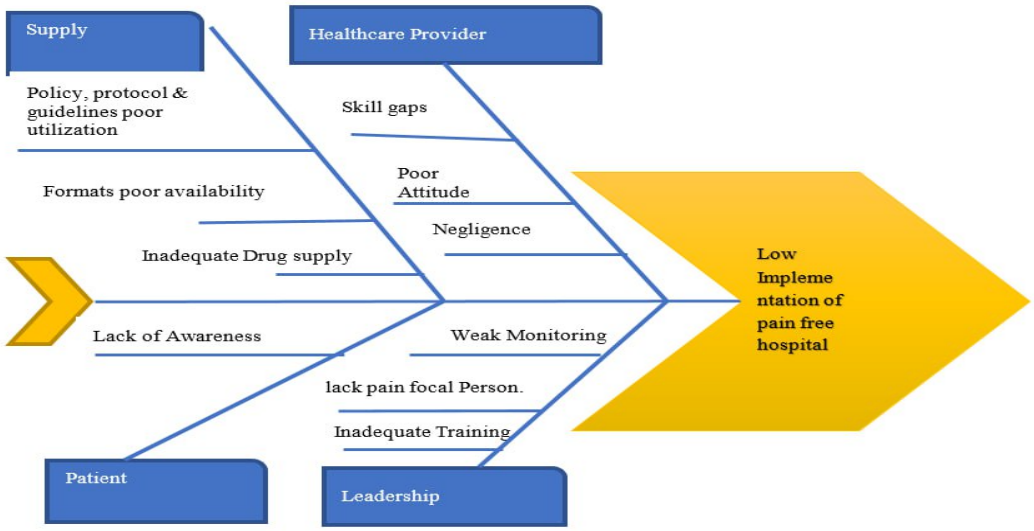


Figure 2: Fishbone diagram for identifying root causes of painful medical care at Wallaga University Comprehensive Specialized Hospital, 2022

The identified causes were inadequate training for health care professionals, a lack of written protocols and guidelines, no assigned hospital pain-free focal person or team, no regular audit on pain assessment and management, not recognizing pain as the 5th vital sign, weak regular monitoring and evaluation from head nurses and department heads, and no health education on pain and its management (Figure 2).

Change Ideas/Interventions prioritized

Depending on the root causes identified (Figure 2), 12 change ideas/ interventions were identified to achieve a pain-free hospital environment (Figure 3). Seven of these change ideas were prioritized for testing.

1. Onsite refreshment training for all healthcare professionals on pain assessment and its management to improve skill gaps and attitudes.
2. Preparing standardized treatment policies, guidelines, and protocols for managing acute and chronic pain.
3. Implement pain as the fifth vital sign.
4. Patient education on how to report pain and utilize pain medication.
5. Assigning a focal person for pain management.

6. Using medications for pain management.
7. Regular coaching, mentoring, and supervision on pain assessment and management.

Driven Diagram

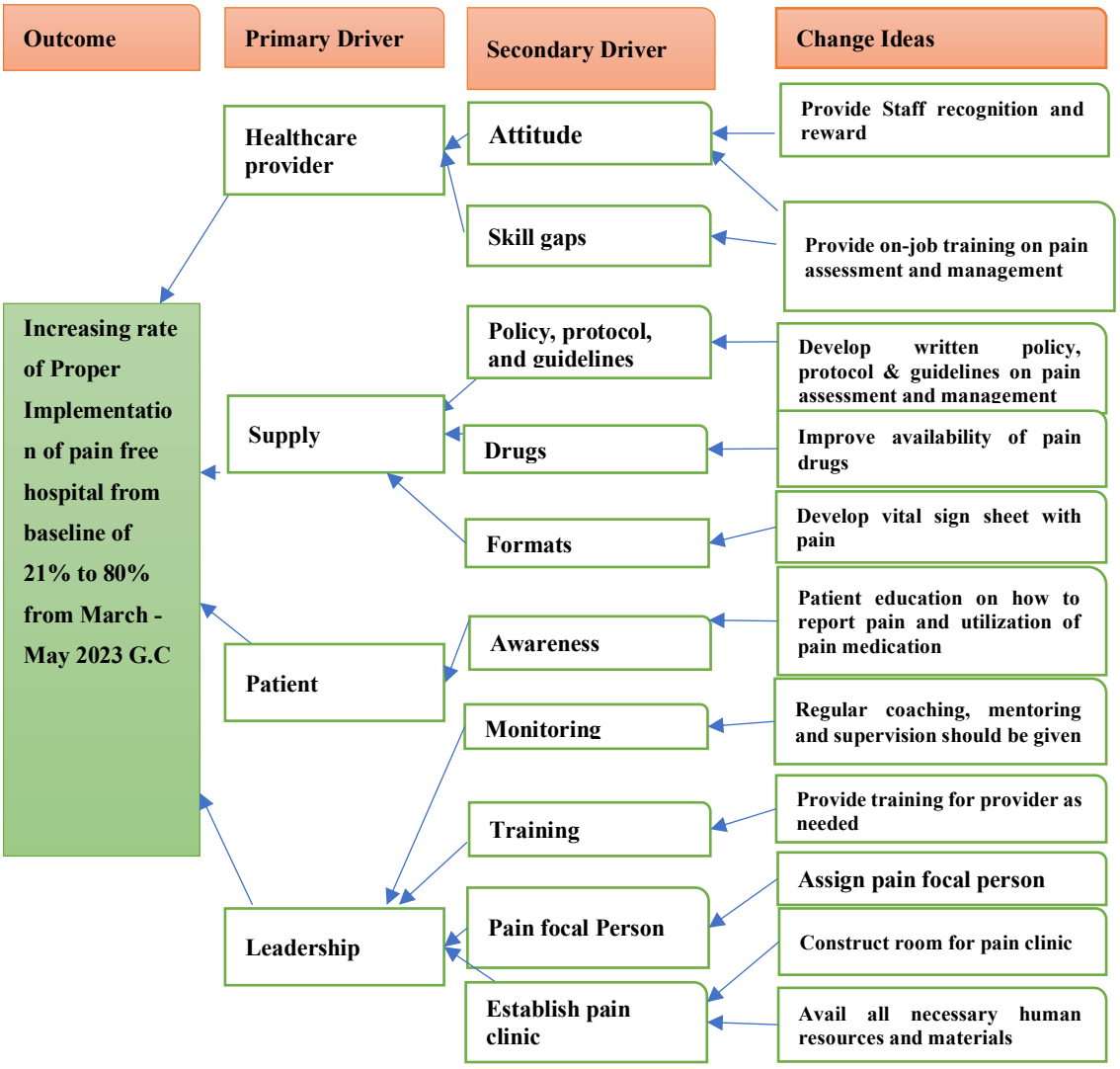


Figure 3: Driver diagram for increasing Proper Implementation of pain-free hospital rate at Wallaga University Comprehensive Specialized Hospital

Measurement

Different pain assessment and measurement tools were adopted from trusted sources. These are the WHO analgesic ladder, the Wong-Baker Scale, the Numerical pain Scale, the FLACC scale, the PAINAD scale, the NIPS scale

(neonatal infant pain scale), the CRIES scale, the Behavioral pain scale, and the Critical care pain observation tool (5-9).

Outcome measurement

Proportion of Pain-Free Hospital Implementation at Wallaga University Comprehensive Specialized Hospital

Process measures

- Proportion of proper implementation of Pain as the 5th Vital Sign
- Proportion of availed standardized treatment protocols for management of acute and chronic pain
- Proportion of assigned Hospital Pain-Free focal person
- Proportion of regular audit of pain assessment and management practices and outcomes
- Proportion of trained healthcare staff on knowledge and skills in pain assessment and management

Balancing measures

- Percentage of unnecessary pain medication given to patients.
- Number of staff with work overload.
- Financial costs incurred for availing different formats, posters, protocols, and management guidelines.

Results

Implementation of pain as the fifth vital sign during baseline assessment was 14.7% and showed improvement after project implementation (Figure 4). Two standardized chronic and acute pain protocols for adults and pediatrics were developed. Pain-free focal person assigned by CCD of the hospital. Regular audit of pain assessment and management practices and outcomes was 23% during baseline assessment, and this has also shown signs of improvement during the project period (Figure 4).

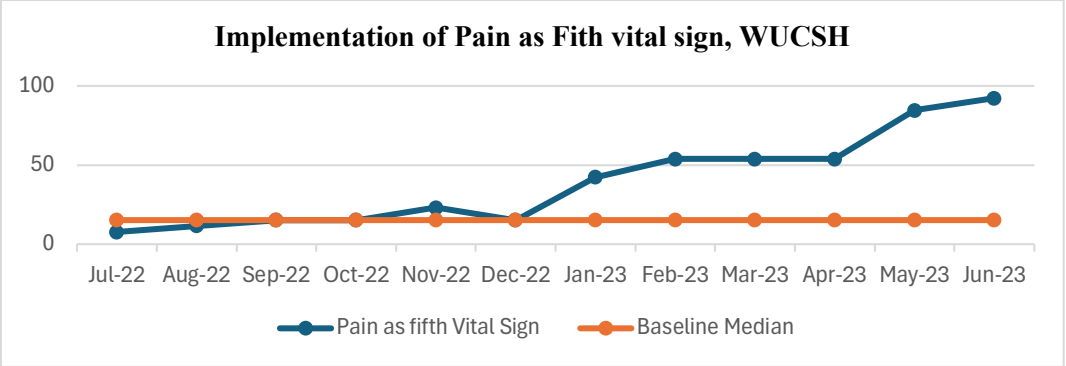


Figure 4: Rate of implementation of pain as a fifth vital sign from 1st January to 30th June 2023 at WUCSH

More than 80% (239) of health care providers are trained in pain assessment and management from different departments.

Pain assessment and management audits were poor (27.3%) before project implementation. Still, their trend improved during the project period, as evidenced by the consecutive increase of pain assessment audits for 6 months above the baseline median of 27.3% (Figure 5). An improved trend in pain assessment and management audits has enhanced pain-free medical care implementation in WUCSH, as shown in Figure 6.

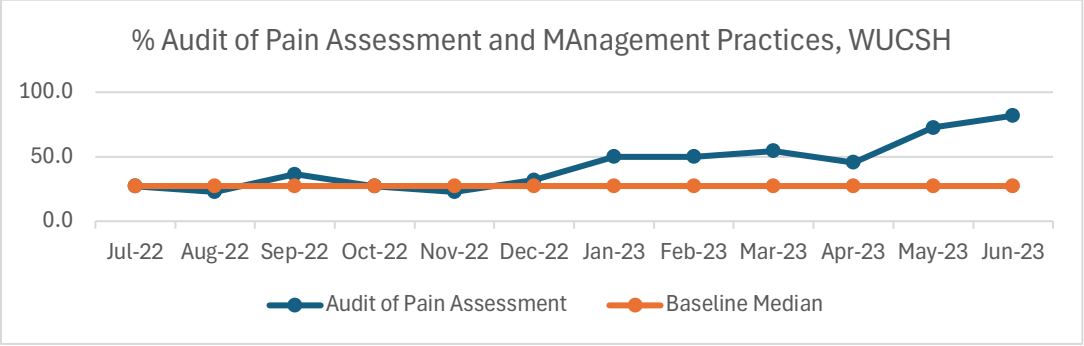


Figure 5: Percent Audit of Pain Assessment and Management from 1st January to 30th June 2023 at WUCSH

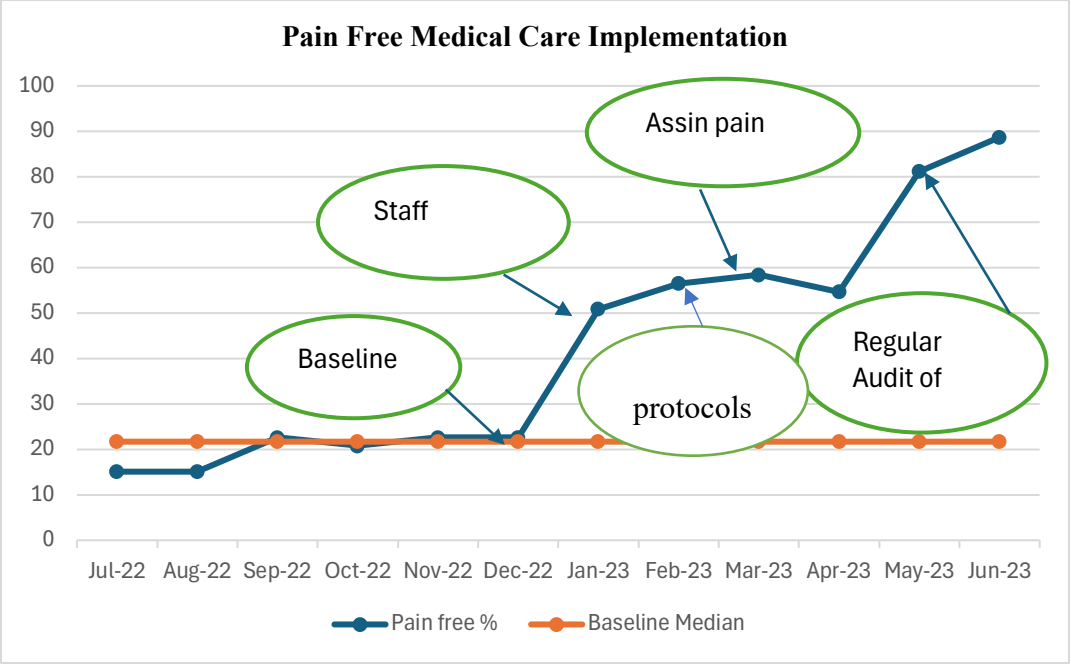


Figure 6: Run chart showing implementation of the pain-free rate at Wallaga University Comprehensive Specialized Hospital from 1st January to 30th June 2023

Overall, pain-free hospital proper implementation results at Wallaga University Comprehensive Specialized Hospital were consecutively above the baseline median value for six months in the project implementation period, indicating a signal of improvement. The median value of the pain-free medical care implementation in the six months of the project period was 57.5%, nearly three-fold the baseline value (21%).

Lesson learned

- Use of standardized checklist in pain assessment and management.
- Regular refreshment training on essential topics is preferable to improve the quality of care.
- Assigning a focal person to each service improves attention and the owner of the services, which generally improves the quality of care.
- Policy, Procedures, and protocols available for all services, followed by continuous supportive supervision, are important.
- Continuous communication with the drug supply unit made easy the process of availing drugs and other materials.

Limitation

The project does not include Labor pain management due to limited resources.

Conclusion

After the project was conducted, the proper implementation of a pain-free hospital improved from its baseline. Establishing a Labor Pain management system, staff training, Regular monitoring, and assigning a focal person were some of the interventions tested for the positive outcome of implementing pain-free medical care at WUCSH.

Recommendation

Regular monitoring and training for health care providers, establishing a Labor Pain management system, integrating pain-free proper implementation in evaluation mechanisms of staff and students, and establishing MDT for pain assessment and management, if properly tested, will result in improved pain-free medical care.

References

1. Alzghoul BI, Abdullah NAC. Pain Management Practices by Nurses: An Application of the Knowledge, Attitude and Practices (KAP) Model. Glob J Health Sci. 2015;8(6):154–60.
2. Pattison N, Brown MRD, Gubbay A, Peacock J, Ross JR, Chapman S, et al. Towards a pain free hospital: An in-depth qualitative analysis of the pain experiences of head and neck cancer patients undergoing radiotherapy. Br J Pain. 2016;10(1):29–37.
3. Eshete MT, Baeumler PI, Siebeck M, Tesfaye M, Haileamlak A, Michael GG, et al. Quality of postoperative pain management in Ethiopia: A prospective longitudinal study. PLoS One. 2019;14(5):1–22.
4. Sugawara E, Nikaido H. Pain free hospital initiative Implementation Manuai. a prgram Am Cancer Assoc with Collab Ethiop public Heal. 2014;58(12):7250–7.
5. Noah Brown MGH. Numeric pain assessment tool [Internet]. Available from: https://medicalxpress.com/news/2022-07-emoji-shown-effective-numerical-pain.html
6. Faces Pain Scale – Revised (FPS-R). 2001;7858.
7. Rose J. CRIES Pain Scale [Internet]. Available from: https://basicsofpediatricanesthesia.com/section-v-pain/chapter-32-pediatric-pain-assessment/

Improving waiting time for consultation at Emergency Department, Seka Chekorsa Hospital, Oromia

Authors: *Lalisa Biftu, Amen Abdulkarim, Tolasa Abdeta, Ibrahim A/Temam, Dafis Negash, Milkessa Ketema, Teshome Shitta, Mohammed Ibrahim, Merry Wondimagegn, Abraham Tefera*
Affiliation*: Seka Chekorsa Primary Hospital*

Abstract

Background: Timeliness of care is one of the six critical quality dimensions, particularly in the ED, where urgent care is needed to save lives. Due to numerous complicated factors, reducing wait times at the ED is challenging and requires an evidence-based and system-wide approach.

Objectives: The project aims to determine if implementing a series of interventions would decrease the Waiting Time for Consultation (WTC) for patients at the ED within six months.

Method: A baseline assessment was done from May to June 2023 to determine the patient experience and the average time patients see physicians for consultation after being registered and triaged. A model for improvement (MFI) framework was employed, and Rapid PDSA (Plan, Do, Study, Act) cycles were used to implement a series of interventions. Changes in waiting time were tracked with concurrent patient load, status of manpower, and number of admissions from ED using structured checklists. Progress of re-design activities, patient experience, staff satisfaction, and incidence of violence were also monitored throughout the project period. Fourteen PDSA cycle ramps were designed to test intervention ideas with the support of a predictive tool (run chart rules) to reduce waiting times for consultation.

Results: The average consultation waiting times improved within six months of initiating interventions. The improvements demonstrated appeared consistent and sustained. The average WTC decreased by 100%, from the baseline duration of 96 min to 32 min. The improvements occurred despite a greater patient load of 1458 per month, compared with a baseline monthly average of 512 patients. Patient experience and staff satisfaction improved, while violence at the ED and staff burnout decreased significantly.

Conclusion: We demonstrated how implementing low-cost interventions, leadership engagement, improved department relations, and optimizing ED structure and layouts can help reduce patient waiting times. Quality improvement efforts were sustained by a data-driven approach, support from senior physicians, and constant feedback on outcomes.

Keywords: *Waiting time, Consultation, Emergency, Seka Chekorsa Hospital, Oromia*

Introduction

Emergency departments (EDs) have long been described as complex, overwhelming, and stressful environments characterized by high patient volumes, rising service demands, overburdened staff, and an atmosphere of continual exigency. While diverse structural and process elements constitute this environment, the ED is typically designed to prioritize its main function: to save lives and minimize morbidity. (Bailey et al., 2011; Aaronson et al., 2018; Gordon et al., 2010; Sonis et al., 2019; Ulrich, 1991; Cypress, 2014; Brysiewicz et al., 2020).

In the ED, patient perceptions of service value are tied to the time it takes to receive care. Overcrowding and wait times are major factors influencing patient experience, which happens when existing designs do not adequately meet the needs and demands of the dynamic ED environment. Patient experience positively correlates with improved health outcomes and care quality, higher staff satisfaction, and reduced medicolegal risk. Patient experience is "the sum of all interactions, shaped by an organization's culture that influences patient perceptions, across the continuum of care, thus indicating a corresponding need for patient-centered health settings and services. (The Beryl Institute, 2016, Mazzocato et al., 2012, Sonis et al., 2019)

A combination of process flow mapping, value-stream mapping, and root cause analysis to determine that ED flow is affected by limited bed capacity, unavailability of necessary staff, ED layout, and lack of understanding among patients about the nature of emergency services could help to streamline ED activities, minimize wait times and substantial cost savings for the hospital. (Alowad et al. 2020)

According to an assessment done by observing the time it took for yellow and green patients to see providers after registration and triaged from May to June 2023, average wait times at the emergency department were found to be 96 minutes, which was longer than average waiting times recorded by existing study 25 minutes (Timeliness of emergency services, Dr. Lia T 2017). The prolonged waiting times, in turn, lead to ED overcrowding, an increased number of patients leaving without treatment, reduced patient satisfaction, and compromised service quality in general. Therefore, Seka Chekorsa's primary hospital emergency department team linked the gap to the QI unit and developed an improvement project to improve wait time (to decrease wait time by 65%) within six months, from July 2023 to January 2024.

Seka Chekorsa Hospital is in Seka town, Seka Chekorsa district of Jimma zone, Oromia regional state, southwestern Ethiopia, 20 km from Jimma town and 370 km from the capital, Addis Ababa. The hospital started service in 2007 E.C as a primary hospital providing health services for about half a million people (495,010) residing in Seka Chekorsa and Shabe Sombo districts of Jimma zone, including neighboring villages of Mana, Dedo, and Gera districts.

Our hospital delivers integrated health services, which include Emergency and critical care, Adult and pediatric outpatient services, integrated maternal and child healthcare, Inpatient and social services, liaison and referral services, minor and major surgical services, neonatal intensive care, mental health services, ophthalmic care, laboratory and imaging services, TB, HIV/AIDS, and NCDs screening and follow-up care.

Additionally, we provide mentorship and coaching services for 15 health facilities in catchment areas and serve as training Centres for different university and college students. Currently, the hospital strives to ensure healthcare quality by successfully implementing different change packages (hospital reforms and initiatives), including ideas for continuous quality improvement.

Problem Justification

Waiting at the ED, if prolonged, would compromise the quality of care and patient safety by increasing morbidity and mortality. It increases the number of patients who leave without being seen by physicians and readmission rates, leading to economic loss for both clients and hospitals. Timeliness of care, one of the seven quality dimensions, is critically important, particularly in ED, where urgent care is needed to save lives. Overcrowding and waiting times are major factors influencing patient experience, which happens when existing designs do not adequately meet the needs and demands of the dynamic ED environment. Increasing attendance to the ED and greater disease complexity, coupled with manpower and physical infrastructural limitations, have made reducing waiting times at the ED more difficult. The average waiting time for consultation at our hospital emergency department was 96 minutes, which is longer than the average waiting time recorded by the existing study, 25 minutes (Timeliness of emergency services, Dr. Lia T 2017), which needs to be improved.

Aim statement

We, Seka Chekorsa Hospital's quality improvement team, aim to reduce waiting time for consultation at the Emergency Department from an average of 96 minutes to 28 minutes by the end of January 2024.

Assessment of the problem and analysis of its causes

ED waiting time was checked during baseline assessment for patients waiting to be seen by Emergency care providers using a structured checklist. In collaboration with hospital administration and the ED sub-quality team, the quality unit held a deep discussion and conducted process mapping of emergency services. It underwent root cause analysis to identify the possible causes further.

Interventions

Prioritized interventions include re-designing the ED structure, rearranging workflow, matching manpower to patient flow, and strengthening interdepartmental relations and leadership engagement by involving the emergency department sub-quality team. Senior physicians participated throughout the project period.

Measurement of improvement

A model for improvement (MFI) framework was employed, and Rapid PDSA (Plan, Do, Study, Act) cycles were used to implement a series of interventions. Changes in waiting time were tracked, including concurrent patient load, status of manpower, and number of admissions from ED, using structured checklists. Progress of re-design activities, patient experience, staff satisfaction, and incidence of violence were also monitored throughout the project period. Twelve PDSA cycle ramps were designed to test intervention ideas with a predictive tool (run chart rules) to reduce waiting time for consultation.

Outcome measure

Average waiting time to consultation at ED after being triaged.

Process measure

- Number of staff received on-the-job training/orientation.
- Number of care providers added to match with patient flow.
- Percentage of ED expansion progress
- Number of discussions held with other words.

Balancing measure

– Number of patients admitted to Inpatient.
– Percentage of decreased staff from other departments
– Percentage of hospital revenue increased.
– Patents and staff satisfaction rate

Results

There was an improvement in average waiting time for consultations within 6 months of initiating interventions. The improvements demonstrated appeared consistent and sustained. The average WTC decreased by 100%, from the baseline duration of 96 min to 32 min. The improvements occurred despite a greater patient load of 1458 per month, compared with a baseline monthly average of 512 patients. Patient experience and staff satisfaction improved, while violence at the ED and staff burnout decreased significantly. After five consecutive PDSA cycles and when the ED expansion and redesign were completed, the average wait time started to drop to a near target and continued to be sustained. The emergency department's floor layout was changed so that each service room is proximal to each and easily accessible and observable to care providers so that they can freely move and respond to the urgent needs of emergent patients.

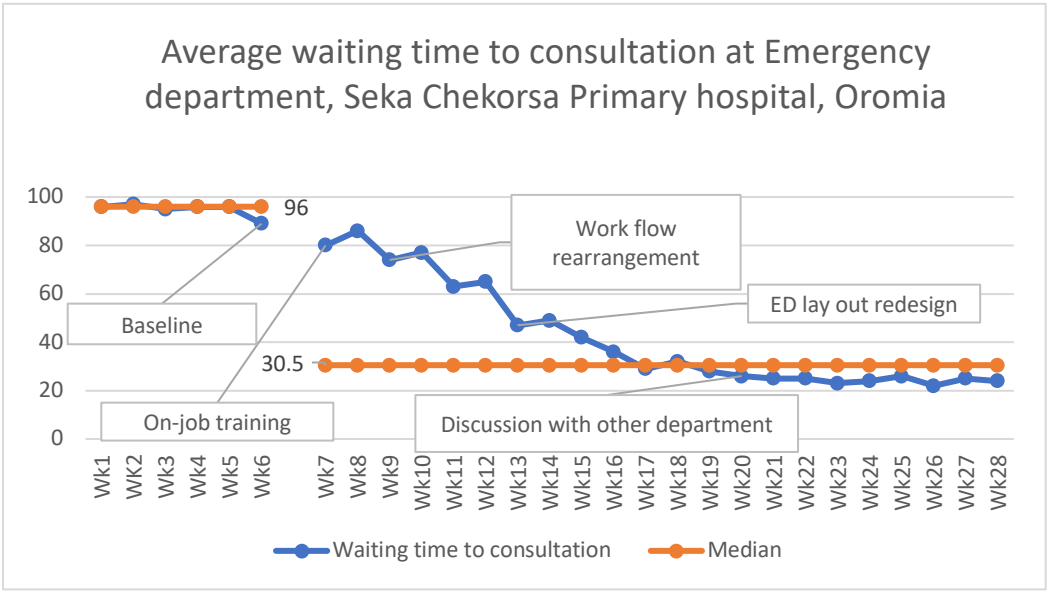


Figure 1: Average waiting time to consultation (WTC) at the emergency department from July 2023 to January 2024

Lessons learned

We demonstrated how low-cost interventions, leadership engagement, improved departmental relationships, and optimization of ED structures and layouts can help reduce patient waiting times. Quality improvement efforts were sustained by a data-driven approach, support from senior physicians, and constant feedback on outcomes.

Messages for others

We recommend that other health facilities implement such best practices, as they are cost-effective interventions that significantly improve service quality and patient experience.

Reducing Elective Surgery Cancelation Rate in Yabello General Hospital, Oromia

***Authors**: Abdi Kedir[1], Getu Gudisa[1], Arero Bikicha[1], Ibsa Ilmi[1], Dereje Giduma[1], Galgalo Doyo[1]*
***Affiliation:**[1]Yabello General Hospital, Yabello, Oromia*

Abstract

Background: Elective surgical case cancellation refers to a scheduled surgical procedure not performed on a given day at a scheduled time for different reasons. It has been a long-standing problem for healthcare organizations across the world. The proportion of elective surgical case cancellations ranged from 8.9% to 33.9% in the Ethiopian setting. Based on available data, the elective surgical case cancelation rate accounted for 38% at Yabello General Hospital, which is leading to psychological effects including disappointment, frustration, and dissatisfaction. Hence, the Yabello General Hospital Operation Room (OR) QI team aimed to reduce the elective surgical case cancelation rate from 38 % to less than 5 % in Yabello General Hospital, OR, by the end of Nov 2023.

Interventions: The MDT preadmission evaluation clinic has separate beds for elective cases, adequate supply, improved documentation of vital events, and accountability established with regular audits.

Results: The percentage of elective surgical case cancelation rate has significantly reduced from 38% to less than 5% using before and after intervention as a reference. Following the baseline assessment during the intervention period i.e., there were only eight cancelations in six months out of 318 elective surgical procedures planned for surgery.

Lesson learned: Leadership and monitoring were instrumental in building problem-solving and clinical skills among the surgical team. Surgical leaders played a catalytic role in strengthening surgical systems and processes, contributing to reduced elective surgical case cancellation. The leadership intervention and communication could be scaled up locally and globally.

Keywords: *Elective Surgery, Cancelation Rate, Yabello General Hospital, Oromia*

Introduction

An elective surgical case cancellation occurs when an operation is planned but not scheduled (1). Previous research showed that the prevalence of surgery cancellations ranged from 1.9 to 49% (2, 3). The cancellation rate surpasses 20% in wealthy nations (4). However, among less-developed nations, the percentage is 48.5%, with Ethiopia at 33.9% (3, 5). The cancelation of elective surgery is a problem with the health care system's quality that impacts individuals and wastes resources. Particularly, it depresses the spirits of workers, patients, and family members, which may result in lower efficiency at work.

There are many reasons for canceling elective surgical cases, but they might differ from hospital to hospital. Unexpected cancellations of planned surgery are divided into avoidable and unavoidable cancellations. According to studies, just 20% of cancellations were inevitable, while more than 80% might have been avoided. Most cancellations occur because of administrative or structural processes that are potentially preventable. Scheduling errors, equipment shortages, and inadequate preoperative evaluation are avoidable cancellations. Targeting these processes may reduce cancellations for elective surgeries and improve economic efficiency and patient outcomes. Unexpected, unavoidable cancellations are emergency encounters and changes in patients' medical status. The pooled result of root causes for cancellation of elective surgery from three studies (6, 7, 8) showed that administration-related reasons (34.5%) were most prevalent, followed by surgeon-related reasons (25.3%), medical-related reasons (13.9%), and patient-related reasons (13.3%).

The body of evidence shows that the cancelation of elective surgery had significant psychosocial and economic impacts on patients and their families. Besides, it affects healthcare delivery and hospital revenue, which entails mitigating strategies to prevent avoidable surgical cancelations. Identifying reasons for elective surgical case cancelation can help the management body develop appropriate strategies and better use its operating theatre facility.

Context

Yabello General Hospital serves a catchment population of 1,273,701 million people in the southern part of Oromia. It was established in Nehase10, 2002 E.C. It provides services for around 6000 inpatients and 82,000 outpatient

attendees per year with around 144 functional inpatient beds. The hospital offers a comprehensive emergency and elective surgical procedure facilitated by one major and two minor operating rooms. Surgical services include emergency and elective, major, and minor procedures. On average, over 335 major surgeries are performed monthly on both an emergency and elective basis. In 2015, the E.C. annual report indicated that Yabelo General Hospital conducted approximately 1550 major surgeries yearly.

We conducted an operation room registration and cancelation logbook audit to measure the cancellation rate over six months. The average cancellation rate for the past six months was 38 % of scheduled elective cases, affecting the quality of care and patient satisfaction, leading to decreased surgical volume indicators and disappointment in our clients. Conducting this QI project may increase the awareness of the sensitivity of the problem to health professionals and hospital management for better management of the problem at any level.

Problem description

In Yabello General Hospital, the High Elective Surgical Case Cancellation rate in the operation room (OR) due to the lack of preadmission MDT clinic with no blood and no monitoring mechanism for essential supplies, along with the fluctuation of light, was leading to wastage of resources. From December 2022 to May 2023 G.C, we conducted operation room registration and cancelation logbook audit to measure the cancellation rate over six months. The average cancellation rate for the past six months was 38 % of scheduled elective cases, which affects the quality of care and patient satisfaction.

Aim statement

Reduce elective surgery case cancelation rate in Yabalo General Hospital from 38 % to less than 5 % at the end of November 2023.

Assessment of the problem and analysis of its causes

To assist healthcare providers in avoiding surgical cancelation, a quality improvement project was designed to standardize the care provided to surgical patients using the model for improvement. To identify the performance gap and determine the reason for an increased number of elective surgical case cancelations, a root causes analysis was conducted using a bone diagram. (Figure 1)

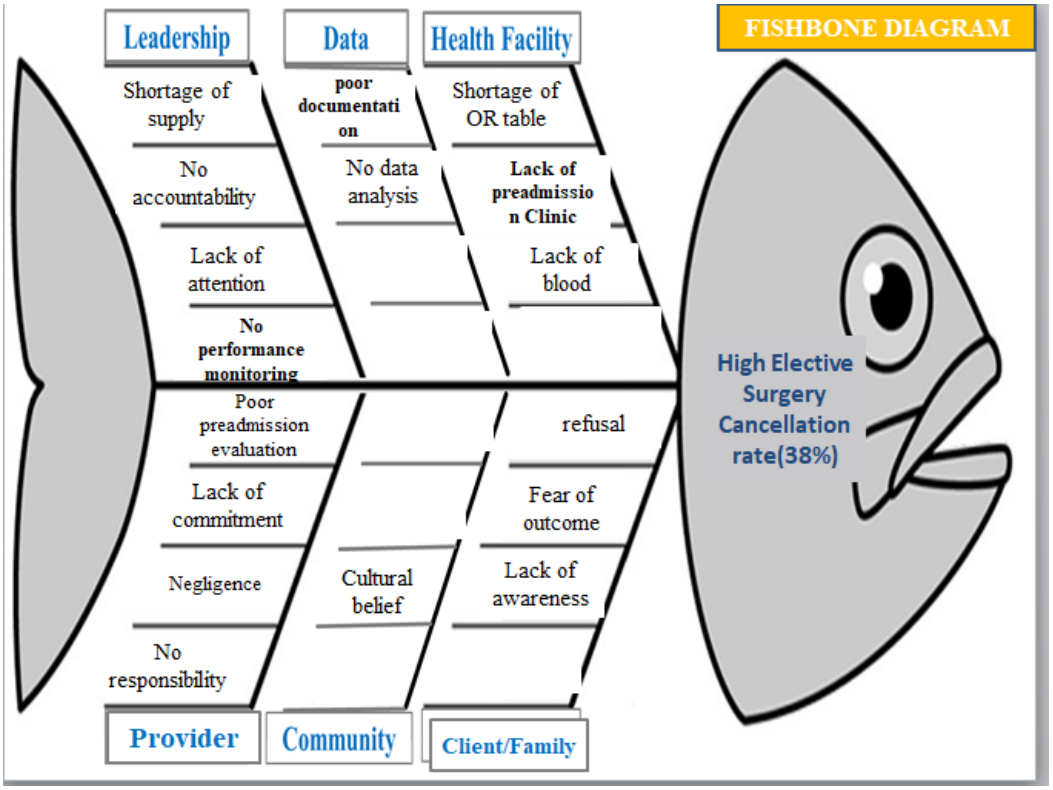


Figure 1: Fishbone analysis for elective surgery cancelation

Interventions

Based on the quality gaps identified, change ideas for intervention were preadmission MDT evaluation to identify those who are fit for surgery by having a multidisciplinary assessment involving the surgeon and anesthetist having preadmission format used appropriately for patients before admission, regularly monitoring the availability of supplies using different formats to avoid unintended cancelation on the day of surgery, For big surgical operations like Thyroid operations, BPH & the likes, blood availability should be checked before admission is made, Fluctuations of light along with non-cooperation of electricity employee were also a major contributor for cancellations. They solved this after discussions with stakeholders and conducting regular awareness and knowledge audits of clients on their clinical condition. Their involvement in decision-making was a crucial intervention for the success of the QI project.

Study of the interventions

Repeated PDSA cycles were used to test the change ideas individually. Each process was documented using a data collection tool for a routine QI team meeting, and improvement actions were taken. The project's progress was monitored every two weeks, and a run chart was used to analyze the data collected over time with annotation of the interventions.

Measurements

Outcome measure: Elective surgery cancellation rate

Once the patient is scheduled for Elective surgery by the clinician and posted on the dashboard, unable to operate is considered an elective surgery cancellation by the Hospital and calculated as elective surgery Cancellation Rate = Total number of elective surgeries performed divided by the total number of elective surgeries scheduled times by one hundred.

Process measures:

- Percent of availed blood for elective surgeries
- Percent of surgical cases for whom preadmission MDT evaluation was conducted
- Percent of Elective Surgery Cancelled due to lack of supplies

Analysis

After enough performance data points were achieved, a run chart was used to see the impacts of interventions. Two medians, one before and the other after, were developed to compare the impacts and draw inferences from the data. The MDT team's regular preadmission evaluation and availing of the necessary supplies led to the success of the QI project.

Results

The percentage of elective `surgery cancelation rate has significantly reduced from 38 % to less than 5% using before and after intervention as reference. Following the baseline assessment during the intervention period i.e., there were only eight cancelations in six months out of 318 elective surgical procedures planned for surgery. Reasons for cancellation of elective surgeries were lack of supplies, shortage of blood, and operation room. The run chart of elective surgery cancellations revealed a shift on the run chart, which indicated improvement due to interventions undertaken. The median elective

surgery cancellation before intervention decreased from 40% to 10% after the successful QI implementation in Yabalo General Hospital.

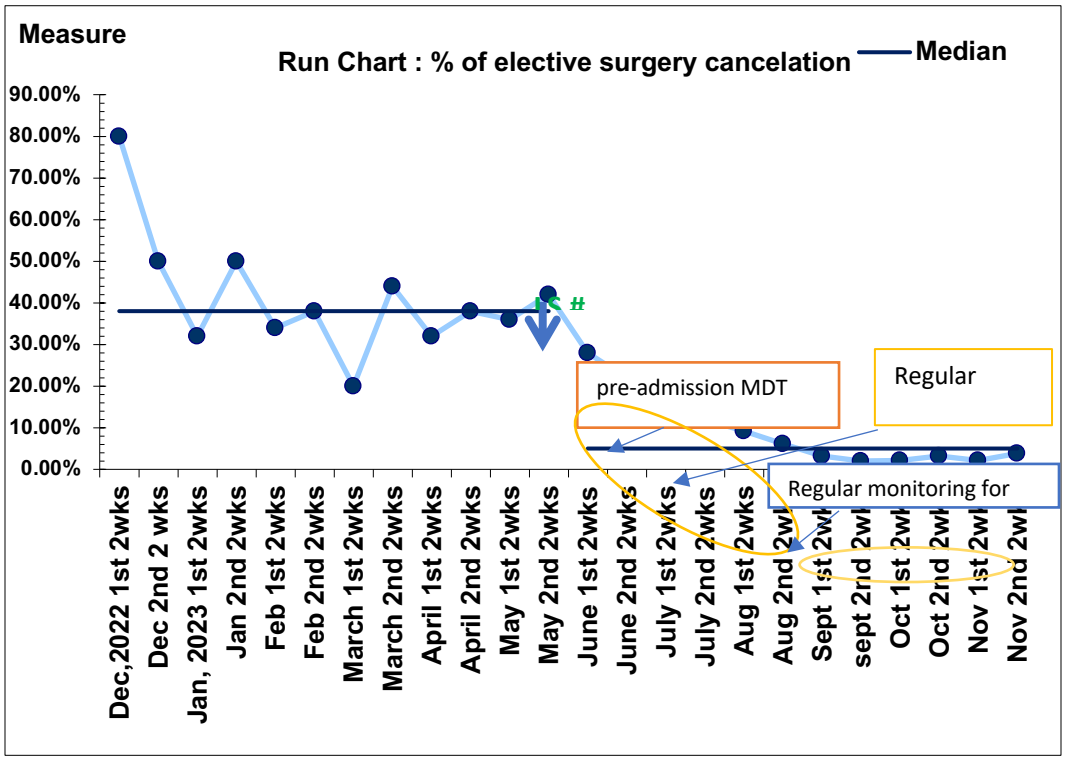


Figure 2. Percentage of elective surgery cancelation at Yabello General Hospital, June 2023 – November 2023

Lesson Learned and Limitations

Lesson Learned

We have understood that the project significantly changed some staff's knowledge, skills, and attitudes regarding readiness and communication. To improve the quality of care we provide, we must conduct a preadmission MDT evaluation by assessing blood and supply availability and developing an implementation action plan.

Limitations

Lack of adequate Operation room, data quality problems, and blood unavailability.

Conclusions: The elective surgery cancelation rate was significantly reduced in Yabello General Hospital below the intended target due to the above-mentioned interventions, conducted according to the preplanned

schedule and close follow-up from the QI team. To maintain the progress, the continuum of the QI interventions is recommended.

References

1. Solak A, Pandza H, Beciragic E, Husic A, Tursunovic I, Djozic H. Elective case cancellation on the day of surgery at a general hospital in sarajevo: causes and possible solutions. *Mater Soc Med*. (2019) 31:49. 10.5455/msm.2019.31.49-52
2. Trentman T, Mueller S, Dormer CL, Weinmeister KP. Day of surgery cancellations in a tertiary care hospital. *J Anesth Clin Res*. (2010) 1:2. 10.4172/2155-6148.1000109
3. Gajida A, Takai I, Nuhu Y. Cancellations of elective surgical procedures performed at teaching hospital in northwest Nigeria. *J Med Trop*. (2016) 18:108–12. 10.4103/2276-7096.192244
4. González-Arévalo A, Gómez-Arnau J, delaCruz F, Marzal J, Ramírez S, Corral E, et al. Causes for cancellation of elective surgical procedures in a Spanish general hospital. *Anesthesia*. (2009) 64:487–93. 10.1111/j.1365-2044.2008.05852.x
5. Ayele A, Weldeyohannes M, Tekalegn Y. Magnitude and reasons of surgical case cancellation at a specialized hospital in Ethiopia. *J Anesth Clin Res*. (2019) 10:2
6. Bekele M, Gebru S, Mesai D. A cross-sectional study investigating the rate and determinants of elective case cancellations at St. Paul's Hospital Millennium Medical College, Addis Ababa, Ethiopia. ECAJS. 2020;25(2).
7. Ayele A, Weldeyohannes M, Tekalegn Y. Magnitude and reasons of surgical case cancellation at a specialized Hospital in Ethiopia. *J Anesth Clin Res*. 2019;**10**(927):2.
8. Desta M, Manaye A, Tefera A, Worku A, Wale A, Mebrat A, et al. Incidence and causes of cancellations of elective operation on the intended day of surgery at a tertiary referral academic medical center in Ethiopia. *Patient Saf Surg*. 2018;**12**(1):1–6. doi: 10.1186/s13037-018-0171-3.

Decrease Empirical Treatment of Malaria at Tulu Bolo General Hospital in Oromia Region, Ethiopia

Authors: *Engida Kabeta[1], Dereje Moti[1], Tensay Bekele[1], Workinesh Ajema[1], Nigatu Hirko[1], Bogale Merga[1], Ahmed Muhammed[2], Dr Meron Teshome[2]*
Affiliation: *[1]Tulu Bollo General Hospital, [2]ICAP*

Abstract

Background: In Ethiopia, about 75% of the total area of the country is considered malaria, and about 52% of the population living in these areas is at risk of malaria. According to the annual performance report of the FMOH, 2013 (2020/21), there were 1,220,027 cases, of which 1,135,338 (93.1%) were laboratory-confirmed. 80.1% were due to plasmodium falciparum. There were 132 deaths due to malaria. Ethiopia is currently working concertedly towards malaria elimination by 2030.

Method: A model for improvement is used to design and implement the QI project. Fishbone and driver diagrams were employed to identify the root causes of the problem and generate change ideas. PDSA cycle and run chart were used to test selected interventions and measure the results.

Interventions: Following the root cause analysis, selected interventions, including training health care providers on malaria case management, availing adequate equipment at the laboratory unit, availing relevant guidelines for malaria case management, and conducting client chart and prescription audit

Result: Quality of care improved by reducing empirical treatment of malaria from 54% to 5%. The reduction of empirical treatment will decrease the wastage of antimalarial drugs and prevent clients from unnecessary drug side effects.

Conclusion: This QI project showed that implementing tested and effective change ideas can significantly improve the quality of care.

Keywords: *Treatment, Malaria, Tulu Bolo General Hospital, Oromia Region*

Introduction

Globally, in 2021, there were an estimated 247 million malaria cases in 84 malaria-endemic countries, an increase of 2 million cases compared with 2020. In 2020, the mortality rate increased to 60.4 per 100,000 population before decreasing in 2021 to 58.2. In 2020, a total of 241 million malaria cases and 627,000 malaria deaths were reported globally; 96% of deaths occurred in Sub-Saharan Africa, and 77% of deaths were children under five (WHO 2021). The malaria incidence rate is estimated to have decreased by 37% globally between 2000 and 2015. Malaria death rates have decreased by 60% over the same period (WHO, 2015). The trends of malaria have shown a consistent decline in Ethiopia. It has successfully achieved the Millennium Development Goals. According to the FMOH (2015) Health Management Information System (HMIS) report, confirmed malaria cases declined from 1.7 million in 2016 to 0.9 million in 2019, respectively.

Generally, the FMOH developed four national malaria guidelines in 2002, 2007, 2012, and 2022. The main recommendation consists of adding radical cure with primaquine for mixed malaria infections at the health post level; AL is indicated for pregnant women in the first trimester; weekly chloroquine prophylaxis for pregnant women with plasmodium vivax malaria; second-line drug; management of severe malaria; and approaches to management of possible treatment failures at each health care setting. Hospitals in Ethiopia should use updated and standardized malaria guidelines and training materials. To this end, the Federal Ministry of Health has developed updated training material for proper malaria case management in the country. Tulu Bolo General Hospital has been provided standard guidelines and training for health care providers in collaboration with Oromia Health Bureau and ICAP for malaria case management.

Problem

Based on the clinical audit conducted on client charts, prescriptions, and laboratory results, 53.5% of malaria cases were treated empirically from February 2022 to September 2022 at Tulu Bolo General Hospital. High empirical treatment of malaria shows poor adherence to standard treatment guidelines, which results in morbidity and mortality, including non-rational use of antimalarial drugs.

Aim Statement

This study aimed to decrease the empirical treatment of malaria from 53.5% to 5% from October 2022 to March 2023.

Assessment of the problem and analysis of its causes

A clinical audit was conducted on charts of selected 172 clients treated for malaria in Tulu Bolo Hospital from Feb 2022 to Aug 2022 to assess the quality of care and identify gaps related to malaria treatment. The assessment report indicates that the empirical treatment of malaria in Tulu Bolo Hospital was 54%. In addition, the assessment was conducted on the knowledge, attitude, and practice of healthcare providers regarding malaria treatment, and the team also assessed the availability or applicability of standard lab procedures, health management information systems, essential equipment and drugs, standard treatment guidelines, and protocol by using a standardized checklist. A problem prioritization matrix was used to prioritize the problems, and a fishbone diagram was utilized to analyze the root causes of the problems. Furthermore, the team used a driver diagram to identify ideas for change for the specific problems identified.

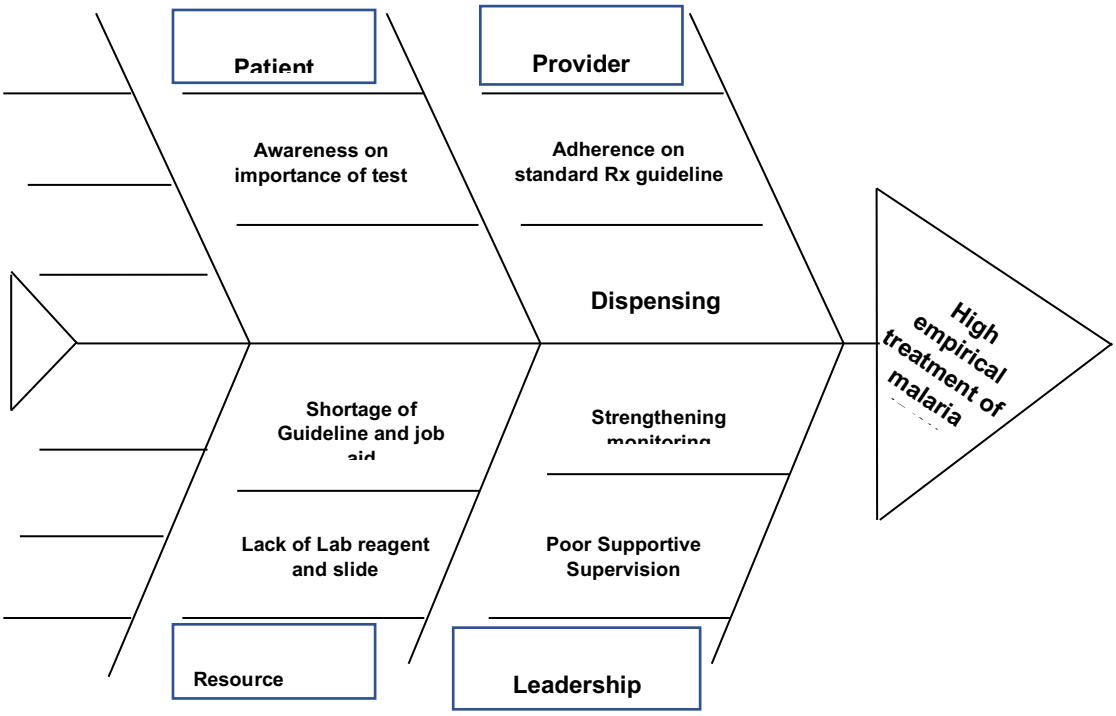


Figure 1: Fishbone Diagram

Interventions
We trained healthcare providers on malaria case management guidelines and provided adequate diagnostic equipment at the laboratory unit. We printed and provided relevant guidelines for malaria case management for easy access and reference. We conducted biweekly audits of client charts, prescriptions, and lab results and provided post-training supportive supervision.

Measurement of improvement
The QI team used two levels of measurement (process and outcome measures) to assess the effectiveness of the change ideas. The multidisciplinary team meets monthly to monitor the intervention's progress using PDSA.

Process measures
– Proportion of health care providers provided orientation training.
– Proportion of internal supportive supervisions conducted.
– Proportion of clinical audit conducted.

Outcome measures
- Percentage of empirically treated malaria cases

Results
Significant progress has been made in strengthening malaria treatment practices. Staff orientation training has increased from 0% to an average of 50%. Clinical audits of malaria cases and internal supervisory support have also jumped from 0% to 100% and 75%, respectively. Furthermore, multidisciplinary team meetings are now held consistently, with an average attendance rate of 100%.

The combined interventions effectively reduced unnecessary malaria treatment. Empirical treatment rates dropped from a baseline of 54% to an average below 5% (Figure 2).

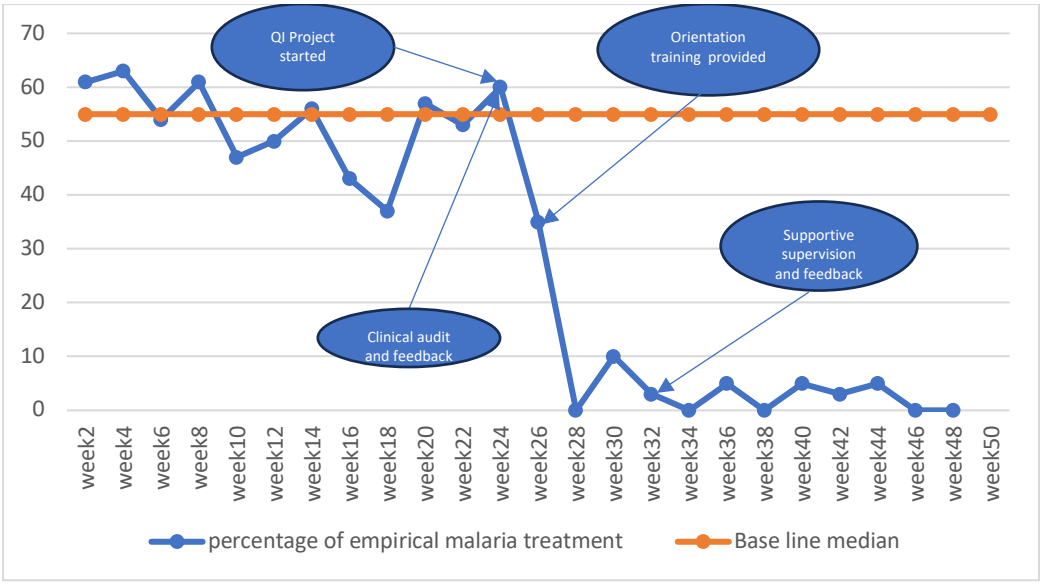


Figure 2: Empirical treatment rates Malaria at Tulu Bolo General Hospital in Oromia Region, Ethiopia

The reduction in empirical treatment will save antimalarial drugs for patients who truly need them and prevent patients from experiencing side effects from unnecessary medication.

Lessons learned

Improving malaria case management requires multiple approaches, which include equipping staff with up-to-date guidelines, training sessions, and regular clinical audits to empower them to deliver high-quality care. Furthermore, the active involvement of senior clinicians and internists is crucial for the project's success. Their expertise provides valuable guidance and ensures the program's sustainability.

Messages for others

Regular on-site capacity building/orientation of health care providers on standard malaria case management and promoting adherence to standard treatment guidelines are central to sustainably reducing empirical malaria treatment.

Reduce data discrepancies in documentation and reporting between the liaison and inpatient unit at Mattu Karl Specialized Hospital

***Authors**: Almaz Asefa, Solan Bekele, Girma B, Regassa, Taka K, Solomon German, Mintewab T, Firehiwot T.*
***Affiliation**: Mattu Karl Specialized Hospital*

Abstract

Introduction: Establishing a robust routine health information system is paramount for the success of the healthcare information infrastructure and the broader healthcare system. The MKCSH liaison quality team aims to reduce the data discrepancy in documentation and reporting between liaison and inpatient unit admission and discharge of patients from 10% to 0% from January 15, 2015, to the end of June 2015 EC.

Methods: Baseline assessment data was collected from the IPD registration and liaison registration book and analyzed using an Excel sheet. In addition, the hospital's multidisciplinary team conducted an assessment using the Avedis Donabedian framework, which encompasses structure, process, and outcome. The QI team used the Fishbone diagram with the five why principle to identify the root cause and the driver diagram to identify change ideas.

Intervention: key interventions identified to address the root cause of the problem include orientation of staff on protocol and SOP of admission and discharge, data triangulation b/n unit before report submission to DHIS2 weekly, assigning one staff every week to track/check patients admitted without the approval of the liaison officer and take corrective action and monitor daily admission and discharge by using dashboard to identify data discrepancy and take corrective action.

Result: The data inconsistency between admission and discharge in the Inpatient Department (IPD) has significantly decreased from 15% in November 2022 to just 1% in June 2023. This improvement in data reliability has enabled the hospital to accurately forecast the necessary medical supplies based on caseloads and allocate manpower to units more proportionally.

Conclusion: Decreasing discrepancies between documentation/recording and reporting will enhance data quality, foster informed decision-making, and increase internal revenue.

Keywords: *Data, discrepancy, documentation, Reporting, Inpatient unit*

Introduction

A poor-quality data ecosystem leads to poor decision-making and inefficient resource allocation. It also undermines confidence in the healthcare system and threatens the validity of impact evaluations. This issue is particularly prevalent in many developing countries, where routine health information systems often need to be more effective.

A well-functioning routine health information system is the cornerstone of a successful health information system—and, by extension, the entire health system. Quality data is imperative for ensuring the safety and reliability of healthcare delivery, with data from health facilities playing a pivotal role in monitoring performance. However, existing studies predominantly focus on identifying determinants of data utilization across various locations, neglecting comprehensive data quality assessments. Hospital admission and discharge processes are inpatient services' initial and concluding stages. When these processes are affected by poor data quality, it directly translates to compromised quality of care. Additionally, it adversely impacts hospital revenue collection and bed management, highlighting the critical importance of addressing data quality issues at these junctures.

The discrepancy between admission and discharge reports and IPD reports signifies a potential breakdown in the hospital's operational processes. Inadequate documentation or reporting procedures may contribute to this consistency, resulting in accurate patient admissions and discharge records. Consequently, the hospital may be experiencing challenges in effectively managing bed availability and patient flow, leading to inefficiencies in resource allocation and service delivery.

Moreover, the compromised data quality stemming from these discrepancies not only hampers the hospital's ability to assess its performance accurately but also undermines the credibility of its internal reporting systems. This lack of data reliability can erode trust among stakeholders, including patients, staff, and external partners, further exacerbating the hospital's operational challenges.

Problem

Mattu Karl Specialized Hospital has observed a concerning trend during the past two months, specifically from November 2015 to December 2015EFY.

The review of admission and discharge reports reveals a consistent shortfall compared to the inpatient department (IPD) reports, with a median difference of 15%. This disparity has led to several adverse outcomes, including inappropriate admissions and discharges, suboptimal utilization of beds, compromised data quality, and a consequential negative impact on the hospital's internal revenue.

Aim Statement

The MKCSH liaison quality team aims to reduce the data discrepancy in documentation and reporting between liaison and inpatient unit admission and discharge of patients from 10% to 0% from January 15, 2015, to the end of June 2015 EC.

Assessment of the problem and its causes

The Hospital quality improvement team conducted a baseline assessment by collecting data from the IPD registration and liaison registration book and analyzing it using an Excel sheet. In addition, the multidisciplinary team of the Hospital has also conducted an assessment using the Avedis Donabedian framework, which encompasses structure, process, and outcome. The QI team used the Fishbone diagram with the 5 why principle to identify the root cause and the driver diagram to identify change ideas. The brainstorming session was conducted with a multidisciplinary team (liaison staff runners, IPD department heads, and another supportive team) to analyze the root causes of the problem further.

Interventions

– Prepare data triangulation protocol and SOP and orient staff on adherence to protocols and SOP of admission and discharge.
– Conduct data triangulation b/n unit before report submission to DHIS2 weekly. All IPD and liaisons do data triangulation to identify gaps and make weekly action plans for improvement.
– Assigned one staff weekly: The assigned liaison staff will track/check if patients are admitted without the approval of the liaison officer and take corrective action.
– Daily monitoring: Monitoring daily admission and discharge using the dashboard to identify data discrepancies and take corrective action.

Measurement of improvement

Daily data collection was performed from both liaison and IPD registrations. This data was then entered into an Excel spreadsheet for analysis. A run chart was generated weekly to track improvement in outcomes. Weekly meetings and discussions were convened among the team members to review and interpret the data findings.

Results/Effects of Changes

The data inconsistency between admission and discharge in the Inpatient Department (IPD) has significantly decreased from 15% in November 2016 to just 0% in June 2016. This improvement in data reliability has enabled the hospital to accurately forecast the necessary medical supplies based on caseloads and allocate manpower to units more proportionally.

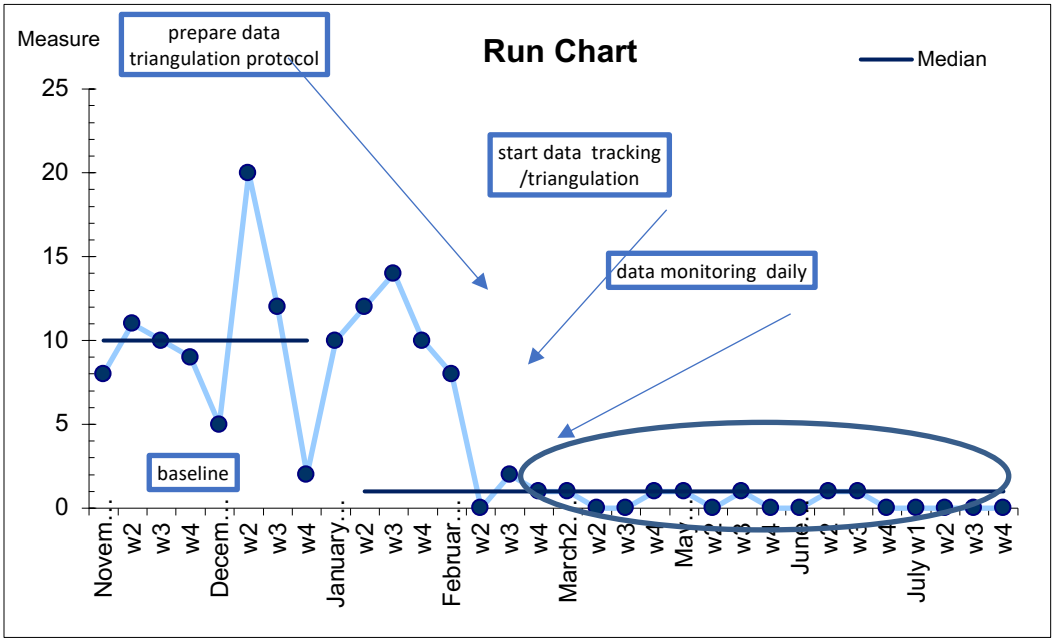


Figure 1: Run chart shows the reduction in inpatient admission data discrepancy

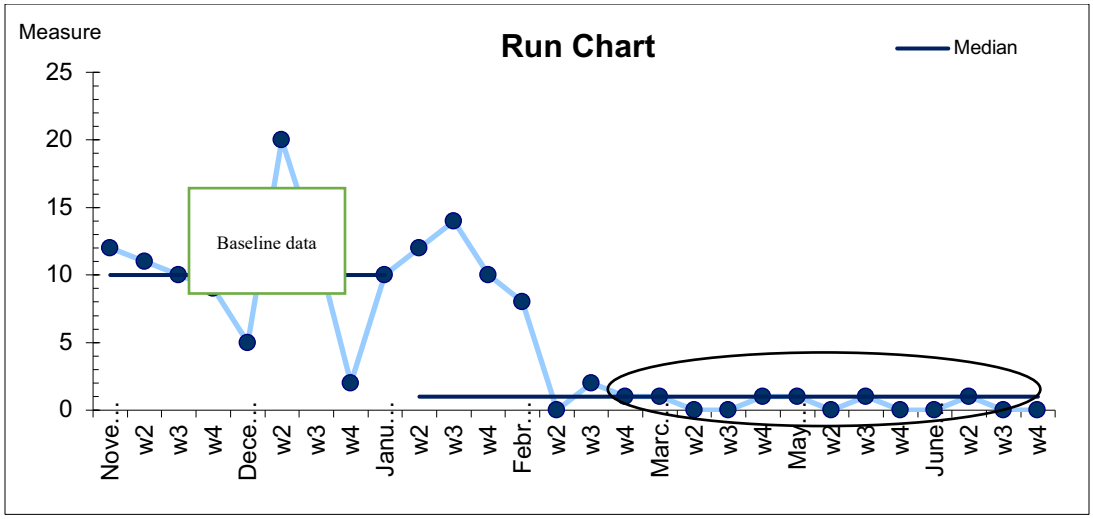


Figure 2. Run chart shows the reduction in data discrepancy of patients discharged from inpatient

Lessons learned

It's essential to capture performance data daily with the guidance of dashboards and conduct daily root cause analyses to address any identified gaps swiftly. Utilizing QI data monitoring tools for continuous data monitoring, alongside system redesign based on findings, is crucial for improvement efforts.

Reducing Neonatal Mortality in Mojo Hospital

Authors: *Rabira Edesa, Alemayehu Sertse, Beyene Deraro, Dereje Beyene, Asaminew Birhanu, Selamawit T/Birha, Birke Desmise, Abaynesh Irkihun, Samrawit Ayalew, Tegene Ayano*
Affiliation: *Modjo Hospital*

Abstract

Background: The first month of life is a critical period for child survival, with vulnerability at its peak. Globally, 2.4 million newborns lost their lives in 2020 during this vulnerable window. Sub-Saharan Africa faces an alarming neonatal mortality rate (NMR) of 29 deaths per 1000 live births. In Ethiopia, the NMR is 20.7 per 1000 live births (EDHS 2016 data).

Local context: Mojo Hospital experienced a neonatal mortality rate of 18 per 1000 live births. Retrospective death summary audits revealed that neonatal sepsis (60%), asphyxia (22%), and premature birth (18%) were major causes of neonatal deaths.

Methods: We utilized the Model for Improvement framework and Plan-Do-Study-Act (PDSA) cycles. In addition, qualitative and quantitative data analysis methods were employed to identify the root cause of problems further and propose ideas for change.

Interventions: Interventions include standardization of the referral system through the NOC initiative, renovation of the NICU to disaggregate neonatal admission based on clinical and improvement infection prevention practices by availing handwashing stations in NICU, and availing gowns for mothers. Strengthening referral communication with the catchment facilities through the Networks of Care (NOC) communication WhatsApp platform, use of clinical bundle approach, periodic joint clinical and quality improvement mentorship visits, and application of 5S Kaizen principles.

Results: The interventions have gradually reduced neonatal deaths in Modjo Hospital, as evidenced by a shift in our run chart.

Conclusion: Addressing neonatal mortality requires concerted efforts (adherence to IPP, measuring care content using the clinical bundle approach), improving infrastructure, and a commitment to providing quality care during the critical early days of life.

Keywords: *Neonatal Mortality, Improvement, Networks of Care, Mojo Hospital*

Introduction

The first month of life is the most vulnerable period for child survival, with 2.4 million newborns dying in 2020. Globally, 2.4 million children died in the first month of life in 2020. There are approximately 6700 newborn deaths every day, amounting to 47% of all child deaths under the age of 5 years, up from 40% in 1990 (1). The world has made substantial progress in child survival since 1990 (2). The number of neonatal deaths declined from 5 million in 1990 to 2.4 million in 2020. However, the decline in neonatal mortality from 1990 to 2020 has been slower than that of post-neonatal under-5 mortality(2). The chance of survival from birth varies widely depending on where a child is born. Sub-Saharan Africa had the highest neonatal mortality rate in 2020 at 27 deaths per 1000 live births, followed by central and southern Asia with 23 deaths per 1000 live births(3). A child born in sub-Saharan Africa is ten times more likely to die in the first month than a child born in a high-income country(4). Country-level neonatal mortality rates in 2020 ranged from 1 death per 1000 live births to 44, and the risk of dying before the 28th day of life for a child born in the highest-mortality country was approximately 56 times higher than the lowest-mortality country.

Most neonatal deaths (75%) occur during the first week of life, and in 2019, about 1 million newborns died within the first 24 hours. Preterm birth, childbirth-related complications (birth asphyxia or lack of breathing at birth), infections, and birth defects caused most neonatal deaths in 2019. From the end of the neonatal period and through the first five years of life, the main causes of death are pneumonia, diarrhea, birth defects, and malaria. Malnutrition is the underlying contributing factor, making children even more vulnerable to severe diseases(3). Ethiopia has attained prominent attainments in improving the health status of children in the last two decades. Between 1990 and 2015, child deaths have diminished by two-thirds. The under-5 mortality rate decreased from 123 per 1,000 LBs in 2005 to 59 in 2019 (5,6). Similarly, the infant mortality rate decreased from 77 per 1,000 LBs to 47 in 2019. However, neonatal mortality remains high with a modest decline—from 39 deaths per 1,000 LBs in 2000 to 33 in 2019 (7). Startlingly, according to EDHS reports, there is an increment in neonatal mortality from 29 deaths per 1,000 LBs in 2016 to 33 in 2019. Ethiopia has planned to diminish neonatal mortality from 33 per 1,000 LBs to 21 per 1,000 LBs by

2024/25(7). The leading causes of neonatal deaths in Ethiopia are Prematurity, asphyxia, and neonatal sepsis. In Mojo Hospital, the major causes of neonatal deaths were Infection (Neonatal sepsis) 60%, asphyxia 22%, and premature birth 18%, respectively.

Context

Mojo Hospital's neonatal ICU Service began in April 2012 and admitted 250 newborns till June 2015 from all referring facilities from the catchment health centers. As per the retrospective death audit we've made, the major causes of neonatal deaths were Infection (Neonatal sepsis) 60%, asphyxia 22%, and premature birth 18%, respectively. Accordingly, we designed a quality improvement project to Reduce the neonatal death rate with quality improvement members. All teams were involved until the project's success, and their contribution was vital for reducing the death rate, including the change generation of change ideas. The model for improvement was a framework used to explain the problem, set an aim, and develop an intervention.

Problem statement

A retrospective audit of death reveals that the percentage of neonatal deaths was found to be 17.5% for the past 6 Months in Mojo Hospital Newborn Intensive care unit, which decreases staff and patient satisfaction.

Aim statement

The project aim is to decrease the neonatal mortality rate from 17.5% to 2% from March 26/2015, by the end of June 30, 2015, in Mojo Hospital Neonatal Intensive Care Unit (NICU).

Methods

After basic quality improvement training, a baseline assessment was conducted by the Quality improvement team. Following baseline assessment, performance gaps were identified in the NICU, ranging from inputs and process of care to technical competence. The facility team utilized the Model for improvement: the three questions and Plan-Do-Study-Act cycle approach (PDSA) to guide the improvement work. Problems were identified, prioritized, and rooted because the analysis used the fishbone method. The teams will develop problem statements, set aims, generate change ideas, and

set indicators to monitor the changes. Using the PDSA cycle, generated change ideas were tested. Interventions were tested during the action period using a testing framework PDSA.

Assessment of the problem and analysis of its cause

We planned to assess the cause and extent of the problem through Fishbone diagram analysis for route cause of the problem and driver diagram for possible solution and extent of the problem. All relevant staff from the Neonatal intensive care unit (NICU), SMT, and quality improvement teams were involved in problem identification and generating change ideas. After the project starts, quality improvement teams will follow the progress of the change Ideas using (PDSA) cycle. At the end of the project's findings, if any problems occurred, opportunities were disseminated to all other staff through morning session meetings, SMT meetings, and other inter-departmental interactions.

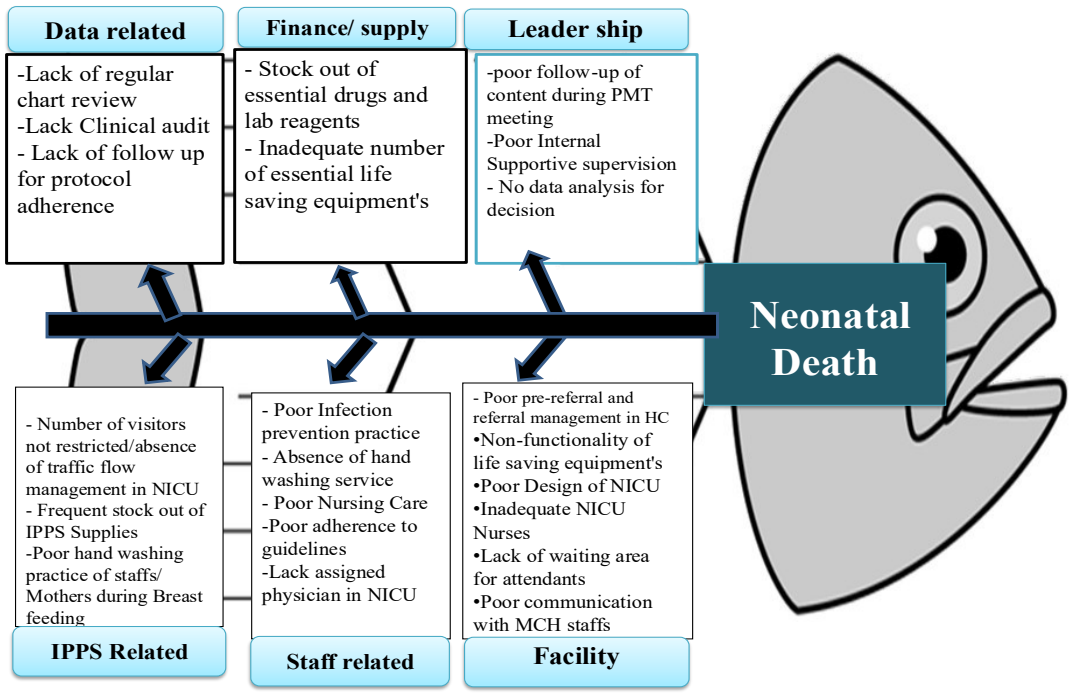


Figure 1: Root cause analysis for reduction of neonatal death rate in Mojo Hospital NICU

Interventions

The Quality Improvement (QI) team proposed the following interventions after thoroughly assessing the prevailing gaps using quality improvement tools (Fishbone with the five why techniques and driver diagram).

- Redesign/ Renovation NICU
- Redesigning referral slips for the NOC facilities
- Conducting clinical mentorship to NOC facilities on improving pre-referral communication and management
- Installation and Maintenance of machines used for Neonatal Care
- Give on-the-job refreshment training
- Conduct regular internal supportive supervision
- Discussion with MCH Staff (Midwives, IESO, Gynecologists)
- Controlling Traffic flow in the NICU
- Data-driven discussion with Senior clinicians and the management team
- Developing improvement projects targeted towards the main cause of neonatal mortality.
- Use of clinical bundle approach to assess adherence to standard clinical protocols.
- Periodic joint clinical and quality improvement mentorship visits
- Application of 5 S Kaizen principles

Study of Intervention

The quality improvement team used the following monitoring techniques to assess the effect of the proposed intervention:

– Run chart (data plotted over time with median line)

– Periodic spot-checking to assess real-time adherence to infection prevention practice both by NICU staff and client family(mothers)

– A monthly clinical audit was performed to assess if the changes positively impacted adherence to the bundle elements.

Measurement plan

Table 1: Outcome Measures

Aim Statement	Outcome Measures	
The project aim is to decrease neonatal mortality rate from 17.5% to 4% from March 26/2022 to by the end of December 2023, in Mojo Hospital Neonatal Intensive Care Unit (NICU).	Indicator	Proportion of neonatal death reduced
	Numerator	Number of neonatal deaths
	Denominator	Total number of Neonates discharged with recovery
	Data Source	Monthly Report data, Register

Table 2: Process Measures and Balancing Measures

Change Ideas	Process Measure				Balancing measure
	Indicator	Numerator	Denominator	Data source	
Redesign/ Renovate NICU	Proportion of rooms availed room for NICU per standard	# of rooms availed in NICU per standard	Total # of rooms to be availed for NICU per standard	Observation	# Proportion of neonates managed as protocol # Quality of care given to neonates # Increase Data Quality
Installation and Maintenance of machines	Percentage of Equipment's availed in NICU	# of Equipment's installed and availed	Total # of equipment's needed for NICU	Observation	
Facilitate on job refreshment Training	% of trained NICU staffs	# of trained HW	Total # of staffs planned for training	Minute book and attendances	
To give Nursing care per standard	Percentage of nursing care given to all neonates per standard	# of staff's who give nursing care per standard	Total # of nurses to be participated on care	Checklist	
Regular Follow-up for guidelines and Protocols adherence	% of neonates managed per protocol and guideline	# of protocols availed in NICU	Total # of protocols and guidelines to be availed in NICU	Checklist for protocol adherence and Performance monitoring	

Results

Outcome Measures

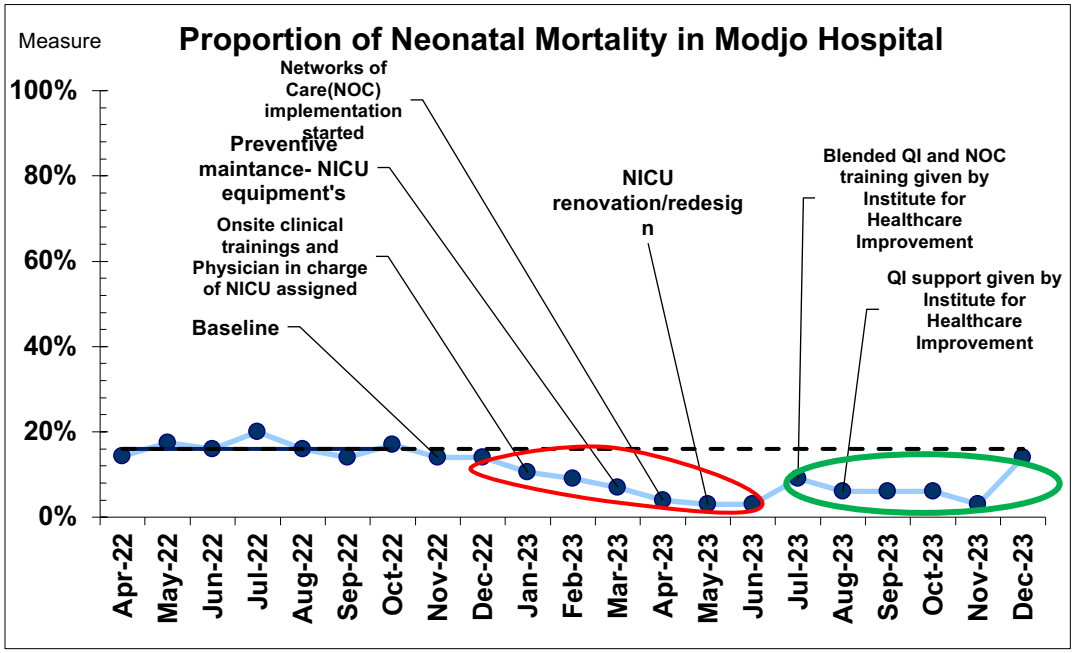


Figure 2: Percentage of Neonatal Death in Modjo Hospital

Process Measures

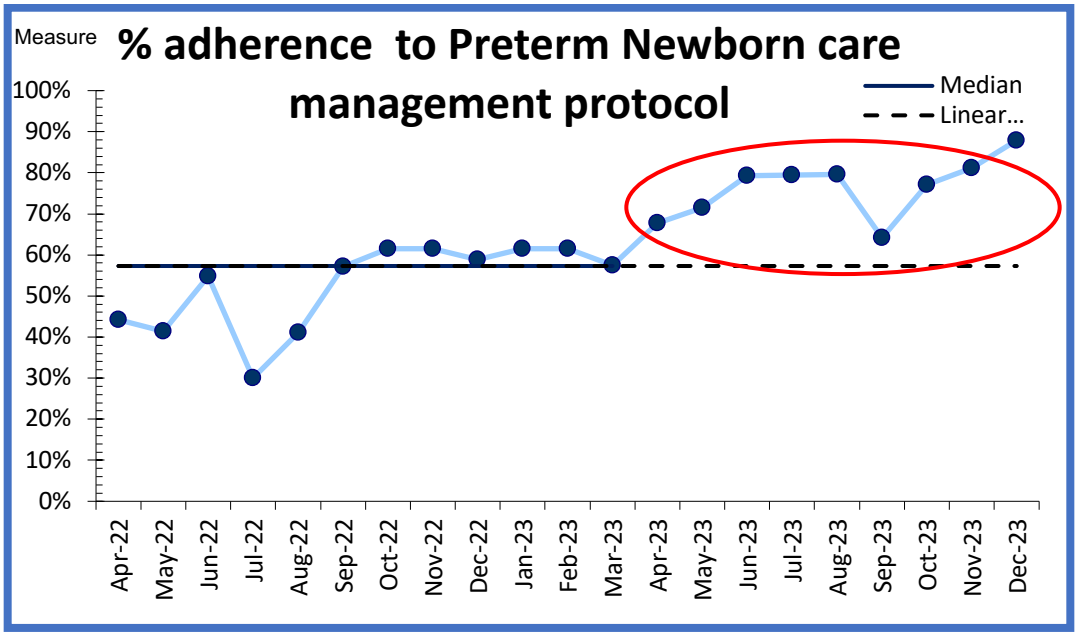


Figure 3: Percent of adherence to preterm Newborn care management protocol in Modjo Hospital

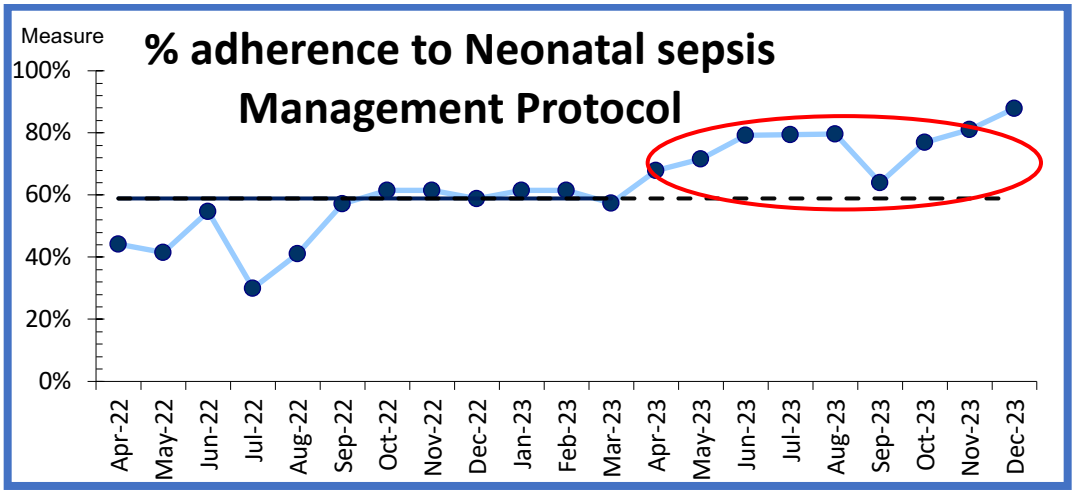


Figure 4: Percent of adherence to Neonatal sepsis Management Protocol in Modjo Hospital

Lessons learned

A multifaceted approach notably improving pre-referral communication, management, and virtual consultation with senior clinicians using the Networks of Care model, process of care improvements, enhancement of infrastructure, improved infection prevention practices, measurement of adherence to clinical bundle elements, and application of the Model for Improvement has led to an unprecedented level of better neonatal outcomes.

Messages for others

- Adapting the Networks of Care model to the local context will enhance virtual consultations, pre-referral communications, and management.
- Invest in NICU redesign and periodic preventive maintenance sessions.
- Prioritizing infection control measures.
- Ensuring consistent adherence to evidence-based clinical protocols.
- Applying continuous quality improvement principles.
- Collaboration with the Governing board (Mayor of the town) for resource mobilization

Improving adherence to paper-based partograph at Modjo Town Health Center

Authors: *Besu Kufa, Hailu Asefa, Tulu Bedada, Gosa Megersa, Meseret Tesfaye, Lalise Teso, Adane Tafese, Adam Kuri, Hafiza Hussein, Shemisiya Edeo, Tigist Gebre*
Affiliation*: Modjo Town Health Center*

Abstract:
Background: The paper-based partograph is critical for monitoring labor progress and detecting deviations. However, adherence to proper partograph use has been suboptimal, leading to potential risks for mothers and newborns.
Local context: Modjo Health Center serves many maternal, newborn, and child health (MNCH) clients from Modjo Town and Lume Woreda populations. The health center operates a functional operating room (OR) block, where more than 700 cesarean sections have been performed over the past three years.
Methods: We utilized the Model for Improvement framework and Plan-Do-Study-Act (PDSA) cycles. In addition, qualitative and quantitative data analysis methods were employed to identify the root cause of problems further and propose ideas for change.
Interventions: Tested change ideas include the provision of refresher training by veteran IESO, handover of the progress of labor using a partograph sheet during each shift, a setting buffer stock of necessary supplies and equipment needed to attend labor and delivery, peer-to-peer mentoring by matching experienced mentors with a relatively less skilled mentee, educating term pregnant mothers on ted interventions that collectively contribute to safer deliveries, better outcomes, and improved quality of care for both mothers and the newborn sign of labor, weekly reviewing and analyzing labor and delivery records completed by skilled birth attendants and provision of timely feedback.
Results: The interventions have steadily adhered to the standard protocol (the run chart qualifies as a rule of shift)**.**
Conclusion: Optimizing intrapartum care requires concerted and multifaceted interventions that collectively contribute to safer deliveries, better outcomes, and improved quality of care for both mothers and newborns.

Keywords: *Adherence, paper-based, partograph, Modjo Town, Health Center*

Background

Partograph is a graphical tool used during labor to monitor the progress of cervical dilation, fetal descent, and maternal vital signs. It helps identify deviations from normal labor patterns and prompts timely interventions. Globally, maternal mortality remains a significant concern. Obstructed and prolonged labor contributes to a substantial percentage of maternal deaths. The partograph is a cost-effective and essential intervention to prevent adverse outcomes during childbirth (1). However, adherence to partograph use varies worldwide. In some resource-limited countries, health workers need help to utilize the partograph consistently. Factors influencing global utilization include training, knowledge, attitude, and supervision (2). In Ethiopia, partographs are only sometimes used during labor. Studies from various regions report varying levels of utilization: Asella Referral and Teaching Hospital: 26%, Sidama Zone: 50.7%, Bale Zone: 70.2%, Addis Ababa City Administration: 53.85% and East Gojjam Zone: 69% (2).

A systematic review and meta-analysis involving 19 studies found that Ethiopia's overall pooled prevalence of partograph utilization among obstetric care providers was 59.95% (1). Determinant factors for partograph use in Ethiopia include being in the midwifery profession, presence of supervision, Basic Emergency Obstetric and Newborn Care (BEmONC) training, knowledge of the partograph, on-the-job refresher training, favorable attitude, and working at health centers (1).

Context

Modjo Health Center serves many maternal, newborn, and child health (MNCH) clients from Modjo Town and Lume Woreda populations. The health center operates a functional operating room (OR) block, where more than 400 cesarean sections have been performed over the past three years. Additionally, the health center handles an average of 80 normal deliveries per month. Despite having experienced clinical staff attending labor and delivery, the quality of intrapartum care could be better, with only 50% meeting the desired standards.

Problem statement

In the past year (from April 2022 to March 2023), a retrospective review of Modjo Town Health Center client records indicated that the partograph utilization was only 50%. Unfortunately, this suboptimal utilization led to inadequate management of labor and delivery, resulting in delayed detection of complications, including stillbirths.

Aim statement

This study aimed to improve the percentage of partograph utilization from the baseline of 50% to 90% from July 2023 to June 2024.

Methods

We utilized the Model for Improvement framework and Plan-Do-Study-Act (PDSA) cycles. In addition, qualitative and quantitative data analysis methods were employed to further identify the root cause of problems and propose ideas for change.

Root causes

The following problems were identified as hindrances to proper partograph utilization at the health center using fishbone analysis.

- Late identification of labor
- Poor counseling
- Lack of feedback
- No regular supervision
- Poor adherence to implementation
- Skill gap

Interventions

The team tested and adapted the change ideas targeted to improve the real-time utilization of the partograph for clinical decision-making. These include the provision of refresher training by veteran IESO, handover of the progress of labor using a partograph sheet during each shift, setting buffer stock of necessary supplies and equipment needed to attend labor and delivery, peer-to-peer mentoring by matching experienced mentors with relatively less skilled mentee, educating term pregnant mothers on early sign of labor, weekly reviewing and analyzing labor and delivery records completed by skilled birth attendants and provision of timely feedback.

Result and effect of changes

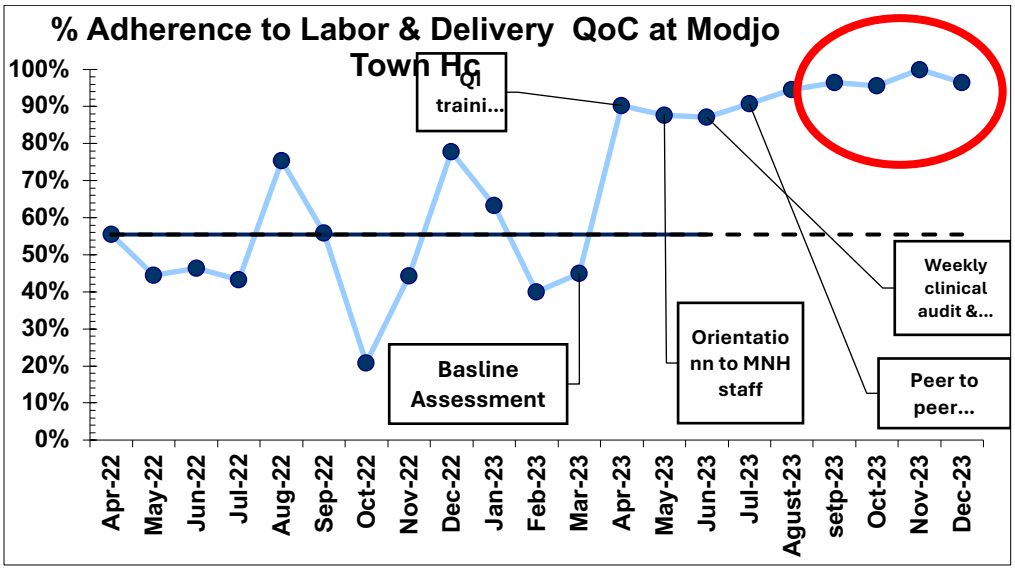


Figure 1: Adherence to Labor and Delivery QoC at Modjo Town Health Center

The run chart graph depicted that partograph completion increased to 96% within ten months. Cases of obstructed and prolonged labor were reduced (from 6.2% to 2.4%). Neonatal referrals due to birth asphyxia were decreased (from 8% to 3.4%). Maternal and neonatal outcomes were improved.

Conclusion

Optimizing intrapartum care requires concerted and multifaced interventions that collectively contribute to safer deliveries, better outcomes, and improved quality of care for both mothers and newborns. Furthermore, staff and community satisfaction increased.

Lessons Learned

Throughout the process, we learned the importance of staff engagement and clear communication from the project's inception and throughout the project's implementation cycles is paramount. Furthermore, flexibility in adapting interventions based on feedback (test cycles) is the cornerstone of our success. In addition, proactively addressing workload concerns is crucial for the project's success.

Improving Adherence to Appropriate Nursing Care Plan at Deder General Hospital, Oromia, Ethiopia

Authors: *Abdi Tofik, Nuredin Yigezu, Derese Gosa, Redwan Sharfuddin, Hamza Jemal, Ibrahim Tahir, Mohamed Abdi, Abdella Aliyi, Jafer Dine*
Affiliation: *Deder General Hospital, Oromia*

Abstract
Introduction: A nursing care plan is a systematic process documented for better patient health recovery. Adherence to an appropriate nursing care plan is vital for delivering comprehensive and consistent patient care. However, the current level of adherence needs to be revised, leading to variations in care delivery, compromised patient safety, and potentially negative patient outcomes.
Objective: This QI project aimed to improve adherence to appropriate nursing care plans at Deder General Hospital from 47% to 90% from September 02, 2016, E.C. to February 30, 2016, E.C.
Methods: To improve adherence to the appropriate nursing care plan, the QI team used the model for improvement model (MFI). The PDSA (Plan-Do-Study-Act) cycle was used to test the change ideas. We used Fishbone and Driver diagram techniques to identify and address the root causes. The key change ideas implemented consisted of on-the-job training, availing lists of nursing diagnoses and care plans, and intensive night rounds with immediate corrective action by the QI team.
Result: Upon completion of the QI project, the overall adherence to the appropriate nursing care plan was improved from 47% to 89%. Thus, it improved each component of the nursing care plan from 53% to 945, 58% to 89.5%, 47% to 95%, 37% to 96%, and 42% to 95% in Assessment, Nursing diagnosis, plan of care, intervention, and evaluation, respectively. The implementation of the project brought positive consequences in improving the average length of stay and patient satisfaction as balancing measures. It decreased the patient's hospital average length of stay (ALOS) from 7.3 days to 4.2 days and increased patient satisfaction from 53% to 84%.
Conclusion: Adherence to the appropriate nursing plan has improved since the start of the QI project. Implementing "provide on-the-job training, availing lists of nursing diagnoses and their care plans, and conducting intensive night rounds with immediate corrective actions" were key improvement ideas implemented to improve adherence to the appropriate nursing care plan.
Keywords: *Adherence, Nursing Care Plan, Deder General Hospital, Oromia, Ethiopia*

Introduction

The nursing care plan is a continuous process that is documented systematically to ensure the patient's better health recovery. If medications heal the patient's illness, the nursing care improves comfort and helps them recover through gentle touch and care. Adherence to nursing care plans is vital for delivering comprehensive and consistent patient care. However, the current level of adherence is suboptimal, leading to variations in care delivery, compromised patient safety, and potentially negative patient outcomes. Low adherence may include inadequate understanding of care plans, lack of standardized documentation practices, insufficient communication among healthcare team members, and limited accountability (1,2).

Context

Deder General Hospital is one of the oldest and earliest hospitals in Oromia. It was established in 1957 GC in East Hararghe Zone, Deder town, by Mennonite missions. The hospital's mission is to reduce morbidity, mortality, and disability. This improves the health status of people in the catchment areas by providing comprehensive rehabilitative, promotive, and curative health services to all stakeholders. It has a well-organized, multi-disciplinary QI team comprising physicians, nurses, pharmacists, laboratory technologists, anesthetists, and midwifery professionals.

Statement of Problem

The nursing care plan adherence audit conducted from August 01-30, 2016, E.C., shows that the nursing care plan adherence at Deder General Hospital was suboptimal (47%). This resulted in medication errors, missed interventions, delayed treatment, and decreased patient satisfaction.

Aim Statement

Deder General Hospital QIT aims to improve adherence to nursing care plan from 47% to 90% from September 02, 2016, E.C to February 30, 2016, E.C.

Assessment of problem and analysis of its causes

The QI project team assessed baseline data for improving adherence to appropriate nursing care plans in five hospital wards (Medical, Pediatrics, Surgery, OBGYN, ICU) over one month (Aug 1-30, 2016EC). We reviewed 38 randomly chosen patient records in 2 rounds for five specific criteria (assessment, Nursing Diagnosis, Nursing care plan, Intervention, and Evaluation). A standardized national nursing care audit tool is used to gather data. Accordingly, the baseline data results against the nursing process elements were assessment (53%), nursing diagnosis (58%), plan of care (47%), intervention (37%), and evaluation (42%). The overall rate of appropriate nursing care plans was 47%. (Figure 1)

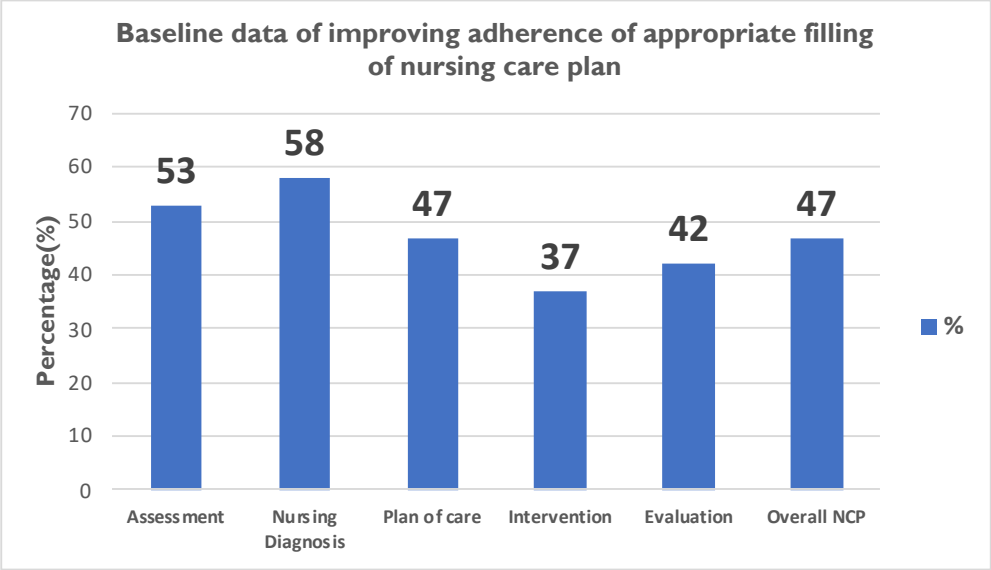


Figure 1: Baseline data showed the rate of appropriate nursing care plan at Deder General Hospital, from August 01-30, 2016, E.C

Intervention

The QI team analyzed the root causes using a fishbone diagram, plotted possible intervention packages using a driver diagram, and designed an implementation plan. A series of PDSA cycles were conducted. Intervention data were collected and analyzed every two weeks. The target unit heads and care providers implemented changes and received feedback after thoroughly interpreting the results.

Root causes

The identified major causes were skill gaps, the absence of lists of nursing diagnoses at service areas, and the lack of intensive night rounds with immediate corrective action.

Interventions and Change Ideas

The following change ideas are targeted to improve adherence to the Nursing Care plan from 47% to 90%. Using a prioritization matrix, we focused on four specific change ideas from a pool of 8 possible Change ideas. These proposed interventions and change ideas were**:**

- Provide on-the-job training for nursing staff.
- Provide the lists of nursing diagnoses and their care plans.
- Provide feedback.
- Conduct intensive rounds at night with immediate corrective actions.

Table 1: Measurement

Aim statement	**Outcome Measure**		**Change ideas**	**Process measures**			
				Indicator	**Numerator**	**Denominator**	**Data source**
To improve adherence to nursing care plan from 47% to 95% from E.C to September 02, 2016	Proportion of adherence to appropriate NCP		Provide on job training	Proportion of training session provided	Number of training session provided	Total Planned training session	Minute
	Numerator	Number charts with appropriately filled NCP	Provide lists of Nursing diagnosis and its care plan	Proportion of service areas received lists of nursing diagnosis	Number of service areas received lists of nursing diagnosis	Number of service areas planned	Minute

Results

Finally, after completing the project, adherence to the appropriate nursing care plan in the inpatient wards at Deder General Hospital improved from 47% to 95% (Figure 2). There was an improvement in all components of nursing care plans, such as assessment (98%), nursing diagnosis (89.5%), care plan (95%), intervention (96%), and assessment (95%).

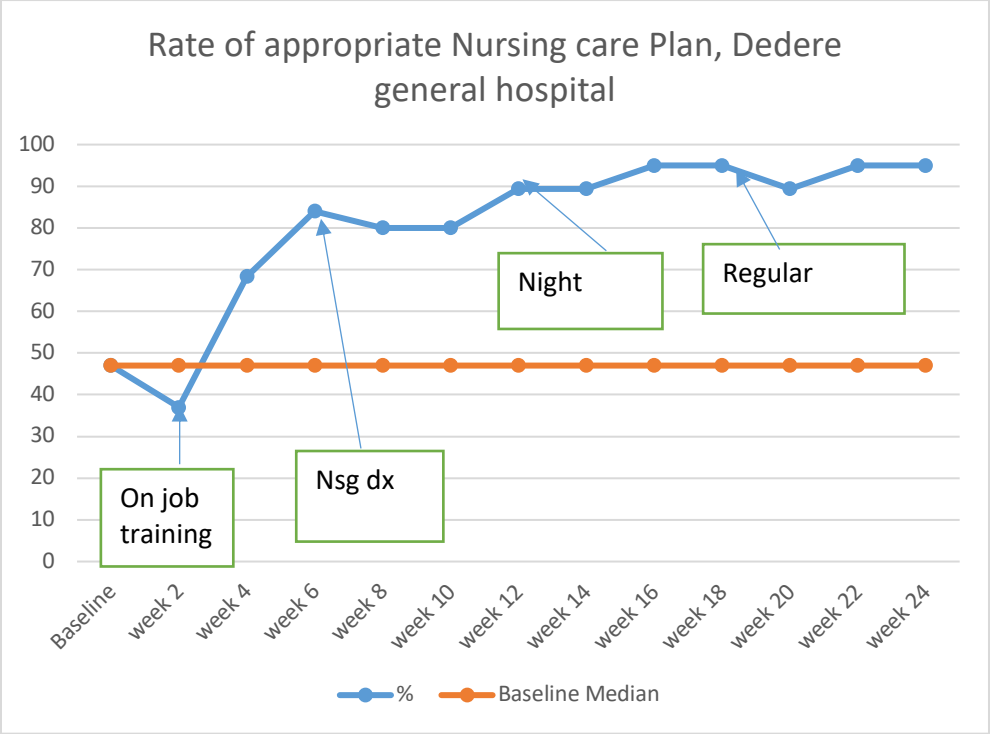


Figure 2: Rate of appropriate Nursing care Plan, Dedere General Hospital at Deder General Hospital, from August 01-30, 2016, E.C.

Balancing Measure Outcomes

Implementing the quality improvement project had positive consequences, including a reduction in patient average length of stay (ALOS) from 7.3 days to 4.2 days (Figure 6) and improved patient satisfaction from 53% to 84% (Figure 7).

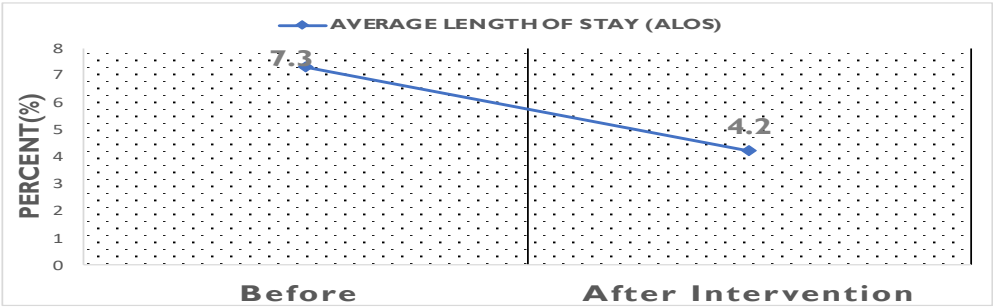


Figure 3: Adherence to appropriate nursing care plan Decreased the average length of stay (ALOS) in inpatient wards of Deder General Hospital, 2016, E.C

Lesson learnt

Leadership's involvement in using a task force for intensive night rounds with immediate corrective actions and conducting frequent and regular nursing care audits with feedback is important in improving adherence to appropriate nursing care plans.

Conclusion

Adherence to the appropriate nursing plan has improved since the start of the project period. Implementation of “provide on-the-job training, avail lists of nursing diagnoses and their care plans, and conduct intensive night rounds by QI team with immediate corrective actions” were key improvement ideas implemented to improve adherence to the appropriate nursing care plan.

References

1. The Nurse's Guide to Writing a Care Plan | USAHS https://www.southalabama.edu/departments/academicadvising/advisingguides/nursing/nursing.html
2. Nursing Care Plan (NCP): Ultimate Guide & List [2024 Update] - Nurseslabs https://nurseslabs.com/nursing-care-plans/98

Improving elective surgery performance in Metu Karl Comprehensive Specialized Hospital, Oromia

***Authors**: Almaz Asefa[1], Abduselam Jemal[1], Solan Bekele[1], Edosa Habtamu[1], Eyasu Regassa[1], Rediet W/silase[1], Teka Koina[1], Sabila, Solomon German[1]*
***Affiliation**: [1] Mattu Karl Specialized Hospital, [2] Oromia Health Bureau*

Abstract

Background: Elective surgery cancellation refers to canceling planned surgical procedures initially scheduled but not on the intended day. The prevalence of elective surgical case cancellation in Ethiopia varies between 8.9% to 33.9%. In our hospital, elective surgery cancellations are critical due to a substantial waiting list of 201 elective surgery cases when we identified our gaps**.**

Objective: This project aimed to improve elective surgery performance from the baseline of 45% (Median %) to 95% from February 2022 to December 2022 E.C.

Methods: Our hospital's improvement team analyzed data from DHIS-2 and the surgical cancellation logbook over the past six months. Using Statistical Process Control (SPC), we examined trends in cancellations for elective surgery/efficiency of elective surgery. The median cancellation rate was 55%, causing emotional distress for patients, families, communities, and staff.

Results/Effects of changes: The percentage median of elective surgery performance has significantly improved to 90%, compared to the baseline median of 55%. The run chart qualified the rule of shift, indicating improvement. Furthermore, the result was sustained.

Conclusion: The marked improvement in elective surgery performance demonstrates the power of a holistic approach that involves improving inputs, designing efficient clinical care processes, ensuring the availability of supplies and medications, and engaging leadership, clinical teams, paramedics, and the community. The hospital's commitment to system redesign has been instrumental in this achievement.

Keywords: *Elective surgery, Performance, Metu Karl, Comprehensive Specialized Hospital*

Introduction

Operating rooms (ORs) are among the most important areas of the hospital, contributing to both the workload and internal revenue—the efficient workflow of the Operating. Theater is central to patient satisfaction due to timely intervention. The efficient use of OR time depends on the scheduling of cases, allocation of staff and equipment, the time required for preparation and induction of anesthesia, the performance of surgery, recovery from anesthesia, preparation of the OR for the next patient, and other resources. Inefficient OR management can result in case cancellations and long patient waiting lists. A well-managed OR results in a high surgical turnover, reduced postoperative complications, improved patient-centered outcomes, and greater patient satisfaction.

In MKCSH, Concern about the long waiting times for elective surgery is not a recent phenomenon that is due to only having one surgeon; due to inflation of market scarcity of resources, drugs, and supply leads to a heightened list /backlog, which means (201 patients/90 days waiting to get the service. This might reduce client satisfaction, advance the disease condition, and impact the hospital's internal revenue. One way to alleviate the problem might be to prioritize the case according to the severity and geography of patients and increase efficiency/capacity to manage those cases.

These include 1) prepare own elective surgery protocol 2) accurate case-duration estimate: Measures the percentage of cases where patient-in-room duration is within 15 minutes of the estimated in-room duration. This is a performance parameter for the scheduling of cases. 2) Percentage of on-time first case starts: In a good OR, there should be no reason for the patient to be wheeled in late. Delayed starts may reflect inefficiencies in the hospital systems from the wards to receiving the patient in the OR. 3) Pre-anesthesia evaluation measures the percentage of cases with pre-anesthetic checkups before surgery. Inadequate prescreening may be responsible for a proportion of cancellations or delayed starts. 4) Patient-in-to-incision time: Measures the average time between the patient entering the operating room and the first incision. This includes the time for induction of anesthesia, positioning, and surgical preparation. This is variable depending on the nature of the anesthetic and the surgery. 5) Average turnover time measures the time elapsed between the prior patient exiting the room and the next patient

entering the OR. Many factors drive turnover. There is a high need for unmated surgery in developing countries due to the underutilization of the existing operation theater according to protocols.

Context

Mattu Karl Comprehensive Specialized Hospital (MKCSH), Established in 1952 EC, serves a catchment area of approximately 3.6 million people, including neighboring regions such as Gambella and Southern Ethiopia. Our hospital provides outpatient and inpatient emergency services, with 214 functional beds. Among these, 65 beds are dedicated to the surgical ward. We operate three fully equipped operating theaters: two for elective procedures, one for emergencies, and a minor operating room.

Our comprehensive surgical services cover a range of specialties, including general surgery, orthopedic surgery, obstetrics, and gynecological surgery. Our hospital handles a substantial number of surgeries throughout the year. The collaborative team involved in this quality improvement project includes operation theater staff, the surgical ward, liaisons, and senior surgeons. We strive to enhance OR efficiency, reduce waiting times, and improve patient outcomes.

Problem statement

In Mattu Karl Comprehensive Specialized Hospital, inefficient utilization of the operating theater has resulted in a significant burden of surgical waiting backlog and frequent cancellations. Over the past three months (from November to January 20/2015), our liaison backlog and operation theater logbook reveal that only a median of 48% of elective surgeries were performed compared to the number of patients on the waiting list. This situation has decreased client satisfaction due to prolonged service waiting and secondary complications from disease progression.

Aim statement

The Metu Karl Comprehensive Specialized Hospital improvement team aimed to improve elective surgery performance from the baseline of 45% (Median %) to 95% from February 2022 to December 2022 E.C.

Assessment of problem and analysis of its causes

The quality improvement team of the Hospital conducted baseline assessment data collection from DHIS2, OR registration, and liaison. Backlog registration

book data was analyzed using an Excel run chart constructed; then, the median shows the performance of elective surgery VS backlog. The team used the Avedis Donabedian framework, which encompasses the structure, process, and outcome of assessment carried out by a multidisciplinary team of the Hospital. The finding was displayed for higher leadership of the Hospital, OR team, and general surgeon, consequently creating a burning platform for the leadership and senior surgeons who acted on most to improve OR efficiency and delivery of high-quality surgery.

The brainstorming session was conducted with a multidisciplinary team: the general surgeon, anesthetist, scrub nurse, surgical ward staff, and another supportive team. The QI team used a QI tool like a Fishbone diagram with the 5why principle to identify the root cause. Then, proposed change ideas were set for the root cause, tested step by step, and scaled up.

Summary of root cause analysis

	Root cause	Proposed solution
1	Delay first incision time/start, between cases, availability of drapes, not monitored daily.	Daily Monitoring by using dashboard
2	Preadmission and pre-anesthesia evaluation not done prior to admission & surgery day	Arrange Preadmission and Pre anesthesia evaluation Clinic integrated with surgical referral clinic & Pre anesthesia evaluation Daily Monitoring by using SBFR dashboard
3	Elective surgery (surgery side) was not done in all working day only 2days/week	Add additional day by shifting OR cleaning day to Saturday /3 days per week for surgery side.
4	Shortage of supply and anaesthesia drugs	Assigning responsible person Setting minimum and maximum amount on stock and request RRF 25%remaining on stock
5	Surgeon and table productivity not monitored	Prepare monitoring format and enter the data daily
6	Unavailability of surgical protocols	By engaging seniors prepare surgical service protocol giving orientation
7	Ineffective PMT meeting/at OR by guided data plotted over time	Weekly QI meeting conducted.
8	Poor M&E performance of next day schedule	Daily Monitoring by using dashboard SBFR task force
9	Turnaround time between cases not monitored	Daily monitoring & assigning stand by additional cleaners
10	Inadequate table per standard	From existed 3table, 2 of them dedicated for elective surgery and 1 open for emergency cases

Major Interventions

After conducting a root cause analysis using the 5 Why approach, the QI team selected major interventions. The outcome of the fishbone analysis and brainstorming was to test a change idea step by step. The major change ideas tested and scaled up to the sustainability and success of the project are depicted below.

Change idea 1: Prepare own Elective Surgery Protocol

The surgical ward staff and the operation theater team developed a new surgical service protocol. The protocol was holistic and included topics such as elective surgery admission, pre-operative workup, preadmission, and anesthesia evaluation before surgery. It also included an early first-case incision time before 8:00 AM, a turnaround time between each case of 15 to 20 minutes, and Scheduled communication before 3:00 PM.

Change idea 2: Monitor On-Time First Case Starts

Prepare a daily dashboard for monitoring early incision time and turnaround time between cases conducted. In an efficient OR, patients should experience timely entry. Late starts may indicate system inefficiencies, from ward processes to patient reception in the OR.

Change idea 3: Conduct regular data-driven QI team meetings.

By guided data plotted over time, QI meetings are conducted weekly based on the presence of stakeholders.

Change idea 4: Pre-Anesthesia Evaluation and establish preadmission evaluation.

Evaluating the percentage of cases that underwent pre-anesthetic checkups before surgery. Inadequate prescreening can contribute to cancellations or delayed starts.

Change idea 5: Monitor table productivity at least 3/table /surgeon & surgeon productivity.

A standardized dashboard for daily monitoring of table productivity & surgeon productivity was prepared.

Change idea 6: Facilitating campaign for consecutive 7 days

Higher leadership was communicated to mobilize resources and manpower during the campaign session.

Change idea 7: Daily monitoring of the schedule
The SBFR task force prepared a dashboard for daily monitoring. It increased the elective surgery schedule by 50% from the previous schedule. The scheduled communication format was sent to the operating room before 3:00 PM, which helps check operation theater readiness, such as equipment, supplies, and anesthesia medications. Biomedical workers also performed preventive and curative maintenance daily. The availability of drapes was monitored.

Measurements for improvement
Measures chosen to assess the effect of the changes implemented included outcome measures, process measures, and balancing measures.

Outcome measures: % of elective surgery performed /week

Process measurement
- The number of days the first incision time before 8:00 AM started
- # Of days all essential supplies and drugs are available in the OR, including drape/day/guided by equipment checklist filled before surgery day in the OR, and the availability of drapes is monitored daily by the SBFR task force
- Mean duration of time turnaround time between cases
- Average Pre-anesthesia evaluation for scheduled cases done/day
- # Nursing Pre-elective evaluation done prior a day before surgery guided by a checklist
- # Days schedule communication format to inform OR timely before 3:00 PM
- The number of days of elective surgery scheduled increased from the previous one by 50%
- Monitor the Number of table productivity/ and major surgeries per surgeon/day
- Number of days with adequate availability of drapes per schedule monitored daily

Method of data collections
The project's success can be attributed to continuous assessment and monitoring through Quality improvement team meetings, leadership follow-up, regular data collection, and quality checks, which the SBFR task force team ensured.

Method of data analysis

Microsoft Excel was used for data analysis. A run chart was used to assess the process and outcome improvement from the baseline median to show above the median and study the impact of changes. The SBFR team monitored daily data collection and quality checks for system stability.

Results

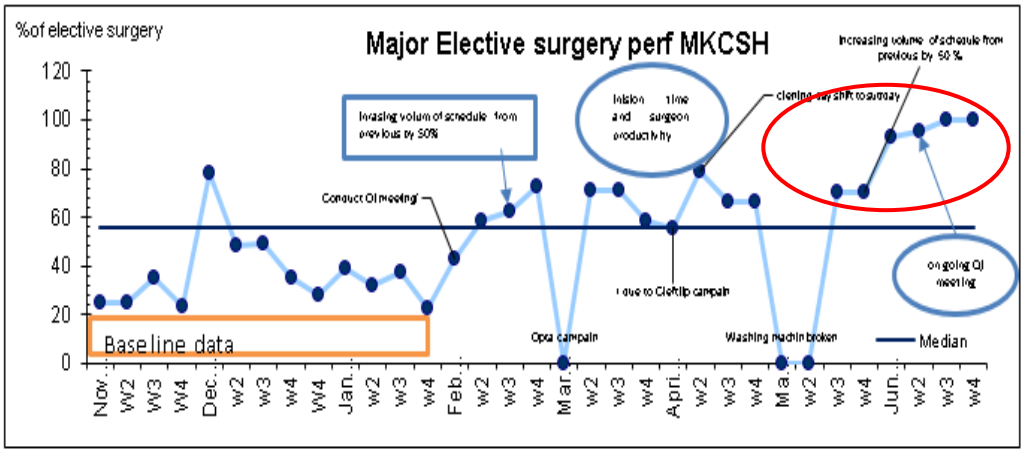


Figure 1: Major Elective performance in Metu Karl Comprehensive Specialized

Benefit of the project on the health system

The impact of the change in our intervention increased our elective surgery productivity. It dramatically reduced the surgical backlog list from 201 to 20 patients, which resulted in increased service taker satisfaction with the service and increased healthcare provider satisfaction due to clients/patients being prevented from further complications due to the advancement of the disease. The health organization also benefited /increased internal revenue collection from surgery procedures done fee.

Challenges

Acknowledging our challenges, notably supply chain disruptions and staff turnovers is important. Managing ambitious community expectations can be a delicate process. Furthermore, collecting, analyzing, and interpreting data for decision-making can be an overwhelming task, especially with the introduction of new data-capturing tools and dashboards.

Lesson for the others

The following lessons will guide other hospitals toward improving elective surgery performance and overall healthcare delivery.

Holistic Approach: Improving surgical performance is not just about clinical care but also involves efficient processes, supplies, medications, leadership, and overall system redesign.

Data-Driven Decision-Making: Using a data capturing and analysis dashboard to track performance metrics highlights the value of data-driven decision-making. It allows for real-time tracking and management, leading to more informed and effective decisions.

Continuous Improvement: Seeking guidance from improvement science guru's is a cornerstone in guiding the team along the right pathway to the final destiny and beyond. Regular monitoring, feedback, and adjustments are necessary for continuous improvement and sustainability.

Staff Engagement: Everyone plays a crucial role in successfully implementing changes.

Community Involvement: Engaging the community is equally important. Their understanding and support can significantly contribute to the success of the interventions.

Improve the percentage of cervical cancer screening of women living with HIV, Adama Hospital Medical College

Authors: *Bekana Lemessa[1], Beshir Abdella[1], Asiya jilan[1], Tsegaye Beyene[1],Wassei Gebi[1], Mubarek Hamdi[1], Seyifedin Kesim[1] ,Fikadu[1], Hilina [2], Debela[3]*
Affiliation*:[1]Adama Hospital Medical College, [2] Oromia Health Bureau, [3]ICAP*

Background

Globally, cervical cancer is the fourth most common cancer in women, with around 660,000 new cases in 2022GC. In the same year, about 94% of the 350,000 deaths caused by cervical cancer occurred in low- and middle-income countries. The study shows that the prevalence of Precancerous Cervical Lesions among HIV-infected women in Africa ranges between 4.4 and 42.4%. In Ethiopia, the various prevalences of Precancerous Cervical Lesions among HIV-infected women were reported at 22.1% in southern Ethiopia, 20.2% in the Northwest, and 9.9% in Amhara Regional State. Lack of timely identification and treatment of pre-cervical cancer lesions leads to high maternal morbidity and mortality due to invasive cervical cancer. Baseline data collection was conducted using the digital system and registration logbook. After implementing selected interventions based on the matrix, cervical cancer screening orientation, strength offering and health education, system monitoring and feedback, and line list from the database, using phone calls, cervical screening for WLWHIV increased to 76%.

The obstetrics and gynecology department, ART units, and quality department participated in the project. Participants were women living with HIV and eligible for cervical screening aged 15-49 and sexually active were included on this project. Cervical screening among these people is affected due to poor screening offering systems, lack of awareness, lack of privacy, and staff commitment.

Aim

The study aimed to increase the percentage of cervical cancer screening of WLWHIV from 19% to 90% from Megabit 21, 2014 to Meskerem 20, 2015 EC.

Root Cause Analysis

Fish-bone analysis and brainstorming: Midwifery, ART providers, case managers, mother supporter groups, and FGD clients were used to identify

the cause. The result was disseminated to the department and presented to service providers and clients.

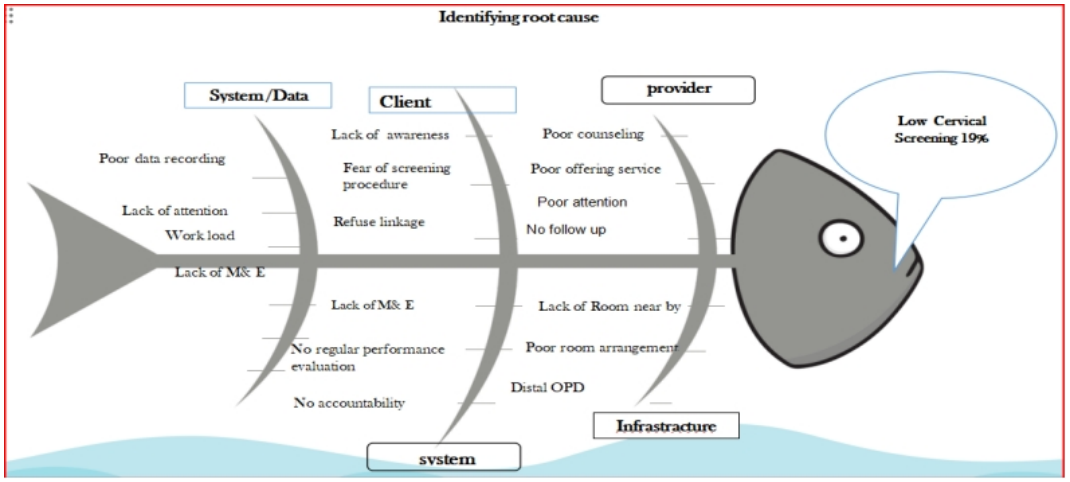


Figure 1: Root cause analysis to increase percentage cervical cancer screening among WLWHIV at AHMC

Change Ideas prioritized for test

From the suggested multiple intervention-prioritizing matrices, the following have been used: baseline assessment was conducted and presented its findings to staff to show the gap, supervision at ART provider service units to strengthen screening offerings through cervical cancer screening, counseling, and documentation to identify eligible women. Offering registers in service provision areas for proper documentation is required. Providing orientation to staff on cervical cancer screening, creating and displaying daily and weekly performance on telegram page, and giving feedback and motivation for best performer staff. Strengthen health education to increase client awareness and clarify rumors about screening procedures. Providing training for additional staff on screening and assigning at screening OPD. Finally, line listing was conducted from a database, and phone calls were made to eligible women.

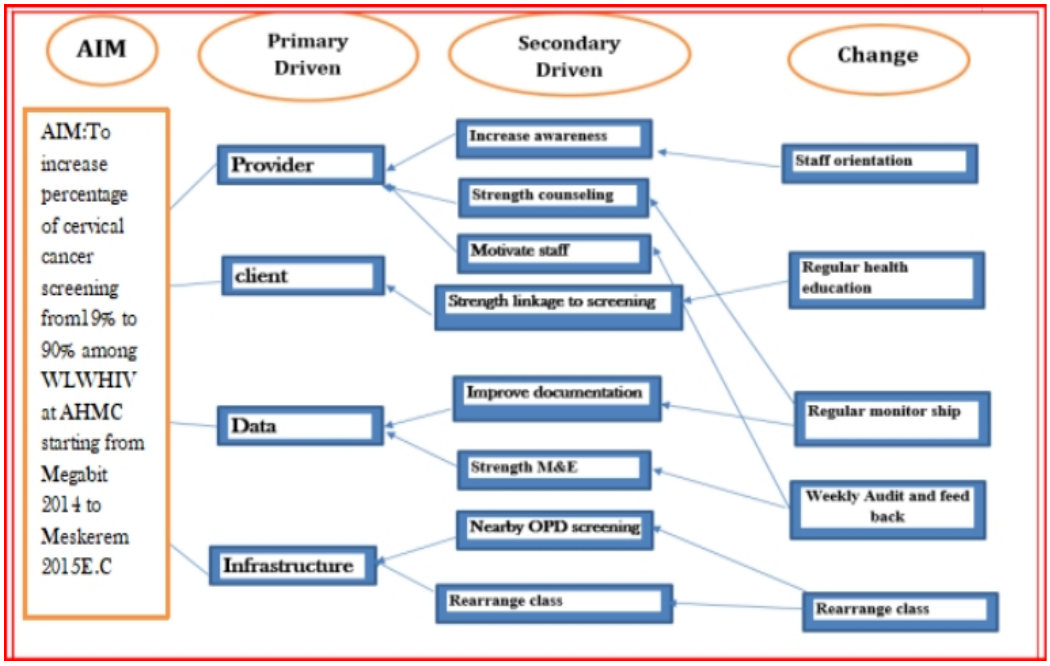


Figure 2: Show driven diagram to increase the percentage of cervical cancer screening among WLWHIV at AHMC

Measurement

The data clerk and the quality officer collected and analyzed data weekly.

Table 1: Measurement to increase the percentage of cervical cancer screening, AHMC, 2015E.C

Measurement	Indicators	Numerator	Denominator	Source
Outcome measure	%WLWHIV cervical screening	#WLWHIV of client screened	# client eligible /visit	Registration
Process measure	% Staff oriented	# staff oriented	Expected staff to be oriented	Attendance
	% Heath education provided	# of ART visit HE given	# ART visit /week	Participant list
	% Screening offering	# client get screening offering	# ART visit /week	Registration

The HTS Coordinator continuously followed up on screening offerings and documentation with the service providers. A QI meeting was held to evaluate the PDSA cycle change and discuss staff performance, which was displayed on the telegram page. Finally, we displayed the trend of our outcome and process indicators on the run chart.

Results

Based on our project, the percentage of cervical screening was increased from 19% to 76% by implementing selected change interventions. Providers were motivated and compassionate to offer and give screenings. Clients' interest in screening was changed, and there was no fear of the procedure.

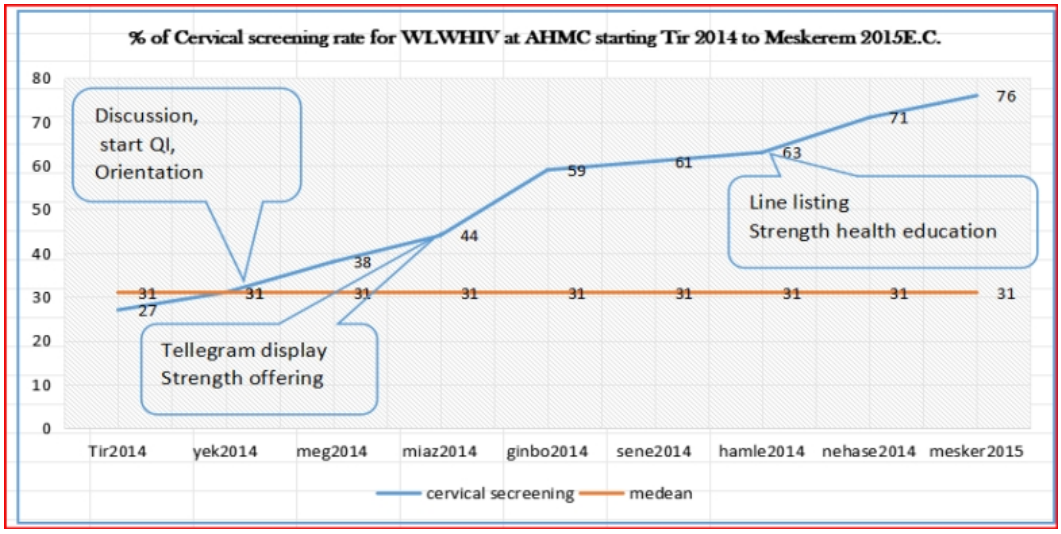


Figure 3: Run chart to increase the percentage of cervical cancer among WLWHIV at AHMC

Lesson Learnt

Fears of screening procedures due to a lack of awareness and rumors in the community make counseling difficult, and they refuse the screening link when offered to them. They also need privacy, confidentiality, and nearby services. This type of test also increased the participants' interest and comfort during the screening procedure. This is true for self-administered tests like HPV DedNA tests.

Conclusion

Mortality and morbidity of cervical cancer on WLWHIV were decreased by access to effective screening services that facilitate early detection and treatment of cervical cancer lesions. Healthcare providers should offer cervical screening and increase clients' awareness through continuous health education and counseling.

Improve Utilization of Immediate Kangaroo Mother Care at Neonatal Intensive Care Unit, Tulu Bollo General Hospital, Oromia, Ethiopia

***Authors**: Teka Degefa[1], Dereje Moti[1], Tujo Dechasa[1], Engida Kabeta[1], Tadela Efa[1], Chaltu Meskelu[1] ,Alemtsehay Debela[1], Olana Jeldu[1], Teshome Oljira[2]*
***Authors affiliation**: [1]Tulu Bolo General Hospital, [2]IHI*

Abstract

Background: The Ministry of Health of Ethiopia has included KMC as one of the neonatal survival interventions in its successive child survival strategies. The Health Sector Transformation Plan II (HSP-II) aims to increase KMC utilization to at least 70% of eligible newborns by 2025. Despite the intervention's inclusion in the national strategies since 2005, the progress made in implementing the interventions and increasing the utilization of quality KMC could have been more impressive. KMC implementation was mainly limited to referral hospitals.

Method: A clinical audit was done to identify gaps in implementing immediate kangaroo mother care. A quality improvement project was developed using a model-for-improvement framework to identify root causes, generate change ideas, test interventions, and study the results.

Interventions: Different interventions were made based on the identified gaps in the quality project on implementing immediate kangaroo mother care.

Result: Implementation of immediate kangaroo mother care improved from the baseline median. QI team meetings were performed bi-weekly from a baseline median of 52% to 75%. The percentage of clinical audits improved from 60% to 100%. The percentage of routine KMC counseling has increased from 0 to 50%. Overall, the implementation of immediate KMC improved from a baseline medium of 22.5% to 85%.

Conclusion: Using the science of quality improvement, the utilization of immediate KMC can be increased.

Keywords: *Kangaroo Mother Care, Utilization, Neonatal Intensive Care Unit, Tulu Bollo General Hospital*

Introduction

Newborn mortality continues to be the leading cause of under-5 deaths globally and accounted for 47% of all these deaths in 2021. Of these deaths, preterm-related complications accounted for 34% of under-5 deaths. Preterm and low birth weight (LBW) infants have a 15 times higher risk of death than those born term and appropriate for gestational age. In Ethiopia, neonatal mortality is unacceptably high, with 33 deaths per 1,000 live births. Based on the 2019 Ethiopia Mini-Demographic and Health Survey, preterm-related complications are among the leading causes of mortality. Several evidence-based interventions are known to improve survival among preterm or LBW infants. Kangaroo mother care (KMC) is one of the effective interventions that play a significant role in reducing mortality and morbidity, thus improving the survival of preterm and LBW infants. Based on the new evidence, it is estimated that about 150,000 neonatal lives could be saved every year globally. For Ethiopia, this translates to saving 20,000 neonatal lives each year. Furthermore, a community-initiated KMC in low-birth-weight infants (2,000-2,500g) reduced mortality by 30% at the 28th and 180th days of life.

There needs to be more technical and implementation guidance for providers and program managers to establish KMC as a safe and effective method for LBW babies at all levels of care, including the community level. Studies on KMC practice and actual visits to KMC sites at different levels of the healthcare system in Ethiopia found low levels of appropriate KMC initiation, inadequate infrastructure and staffing, poor record keeping, poor data quality, and poor survival among LBW babies. KMC is recommended for routine care of all preterm and/or LBW newborns. KMC can be initiated in facilities or at home and should be given 8-24 hours daily (as many hours as possible). KMC should be initiated as soon as possible after birth for both stable and unstable preterm and or LBW neonates. At facilities, immediate KMC should be initiated before the baby is clinically stable unless the baby is unable to breathe spontaneously after resuscitation, is in shock, or requires mechanical ventilation. Immediately, KMC can be provided at home for babies with no danger signs. Mothers should provide skin-to-skin care (SSC); if the mother is unavailable, fathers and other family members can also provide skin-to-skin care. Tulu Bolo

General Hospital provided new WHO KMC guidelines and training for the staff to implement immediate Kangaroo Mother Care.

Methods

The quality improvement team used a model for improvement to increase the utilization of immediate KMC following the steps mentioned below. A clinical audit was done to assess the implementation of immediate KMC and identify gaps. The utilization of Immediate Kangaroo Mother Care percentage median was 22.5% from April 1, 2015, to June 30, 2015. A standardized tool assesses staff's knowledge, attitude, practice, essential medical equipment, gowns and shoes, television, drugs, standard treatment guidelines, and protocol.

Prioritization of the identified quality of care gaps was done.
Major problems identified and prioritized. Low utilization of immediate KMC is the leading priority.

- Baseline data was collected for the prioritized problems
- Baseline data collection tool developed to assess the utilization of immediate Kangaroo Mother Care
- Detail problem analysis done
- Model for improvement used to improve utilization of immediate Kangaroo Mother Care
- Detail problem analysis was done for the identified problems
- Change ideas were generated, and interventions tested
- The outcome measure is monitored over time using a run chart

Problem statement

The result of the clinical audit conducted from April 1, 2015, to June 30, 2015, reveals that successful Immediate Kangaroo Mother Care is 22.5% for eligible neonates, which contributes to early neonatal death in our hospital.

Aim statement

We, the Tulu Bollo General Hospital QU team, aim to improve the success rate of immediate KMC for eligible neonates from a baseline of 22.5% to 80% from July 1, 2015, to September 30, 2016.

Root causes analysis

The major causes identified for poor KMC application and adherence at Tulu Bolo General Hospital were:

- Lack of routine KMC counseling
- No on-job training for staff
- Poor application of recommended guidelines
- Lack of involvement of senior physicians in improvement process
- Poor clinical audit
- Absence of some IPC materials like gowns for mothers and television for video-assisted health education

Table 1: Outcome and process measures

Measures

Types of measure	Indicators	Data elements	Frequency of data collection	Data source	Responsible person	Location	How
Outcome measure	Percentage of successful KMC done	Total number of preterm neonate got successful KMC Total number of preterm neonate admitted to KMC	Biweekly	Registration	NICU QI team	NICU	Registration
process measure	Percentage of staffs given on job training	Number of staffs got on job training Total number Of staffs to be oriented	Monthly	Attendance	Dr Teka	NICU	minute
	Percentage of clinical audit done	Number of clinical audit done Number clinical audit planned to be done	Biweekly	clinical audit report	QI Team	NICU	Preparing audit checklist
	Percentage of mothers counselled routine KMC	Number of mothers counselled on routine KMC Total number of mother of eligible neonate for KMC	Biweekly	Registration	NICU QI team	NICU	Preparing attendance
Balance measure	Total premature neonate survived from preterm		Biweekly	Registration	QI team	NICU	Preparing registration

Result

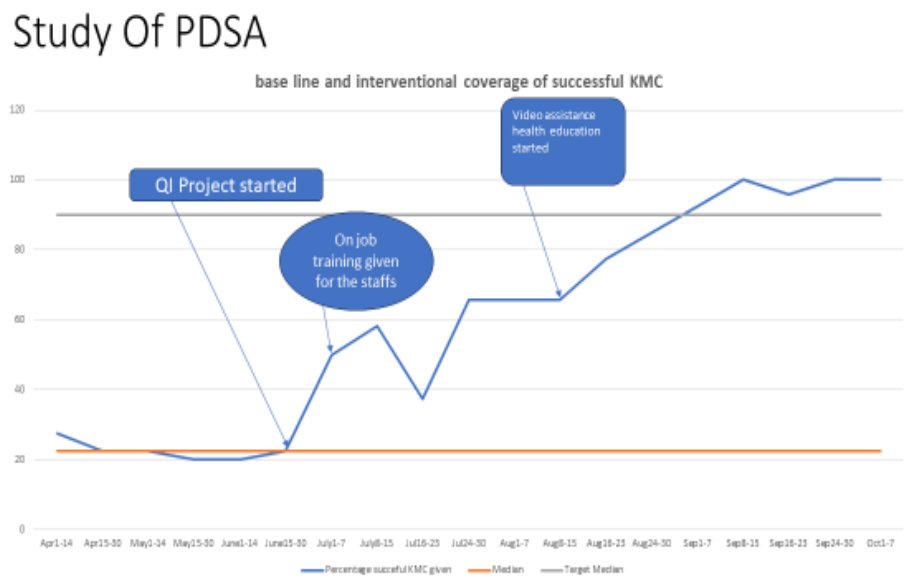


Figure 1: Showing improvement in KMC utilization, Tulu Bolo GH

Implementation of immediate kangaroo mother care improved from the baseline median. QI team meetings were performed bi-weekly from a baseline median of 52% to 75%. The percentage of clinical audits improved from 60% to 100%. The percentage of routine KMC counseling has increased from 0 to 50%. Overall, the implementation of immediate KMC improved from a baseline medium of 22.5% to 85%.

Lesson learnt

By providing gowns and relevant material for the mother and regular counseling through video assistance, successful KMC utilization can be increased. On the other hand, the involvement of senior clinicians/pediatricians in the quality improvement work is crucial for the project's success story.

Conclusion

- Implementing prolonged KMC remains a challenge
- Education, counseling, and video demonstration improved the utilization of successful KMC
- The QI initiative needs to be sustained and further strengthened to improve the utilization of successful KMC

Improving completeness of nursing process at NICU ward, Bisidimo General Hospital, Oromia

Authors: *Ahmedzekuwan Adem[1], Adisu Tilahun[1], Obse Asfaw[1], Ayman Musa[1], Tesfaye Chimdesa[1], Usmael Hassen[1], Asnake Belete[1]*
Authors Affiliation: *Bisidimo General Hospital, Oromia*

Abstract

Introduction: The nursing process leads to improved quality of care and stimulates the construction of theoretical and scientific knowledge based on the best clinical practice.

Objective: This QI project aimed to improve the completeness of the nursing process at the NICU ward of Bisidimo General Hospital from 17.9% to 60% from June 2015 to December 2016 E.C.

Methods: To improve the completeness of the nursing process at the NICU ward, the Bisidimo Hospital NICU department sub-team used the model for improvement model (MFI). The PDSA (Plan-Do-Study-Act) cycle was used to test the change ideas. We used Fishbone and Driver diagram techniques to identify and address the root causes. The key change ideas implemented consisted of onsite training for all NICU Nurses, conducting internal supportive supervision, and Avail nursing process format.

Result: At the end of the six-month intervention period, with the stepwise introduction of change ideas, the completeness of the nursing process in Bisidimo General Hospital's NICU ward increased by 48.4% from the baseline of 17.9% to 66.3%, which is greater than our stated aim.

Conclusion: Completeness of the nursing process is about more than just the quality of the nursing care plan. It is about saving lives by improving the overall quality of care. This project benefited the patient by reducing neonatal mortality and the risk of nosocomial infection by reducing the length of stay. As the patient's length of stay was reduced by our project, the efficiency of the hospital & hospital service was improved. Thus, good documentation of nursing care plans can save the lives of many patients & improve our efficiency.

Keywords: *Nursing, NICU ward, Bisidimo General Hospital, Oromia*

Introduction

The nursing process is widely accepted and has been suggested as a scientific method to guide procedures and qualify nursing care. More recently, the process has been defined as a systematic and dynamic way to deliver nursing care, operating through five interrelated steps: assessment, diagnosis, planning, implementation, and evaluation [1]. According to current American and Canadian practice standards, nursing practice demands the efficient use of the nursing process and professional participation in activities that contribute to the permanent development of knowledge about this methodology [2].

The nursing process should be established in care practice at all healthcare institutions, hospitals, and the community [3, 4]. Despite their knowledge of the nursing care process, certain factors limited the ability of nurses to implement it in their daily practice, including lack of time, high patient volume, and high patient turnover [5]. Despite these difficulties, the daily application of the nursing care process is characterized by the scientific background of the professionals involved since it requires knowledge and provides individualized human assistance [6, 7]. However, failures were shown among the nursing diagnoses in the patient's history and the implementation of nursing prescriptions without recording the evaluation of the expected results [8].

Effective nursing process implementation leads to improved quality of care and stimulates the construction of theoretical and scientific knowledge based on the best clinical practice. Aiming to collect information to improve the nursing care currently provided, a quality improvement project on the nursing process at Bisidimo General Hospital was performed to enhance the progress of nursing process completeness in the NICU ward of Bisidimo General Hospital.

Context

Bisidimo General Hospital was established in 1958 by the German Leprosy &TB Relief Association (GLRA) and the Ministry of Health and Catholic Mission. It is found in Oromia Region, East Haraghe Zone, Babile Woreda. It is 23 Km from Harar town & 549 Km from the capital city of Ethiopia, Addis Ababa. It is a General Hospital with more than 120 beds & it provides services for more than 1,496,345 populations from more than eight districts in the area. To reduce morbidity, mortality & disability and improve the

health status of the people in the catchment area by providing quality preventive, curative, and rehabilitative health services.

Statement of Problem

The 2015EFY 4th quarter audit report of Bisidimo General Hospital shows that the nursing process completeness at the NICU ward was only 17.9%. This resulted in poor quality of nursing care, missed interventions, delayed treatment, and affected patient outcomes.

Aim Statement

Bisidimo General Hospital NICU Department QIT aims to improve the completeness of the nursing process from 17.9% to 60% from June 2015 to December 2016 E.C.

Assessment of the Problem and Analysis of Its Causes

The clinical audit identified and assessed the problem. After the problem was identified and its magnitude measured, staff identified the cause through FGD, and a Fishbone diagram was used to identify the main cause and basic cause. The run chart was used to analyze data collected over time. Plan-Do-Study-Act (PDSA) cycles were used to test the change ideas.

Each process was documented on the data collection tool for routine QI team meetings conducted every month and presented to all staff participating in the project and the corrective actions taken. The progress was monitored using data collection and plotted against run charts over time.

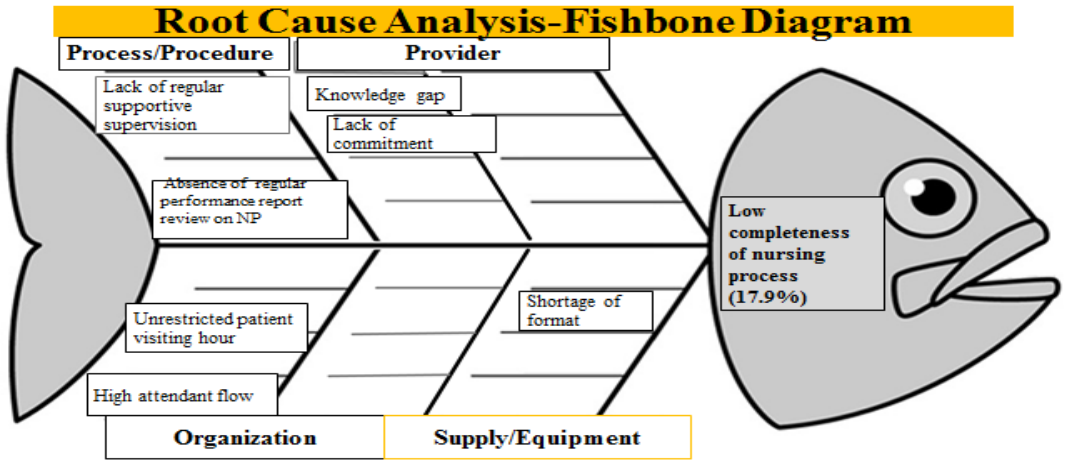


Figure 1. Fishbone Diagram on root cause for nursing process completeness at NICU ward at Bisidimo General Hospital

Intervention

After prioritizing all the alternative interventions, we selected the following interventions. These interventions include the following:

- Senior nurses qualified in the nursing care plan, and the quality unit head provided onsite training for all NICU nurses.
- Regular supportive supervision was conducted bi-weekly by senior nurses qualified for the nursing care plan.
- Avail the nursing process format by adding 5% from the previous six-month admission rate.
- A regular performance report review was conducted on the nursing process's completeness.

Measure For Improvement

Outcome measure:

Percentage of completeness of nursing process.

Process measures:

- % of trained NICU ward nurses on nursing care plans
- % of nursing care plan format availed
- % of supportive supervision conducted
- % performance report review on nursing process conducted

The run chart was used to analyze data collected over time. Plan-Do-Study-Act (PDSA) cycles were used to test the change ideas. Each process was documented using the data collection tool for routine QI team meetings and the corrective actions taken. Progress was monitored over time using data collection and plotting. To assess the overall completeness of the nursing care process, the proportion of patient cards with complete documentation of the nursing care process forms was calculated for both baseline assessment and post-intervention periods. To assess the completeness and accuracy of the data, the supervisor checked the collected data by data collectors at the end of each data collection day.

Results

At the end of the six-month intervention period, with the stepwise introduction of change ideas, the completeness of the nursing process in Bisidimo General Hospital's NICU ward increased by 48.4% from the baseline of 17.9% to 66.3%, which is greater than our stated aim.

- All the nurses assigned to the NICU ward were trained on the nursing care plan (100%).
- 100% of the nursing care plan format was bought as requested.
- Supportive supervision was conducted every two weeks for 24 consecutive weeks (100%).
- A performance report review of the nursing process was conducted for 5 months (100%).
- Completeness of inpatient medical records was increased to 74%

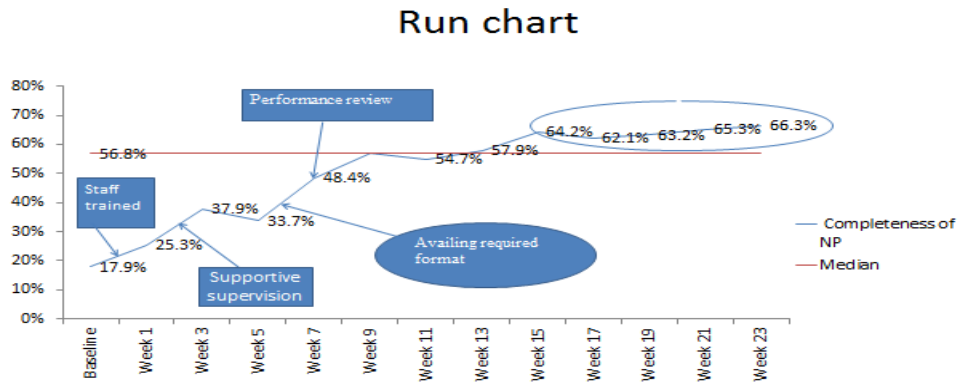


Figure 2. The run chart on improvement in the completeness of the nursing process at the NICU ward of Bisidimo General Hospital

Lesson learnt

Based on the interventions you described, here are the key lessons learned:

- Regularly reviewing health workers' performance was effective. It allowed for timely feedback and adjustments.
- Having senior nurses qualified in NCP conduct regular supportive supervision helped maintain quality standards.
- Hospital leaders providing the necessary formats and resources facilitated the implementation process.
- Regular capacity building for staff contributed to successful intervention implementation.
- Iterative Testing: Using PDSA cycles for iterative testing allowed for efficient adjustments and improvements.
- Introducing organized changes can significantly enhance the quality of nursing processes.

Message for Others

The completeness of the nursing process is not only about the quality of the nursing care plan. It is about saving lives by improving the overall quality of care. This project benefited the patient by reducing neonatal mortality and the risk of nosocomial infection by reducing the length of stay. As the length of stay for patients was reduced by our project, the efficiency of the hospital and hospital service improved. Thus, good documentation of nursing care plans can save the lives of many patients and improve our efficiency.

References

1. Doenges, ME., Moor house, MF, Murr, AC., 2008 Nurses pocket guide diagnosis, prioritized interventions, and rationales. F. A. Davis Company.
2. Zewdu S. Determinants towards Implementation of Nursing Process. American Journal of Nursing Science. April 14, 2015; 4(3):45-49.
3. Hale CA, Thomas LH, Bond S, Todd C. The nursing record as a research tool to identify nursing interventions. 1997. J Clin Nurs 1997; 6:207-14.
4. FMOH. Nursing care practice standards, version 2. Addis Ababa, Ethiopia Dec, 2011.
5. Fadia A, Abdelkader W. Factors Affecting Implementation of Nursing Process: Nurses' Perspective. IOSR Journal of Nursing and Health Science. 2017; 6(3):82.
6. Zeray B, Kalayou K, Hadgu G, Dejen G and Hafte Teklay. A cross-sectional study on nursing process implementation and associated factors among nurses working in selected hospitals of Central and Northwest zones, Tigray Region, Ethiopia. Open Access. 2017:1-9.
7. FMOH. Ethiopian Hospital Service Transformation Guidelines. Volume1. Chapter7. Nursing/Midwifery Care Standards. September 2016.
8. Shewangizaw Z, Mersha A. Determinants towards Implementation of Nursing Process. American Journal of Nursing Science. 2015; 4(3):45–49.
9. Sabona EA. The perception of, and use of, the nursing process in four African Countries. Afr J Nurs Midwifery. 2005; 6(1):67–77.

Improving maternal and newborn pre-referral communication and management

Authors: *Belachew Niguse[1], Mekdes Desalegn[1], Olyad Bilbila[2], Gemechu Tafese[2], Tezeru Adeba[2], Dereje Asefa[2], Tikesa Legese[1]*
Affiliation*: [1]Biyo Health center, [2]Lume Woreda Health Office*

Abstract

Background: Effective pre-referral communication is essential for a functional referral system. It ensures seamless coordination between different levels of care and timely and smooth transition of patients/clients. At the same time, proper management per standard protocol before referral can significantly impact outcomes.

Local context: A robust referral system ensures timely and effective management of maternal and newborn health (MNH) cases. The absence of a network-of-care approach across multiple interconnected levels of care hinders optimal care for critical patients, emphasizing the urgent need for improved referral processes and seamless communication among healthcare providers.

Methods: We utilized the Model for Improvement framework and Plan-Do-Study-Act (PDSA) cycles. In addition, qualitative and quantitative data analysis methods were employed to further identify the root cause of problems and propose change ideas.

Interventions: The team tested and adapted the change ideas targeted to improve pre-referral communication and management. These include real-time virtual consultation with senior clinicians at the Hospital, conducting biweekly emergency drill exercises, an adaptation of referral forms, monthly clinical audit of referral cases against the standard protocols, community sensitization on the conspicuous signs of MNH complications, setting the sufficient stock level of emergency drugs/supplies/equipment.

Results: The interventions have steadily adhered to the standard protocol (the run chart qualifies as a rule of shift).

Conclusion: Effective communication and timely pre-referral management are vital in ensuring safe maternal and newborn care. Adapting the Networks of care model testing process obtained promising results.

Keywords: *Maternal, Newborn, Communication, Management*

Introduction

Every year, approximately 303,000 mothers and 2.7 million newborn infants die around the time of childbirth, and many more suffer from preventable illnesses. The World Health Organization (WHO) recognizes the importance of quality care for women and children in addressing preventable maternal and child mortality. The referral system plays a crucial role in ensuring that patients receive timely and appropriate care by connecting different levels of healthcare facilities. Sub-Saharan Africa's Primary healthcare systems have grown substantially to expand access to appropriate facilities through a well-functioning referral system. The referral system is critical in ensuring efficient and effective patient management within care networks, such as those in healthcare systems. The referral system involves the interrelationships and coordination of patient care services from one health facility to another. It aims to facilitate the seamless transfer of patients based on their needs and the available resources at different levels of care.

A study conducted in Ethiopia found that only 10% of all patients interviewed had been formally referred to their current place of care. Among those in the hospital population, 14% had been referred, while among those in health centers, only 6% had been referred. This calls for an improved referral system across facilities. Accordingly, WHO MNH Networks of Care (NOCs) are recommended to improve the quality of care, continuity of care, and maternal and newborn outcomes.

A network of care for maternal and newborn health is a collection of public and/or private health facilities and health workers deliberately interconnected to promote multidisciplinary teamwork and collaborative learning to provide comprehensive, equitable, respectful, person-centered care from home/community to primary through to tertiary levels. They focus on relational elements that are key to health system functioning and are context specific. NOCs focus on creating intentional connections between people and services and strengthening the functional aspects of health systems while incorporating and emphasizing core relational aspects. They can also strengthen referral systems, thus promoting continuity of care.

Context

Biyo Health Center is in the Southeast Shewa Zone, Lume Woreda. The health center currently serves many maternal, newborn, and child health (MNCH) clients to Lume Woreda populations and populations from adjacent Woreda. Biyo Health Center is one of Lume-Modjo's network of care facilities to improve pre-referral communication, virtual consultations, and pre-referral management of maternal and newborn referral cases.

Problem statement

The baseline assessment made from April 2022 to May 2023 through a clinical audit of referral papers and charts reveals a gap in the pre-referral management of obstetric and newborn cases, including poor pre-referral communication with the receiving facilities and senior clinicians. This leads to delayed case management and poor outcomes (stillbirth, neonatal death, and maternal complications). This issue will also affect our trust in the Hospital staff.

Aim statement

This study aimed to improve pre-referral communication and management of maternal and newborn cases from the current baseline of 0% to 95% from July 2023 to June 2024.

Methods

The project utilized the Model for Improvement framework and Plan-Do-Study-Act (PDSA) cycles. In addition, qualitative and quantitative data analysis methods were employed to identify the root cause of problems further and propose ideas for change.

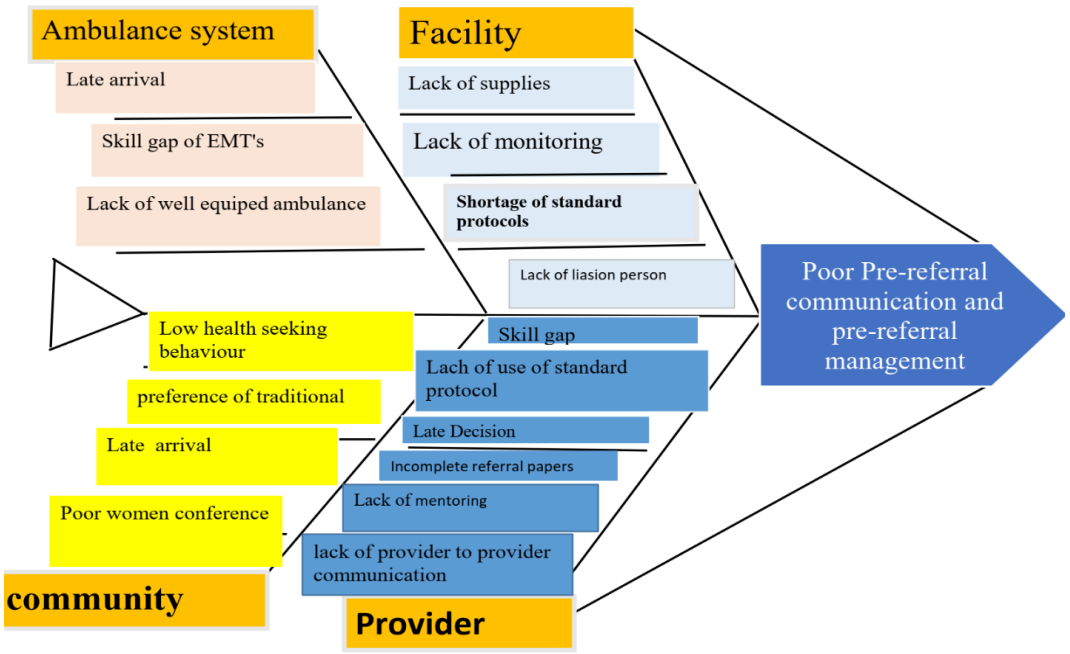


Figure 1: Cause-Effect Diagram

Interventions

The team tested and adapted the change ideas to improve pre-referral communication, virtual consultations, and pre-referral management. These include real-time virtual consultation with senior clinicians at the Hospital, conducting biweekly emergency drill exercises, adapting referral forms, conducting a monthly clinical audit of referral cases against the standard protocols, sensitizing the community to the conspicuous signs of MNH complications, and setting a sufficient stock level of emergency drugs/supplies/equipment.

Result and effect of changes

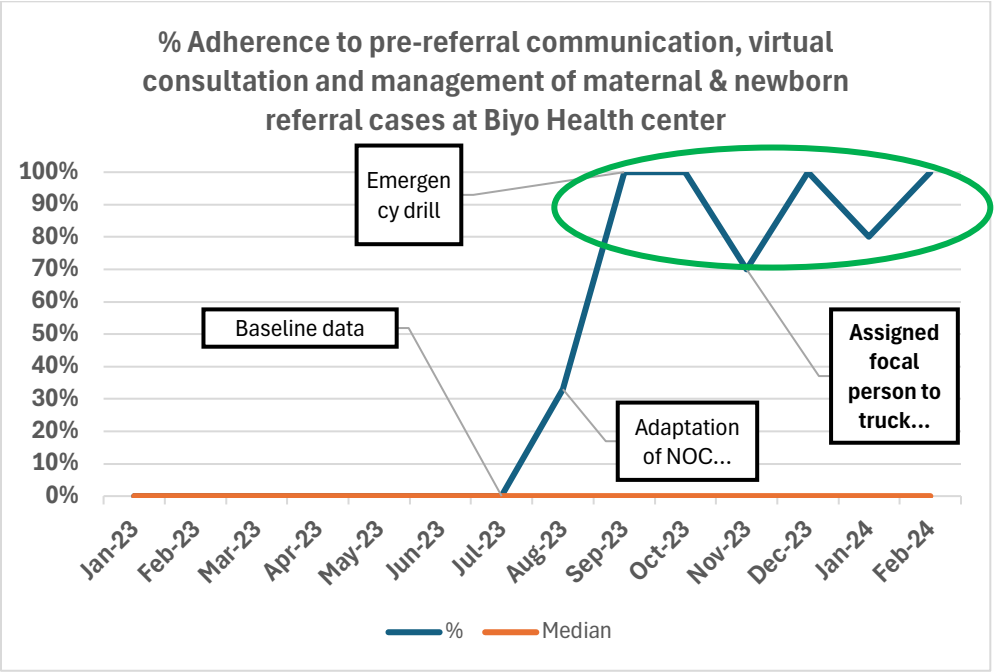


Figure 2: % of pre-referral communication, virtual consultation, and management of maternal & newborn referral cases at Biyo Health Center

Conclusion

The network of care model is a promising optimization mechanism for the existing referral system that can facilitate continuity of care throughout pregnancy, childbirth, and the postpartum period and from the community to tertiary levels. While envisioning the strengthening of the primary health care unit, the NOC model will be instrumental in facilitating a smooth transition of care and strengthening public-private partnerships.

Lessons Learned

From our implementation, we learned that virtual consultation among Networks of care facilities and pre-referral management salvaged the lives of maternal and neonatal patients. Furthermore, getting buy-in among networked facilities and collaboration is key to success.

Improve health literacy adequacy in non-communicable disease clients Bako Primary Hospital

Authors: *Yomiyyu Boressa, Zelalem Temesgen, Roba Dechasa, Tsehay Bekele, Teshale Goshu, Temesgen Debissa, Bahilu Ababe, Rabira Nega*
Affiliations: *Bako Primary Hospital*

Abstract

Background: Health literacy is the most crucial time for a client's survival in chronic disease. It is well established that high-quality medical care than prescribing medication.

Aim: We, Bako Primary Hospital, aim to improve health literacy on non-communicable diseases (DM, Hypertension, and cardiac disease) from 18% to 60% from Sene 30/2015 to Tir 30/2016 EFY.

Methods: The quality improvement team has conducted a clinical audit on health literacy using a standard checklist. The Model for Improvement was applied for data collection table development, and PDSA cycles were used to test the change ideas of the driven diagram and were monitored monthly. The contribution of change ideas to the aim set was monitored using data collection and plotted monthly. Tools used were a prioritization matrix, Driver diagram, Fishbone diagram, assessment tools, PDSA, and Run chart, which was used to draw inferences.

Interventions: Depending on gaps, the quality improvement team prepared a checklist, orientation was given to staff, and a proposal was prepared. Health workers provide health education twice a week. Ensuring the availability of leaflets, posters, and mini media through daily audits, monthly clinical audits conducted, and health workers' performance recognition was given.

Result: In the intervention conducted over the last seven months, health literacy on non-communicable diseases has significantly improved from 18% to 64%. Staff were orientated and trained for the focal person. Leaflets were also distributed, and health education was given twice weekly by assigned health workers.

Conclusion: Finally, after Eight months of intervention, we have seen an improvement in health literacy on non-communicable diseases, and clients improved information on their disease to management effectiveness from 18% to 64%

Keywords: *Health Literacy, DM, Hypertension, Cardiac Disease, NCD*

Introduction

Health literacy plays a pivotal role in healthcare utilization and health-related lifestyle choices. This makes health literacy a pressing concern, particularly in low-income countries like Ethiopia, which have intricate health challenges. Prioritizing health literacy as a key research and intervention area is essential for improving the health of individuals and populations and achieving health-related Sustainable Development Goals in Ethiopia (1).

Diabetes mellitus (DM) is an important public health problem causing premature disability and death. These are mainly due to a wide spectrum of complications, of which cardiovascular disease (CVD) and kidney disease stand out as the leading causes of death in diabetic people worldwide. Literacy, “people’s ability to make informed daily decisions at home, in the community and the workplace in the use of health services," is an enablement strategy to increase people’s control over their health, to seek information and to assume responsibilities” (2). In this study, we aimed to determine the association between health literacy and the development of cardiovascular diseases (CVDs) among an older population. A significant association between health literacy and the prevalence of CVDs and their risk factors has been reported in other populations, including the general population (3). Only 55% of patients with hypertension with the lowest reading level knew that a blood pressure reading of 160/100 mmHg was high, whereas 92% of patients with adequate health literacy skills knew this level was above normal (4).

Ethiopia is currently suffering in terms of providing educational facilities to its population. Most people still need access to education due to the need for more institutions in their regions, especially in rural areas. Moreover, despite many regions having a high enrollment rate in primary education courses, the drop rate also tends to be significant. The reasons for this include the uncertain security situation, such as the conflict in Tigray (Northern Ethiopia (5).

Context

Bako Hospital is a primary Hospital that supervises five health Centers. The management and the QI team were very interested in implementing this QI

project. Moreover, the project used a local resource allocated through the hospital management. The project was conducted by the quality team after being linked from the Non-Communicable Disease OPD to the literacy unit, which involved 385 clients.

Problem

Bako Primary Hospital reports for the 3rd and 4th quarters of 2015 show poor health literacy regarding non-communicable diseases (DM, Hypertension, and cardiac disease), only 18% among clients who had follow-up at chronic OPD.

Aim Statement

Bako Hospital's quality improvement team aims to increase health literacy on non-communicable diseases (DM, Hypertension, and cardiac disease) from 18% to 60% by Sene 30/2015 to Tir 30, 2016 E.C.

Assessment of problem and analysis of its causes

The first client awareness and knowledge audit checklist were prepared depending on last year's data reported, and patient awareness was assessed; accordingly, an action plan was developed. Then, a quality team composed of quality officers, medical directors, CEOs, matron OPD directors, focal persons, and department heads was given orientation on quality improvement projects by quality officers. The quality team analyzed the problem and prioritized the problem using a matrix scale. Lastly, an improvement plan for a quality improvement project was devised.

Table 1: Problem identification and prioritization Matrix (score 1-10)

Lists of problems identified	**Prioritization criteria**				**Rank**
	Magnitude	Feasibility	Importance	Total	
Difficulty to get patient card	5	4	4	13	3rd
Poor pain assessment and treatment	4	4	4	12	4th
Weak health education program and activities	6	4	5	15	2nd
Low health literacy coverage NCD clients	5	6	5	16	1st

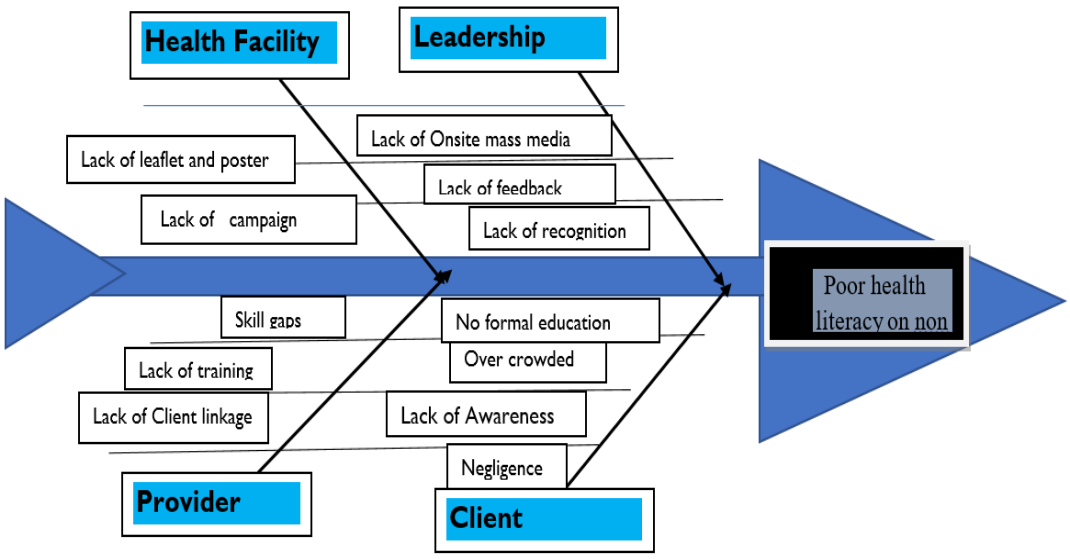


Figure 1: Fish Bone Diagram

Interventions

Over one day, the project core team and all staff received training on the general quality of health literacy. A quality team in the department identified gaps and prioritized them using a prioritization matrix. An aim statement was developed, and change ideas were generated for each identified problem. Change ideas were tested, and lessons learned were documented.

The following change ideas were generated and tested using the root cause analysis and a driver diagram.

- Ensuring the availability of leaflets, posters, and mini media through daily audit
- Orienting all medical doctors, nurses, and environmental health on health literacy adequacy
- Twice per Week, health education by campaign and mini media given
- A monthly clinical audit conducted
- Health worker's performance recognition was given

Measurement of improvement

The quality team monitored the implementation of change ideas to improve health literacy adequacy. After staff orientation, a schedule of health

education was programmed, a Leaflet and posters were distributed, and video health education was given on mini media (the hospital's TV). We, the quality unit team, then assessed their awareness and knowledge using a checklist.

Table 2: awareness and knowledge using a checklist

	Indicator	**Numerator**	**Denominator**		
Give training on literacy	% of training given	No of health worker training given	Total health worker planned for training	Focal person letter	Increase patient efficiency(+ve) Budget expense(-ve)
Give feedback and recognition	Percentage of feedback and recognition given	No of feedback and recognition	No of feedback and recognition planned	Once	Having many skilled manpower (+ve) and Time wastage (-ve)
Start client linkage to literacy clinic	Percentage of client linked	No of client links to literacy	number of client planned for linkage	Register	Increase client knowledge (+) and Time wastage (-ve)
Give health education by campaign and TV	Percentage of clients get health education	No of clients gets health education	No of clients planned for health education	Register	Client knowledge increase (+ve) and Time wastage(-ve)
Avail the poster and leaflet	% of poster and leaflet avails	No of poster and leaflet avails	No of posters and leaflets planned avails	Storeroom	Improvement quality (+) Budget expense(-ve)
Proper recording document	% of health literacy coverage	Number of health literacy coverage	Number of health literacy coverage planned	Register	

Measurement

The team used process and outcome measurements to measure the improvement of health literacy adequacy.

Outcome measure

- percentage of clients get health literacy received Process measure
- Percentage of clients get health education by campaign and mini media
- Proportion of regular monitoring done

- Percentage of staff got orientation and onsite training on improving health literacy
- Percentage of feedback and follow-up given
- Balancing measure: percentage of clients got health literacy and clients linked to NCD OPD

Results

An audit was conducted on health literacy for half of 2015 EFY, and literacy coverage on non-communicable diseases was only 18%. The hospital's health literacy adequacy of seven months increased from 18% to 64 % (see fig). The monitoring run chart showed significant improvement, which is in line with the run chart rule 1(Shift) and rule 2(trend), which vividly indicated that the change observed was due to introduced change ideas by the project. These change ideas include orientation for staff, assigning all staff for health education by schedule, distributing lessons prepared by local language on NCD, regular follow-up, and giving feedback and recognition for staff performance. QI team aimed to improve health literacy adequacy by 18% to 60% within seven months. After intervention using the PDSA cycle, health literacy was improved from 18% to 64% from Sene to Tir /30/2016 EFY.

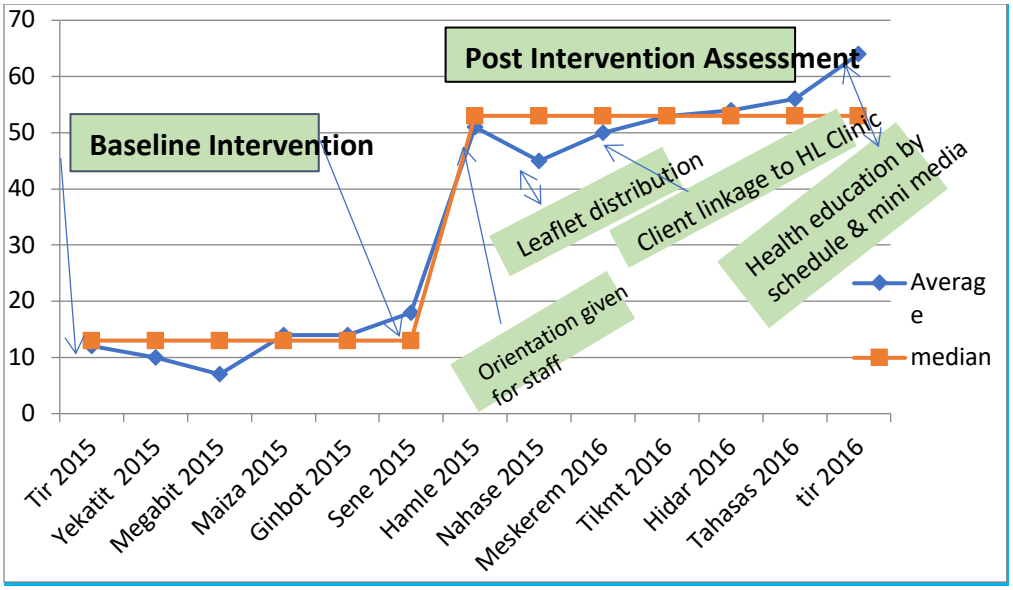


Figure 2: Run chart on health literacy from Sene 30, 2015, to Tir 30, 2016

Conclusion

The interventions significantly improved the health literacy of NCDs in this catchment area. Onsite training and orientation for staff and monthly feedback on the health workers' performance improved health literacy. Increased client awareness, decreased disease complications, and reduced the burden on the hospital. Regular clinical audits and health education through mini media and campaigns continue as scheduled.

Lessons learned

In implementing the project, the team of hospitals developed an improvement plan. Regular monitoring was developed with scheduled time after orientation given for all health providers to understand what needed to be done, especially on regular health education and leaflet distribution. Written feedback was often given depending on workers' performance. Conversely, the project impacted the clients with a significant change in literacy. From this, we learned that the sustainability of change using an improvement plan and regular monitoring greatly affects patients' health literacy adequacy.

Messages for others

During the seven months of the quality improvement project, we quality teams gained experience by having common goals and proposing change ideas for identified gaps. Finally, we significantly improved the clients' health literacy adequacy. Therefore, regular monitoring, client linkage to the literacy unit, and a structured health education program greatly improved literacy.

Reference

1. Adamu Amanu A, Ameyu Godesso (2023), Health Literacy In Ethiopia: Evidence Synthesis And Implications
2. Maria Vieira (2021) - Family Medicine & Primary Care. Health Literacy And Cardiovascular Complications In People With Type 2 Diabetes.
3. Nobutaka Hirooka (2023), Association of Health Literacy With The Prevalence Of Cardiovascular Diseases And Their Risk Factors Among Older Japanese Health Management Specialists
4. Richard Safeer (2006), The Impact of Health Literacy On Cardiovascular Disease
5. MOE (2023), Education Statistics for Ethiopia [100% Updated]

Reducing Perinatal Mortality Rate in Robe Didea General Hospital: A Quality Improvement Project

Authors: *Endale Gebre, Sharew Teshome, Bottu Adamu, Fikadu Girma, Tamene Mersha, Belay Tadesse*
Affiliation*: Robe Didea General Hospital*

Abstract

Background: Perinatal mortality rate is a crucial indicator of obstetric care, representing the sum of institutional early neonatal death rate and stillbirth rate in the hospital. In Ethiopia, 33 per 1000 deliveries perinatal mortality was recorded in 2016(EDHS 2016) and 30 per 1,000 live births in 2019 (EDHS 2019), while the perinatal mortality rate of Robe Didea General Hospital is still higher than that of the national prevalence figuring 74.5 per 1000 live births as of DHIS2 report of 2013 EFY. (DHIS report available at https://Dhis2.moh.gov.et)

Problem Statement: The perinatal mortality rate of Robe Didea General Hospital was found to be 74.5 per 1000 in 2013 EFY (July 2012 to June 2013 EFY) as of the DHIS2 report, which was higher than the national burden of 30 per 1,000 live births. This could result in low patient flow for delivery services and psychosocial problems for the families**.**

Methods: We have used a Model for improvement to propose interventions and a Run chart to indicate results.

Interventions: Outreach obstetric ultrasound Service, Peer-to-Peer Mentorship at Nearby Health centers, strengthening Early Partograph utilization, Infection prevention practices, and Health education were major interventions undertaken in this project.

Results: The results of interventions were measured /indicated by a Run chart based on the rules of the run chart (Shift), which revealed that this project had improved the outcome of perinatal service. The Perinatal Mortality rate has been reduced from 74.5 to 41/1000 median line.

Keywords: *Perinatal, Mortality, Rate, Robe Didea, Quality, Improvement*

Introduction

The perinatal mortality rate is a crucial indicator of obstetric care. It represents the sum of the institutional early neonatal death rate and stillbirth rate in the hospital. The institutional early neonatal death rate mainly defines the quality of obstetric care in the facility in the Ethiopian context (HMIS indicator reference 2021).

Though causes of neonatal mortality are not well documented in Ethiopia, reports from studies identified sepsis, asphyxia, birth injury, tetanus, preterm birth, congenital malformations, and "unknown causes" as reasons for neonatal mortality (Orsido et al., 2019) and the National HMIS inpatient morbidity and mortality report identifies the three main causes as prematurity, birth asphyxia, and neonatal sepsis.

Stillbirth is the birth of a baby with no signs of life at or after 28 weeks of gestation. Stillbirth includes Intrauterine Fetal Death (IUFD) (HMIS indicator reference 2021). Though the stillbirth rate in the country has declined over the past ten years (Tesema et al. 2020), Ethiopia ranked 7th among the top 10 countries with a high stillbirth rate, contributing to 65% of the global stillbirth rate (National QI Bulletin 2021).

The progress of Ethiopia in preventing childhood deaths has been less successful in the prevention of neonatal mortality. In addition, equivalent numbers of stillbirths occur, representing a "silent epidemic." Close to half of the stillbirths occur during the process of labor and delivery. More than 80% of all newborn deaths are caused by preventable and treatable conditions, while Congenital anomalies are also becoming notable contributors to neonatal mortality, morbidity, and disability. Generally, half of neonatal deaths occur on the first day of life, and three-quarters of all neonatal deaths occur within the first week of life. Despite increasing accessibility of services, sub-optimal quality of care, low child health care seeking behavior of communities, low coverage of Kangaroo mother care (KMC) services, and shortage of essential health commodities and equipment at service delivery points remain key challenges contributing to high rates of neonatal mortality (HSTP II). In Ethiopia, 33 per 1000 deliveries perinatal mortality was recorded in 2016(EDHS 2016) and 30 per 1,000 live births in 2019 (EDHS 2019), while the perinatal mortality rate of Robe Didea General

Hospital is still higher than that of the national prevalence figuring 74.5 per 1000 live births as of DHIS2 report of 2013 EFY (DHIS report available at https://Dhis2.moh.gov.et). The MNCH QI team of the hospital has developed this project to reduce this alarming figure by involving all stakeholders and implementing change concepts and ideas.

Context of the Project

This project was undertaken in Robe Didea General Hospital and nine (9) health centers found in Robe Woreda and neighboring woredas (Sude and Ticho Woreda) by health professionals from the hospital and respective health centers. Robe Didea General Hospital was established at 225 KM SE of Addis and 98 KM E of Zonal Center Asella in Robe Woreda in 2002 E.C with primary level. It was the only hospital serving about a million populations from Seven (7) woreda. Currently, it has the level of a general hospital and serves about 606,086 populations from three woredas.

The hospital has 1 Gyn/obs specialist, 1 Integrated emergency surgery officer (IESO), 14 Midwives, 4 Neonatal nurses, 2 medical Radiation technologists, and about six cleaners serving Delivery, the Obstetric ward, and the NICU. The hospital provides broad services, including about 2000 attended deliveries annually.

Problem Statement

As of the DHIS 2 report, Robe Didea General Hospital's perinatal mortality rate was 74.5 per 1,000 in 2013 EFY (July 2012 to June 2013), which was higher than the national rate of 30 per 1,000 live births; this could result in low patient flow for delivery services and a series of psychosocial problems for the family.

Aim Statement

The Robe Didea General Hospital MNCH QI team aims to reduce perinatal mortality from 74.5 in July 2013 to 30 Per 1000 By the End of June 2015 E.C.

The following are root causes of the problem

- Low data utilization
- Poor IPPS practice

- Shortage of trained clinical staff
- Absence of death audit
- Incomplete referral form
- Inappropriate internal referral system
- Shortage of rooms for KMC
- Lack of CPAP, heater, radiant warmers, and incubator

Assessment of Problem and Analysis of Causes

The problem (high perinatal mortality rate) was identified by retrospective analysis of the routine HMIS report of 2013 E.C., and stakeholders used a Fishbone diagram to identify the root causes of this problem.

Interventions

Outreach obstetric ultrasound Service

The QI team communicated with the Gyn/OBS team to conduct outreach obstetric ultrasound at nearby health centers. The gynecologist agreed after discussing the issue with the QI team. Then, the midwife communicated with the health center's PHCU director and MCH focal to appoint pregnant mothers to health centers for ANC and other services, saying they would be seen by a specialist from the hospital that day. The Gynecologists, Midwives, and drivers moved from the hospital to the health center with a portable ultrasound machine and served more than 50 pregnant mothers on the first day. Then, this activity was expanded to eight other health centers with slight team modification (Gynecologist replaced by Medical Radiology Technologist) to not compromise other hospital services.

Peer to Peer Mentorship at Nearby Health centers

Senior midwives of the hospital discussed the issue of stillbirth happening to pregnant mothers coming by referral from six health centers. They divided these health centers to support comprehensive clinical midwifery mentorship. Then, each midwife from the hospital moved to their respective health center and stayed there for five days at the health center every month, and finally, they graduated at least one midwife from each health center.

Early Partograph Utilization Strengthening

A quick review of proper partograph utilization at the hospital was conducted by chart review using the partograph utilization bundle. It was on the spot by the improvement advisor of IHI during coaching. The gap in partograph utilization was discussed with the hospital delivery head and

other midwives available. A consensus was reached to utilize it properly, and the available midwives took responsibility for sensitizing their colleagues, which they did within a week. Finally, all Midwives started using partographs appropriately for every labor.

Infection prevention practices

As sepsis was one cause of Neonatal mortality in our hospital, the team agreed on the importance of infection prevention activities such as weekly fumigation of the labor ward, Establishment of a hand hygiene facility at the NICU, Restriction of NICU access, and utilization of mothers' gowns.

Health education about harmful traditional practice

Uvulectomy was also another cause of infection for a considerable number of neonates admitted to NICU, and health education was started for mothers at ANC, PNC, and NICU.

Table 1: Measurements for Perinatal Mortality Rate Reduction

Family of measure	**Indicator Name**	**Numerator**	**Denominator**
Outcome measure	Perinatal mortality rate	Institutional early neonatal death	Total Live birth
		Still birth (IUFD >28 weeks GA)	Skilled Birth attended in the hospital
Process Measure	Proportion of days water and soap available at NICU gate	Number of days water and soap available	7
	Availability of restriction signals at NIU entry	N/A	N/A
	Proportion of mothers wearing gown in NICU	Number of mothers attending neonate who are using mothers' gown	Total number of mothers attending Neonate
	Proportion of Catchment Health centers received Outreach ultrasound servic	Number of Catchment Health centers received Outreach ultrasound service	9
	Proportion of High-risk mothers identified by outreach ultrasound service in Catchment health centers	Number of High-risk mothers identified by outreach ultrasound service in Catchment health centers	Total number of pregnant mothers Received outreach ultrasound service
	Percentage of laboring mothers appropriately followed by Partograph	Number of laboring mothers appropriately followed by Partograph	Total Sampled mothers' chart
	Proportion of births followed by safe birth checklist	Number of births followed by safe birth checklist	Total Sampled mothers' chart
	Proportion of peer-to-peer mentorship session conducted	Number of peer-to-peer mentorship session conducted	Total number of Planned peers to peer mentorship
	Proportion of mentees scored pass mark	Number of mentees scored pass mark	Total mentee

Data collection

Data collection tools include observation checklists, clinical audits, bundle adherence, and personnel assessment checklists. And chart review tools have been utilized.

Result

Perinatal Mortality rate

The result of interventions was measured /indicated by a run chart based on the run chart (Sift) rules, which revealed that this project had improved the outcome of the hospital's perinatal service. Twenty - sessions of Outreach ultrasound service provided for 1207 pregnant mothers in nine health centers have identified a total of 180 high-risk mothers and linked them to hospitals for further follow-up, of which 4.4% were with anencephaly and have been terminated. Generally, the perinatal mortality rate has been reduced from a baseline of 74.5 to 41 per 1000 live births.

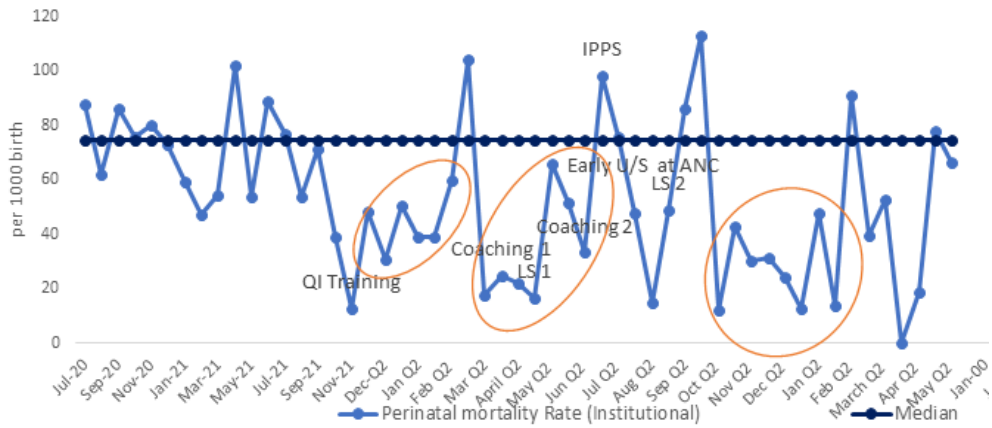


Figure 1: Run chart of perinatal mortality (baseline and intervention period data) in Robe Didea General Hospital

Stillbirth has improved the main outcome indicator (Perinatal Mortality Rate), as the following run chart indicates.

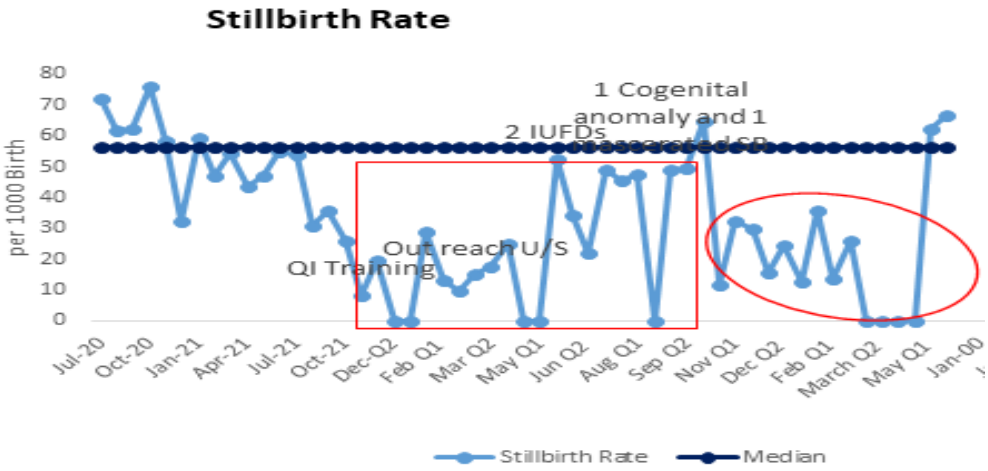


Figure 2: Run chart of stillbirth rate at Robe Didea General Hospital for baseline and intervention period data, June 2023

Early Neonatal Mortality Rate

Even though many change ideas have been implemented, Early Neonatal Mortality did not show the expected improvement.

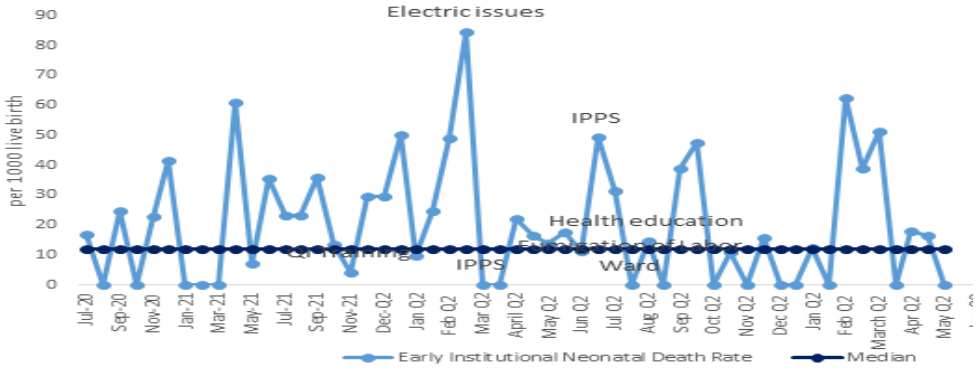


Figure 3: Run chart of Early Neonatal mortality rate in Robe Didea General Hospital for Baseline and intervention period data

Process indicators

Outreach Obstetric Ultrasound

- All Nine health centers have been reached by the service at least once quarterly
- Proportion of high-risk mothers identified 180/1207*100=150 per 1000

- Proportion of potential stillbirth reduced by early identification (Congenital anomaly) =8/1207 *1000=7 per 1000 attended delivery
- Peer-to-peer mentorship has been conducted in 6 health centers, and all are graduated by the Hospital's senior Midwives

Partograph Utilization

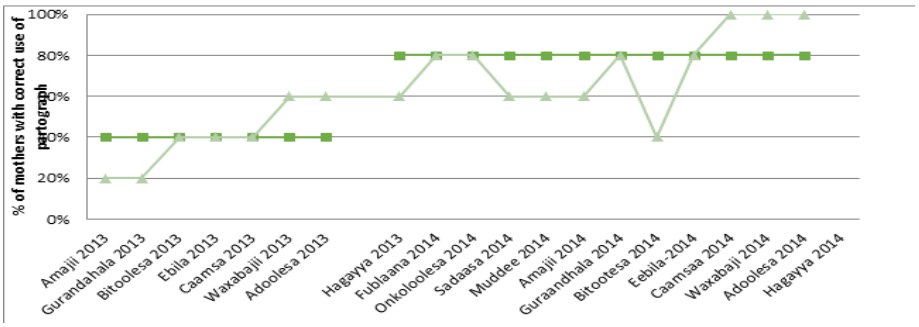


Figure 4: Partograph bundle adherence run chart of Robe Didea General Hospital

Problems encountered during the process of change

- Shortage of logistics such as fuel for outreach ultrasound activity
- Shortage of transportation during health center mentorship
- Work overload at the hospital for midwives and Radiology departments
- Politicizing of the activities from some individuals

Lessons Learned

From this project, the team learned that interventions such as Outreach obstetric ultrasound Scanning, Proper Partograph Utilization, Adherence to the ANC clinical bundle, and Clinical mentorship for midwives at health centers can reduce the Perinatal Mortality rate. Moreover, we learned that only the Outreach Obstetric Ultrasound Service can help reduce the Perinatal mortality rate by 7 per 1000.

Additionally, we learned that community-level interventions such as outreach ultrasound services can improve the health-seeking behavior of the community, develop trust between hospitals and health centers, and identify problems early.

We also learned that interventions such as hand washing, wearing mothers' gowns, health education, and fumigation of rooms alone could not reduce Neonatal mortality in our hospital and that we must seek other interventions to reduce it.

Messages for Others

It is better if hospitals, especially those in rural areas, conduct Outreach obstetric ultrasound Services. By early detecting congenital anomalies, hospitals can help reduce the Perinatal mortality rate and further medical, Physical, and psychosocial problems that a family can face.

References

1. Federal ministry of health Ethiopia, Health Sector Transformation Plan II
2. Tesema et al, Trends of infant mortality and its determinants in Ethiopia: (https://doi.org/10.1186/s12884-021-03835-0)
3. Federal ministry of health Ethiopia,7th National health care quality and safety bulletin
4. Federal Ministry of Health Ethiopia, HMIS indicator definition 2017

Section II – Lesson from Research Projects Findings

Maternal Anemia and The Risk of Low Birth Weight in Ethiopia; A Systematic Review and Meta-Analysis

Authors: *Gemechu Gelan Bekele[1], Galana Takele[2], Berhanu Ejara[2], Dajane Negesse[2], Ephrem Yohannes[2] and Daniel Belema[2]*

Affiliations*: [1]Department of Midwifery, College of Health Science, Madda Walabu University, Shashemene, Ethiopia;[2]Department of Midwifery, College of Medicine and Health Science, Ambo University, Ambo, Ethiopia*

Abstract

Background: Maternal anemia and low birth weight are significant public health issues that require investigation. However, developing countries like Ethiopia need more systematic reviews and meta-analyses. As a result, the objective of this review was to evaluate the total pooled effect of maternal anemia on low birth weight in Ethiopia.

Methods: PubMed, Web of Science, EMBASE, CINHAL, Google Scholar, AJOL, and the Ethiopian University Repositories were all searched. Data were extracted using Microsoft Excel (v. 14) and analyzed using STATA version 17 software. Publication bias was investigated using a forest plot and Egger's regression test. To explore heterogeneity, I^2 was calculated, and an overall estimated analysis was performed.

Results: A total of 31 articles, including a total of 29,012 study participants, were involved in this analysis. The overall pooled estimate indicates that women with anemia during pregnancy had a 2.84 times higher risk of low birth weight (OR=2.84, 95% CI: 2.23-3.44). The subgroup analysis also revealed differences in the effect size as the geographical region differed. The result showed that the odds of perinatal mortality were highest in the Amhara region (OR=3.84, 95% CI: 2.71-4.97, I^2=0.0 and p-value=0.977) and lowest among the studies conducted at the national level (OR=1.26, 95% CI: 1.11-1.42).

Conclusion and recommendation: The overall pooled estimate in this analysis reveals that women with anemia during pregnancy had a 2.84 greater risk of low birth weight. As a result, healthcare practitioners and other stakeholders must improve targeted measures, such as access to affordable iron supplements, prenatal care, and nutritional support programs, to reduce the prevalence of low birth weight.

Keywords: *Anemia, Low birth weight, Ethiopia*

Introduction

Low birth weight (LBW), defined by the World Health Organization (WHO) as a birth weight below 2500gm, remains a major public health issue worldwide with various short—and long-term consequences. Over 20 million births per year are LBW. The majority of LBW births occur in developing countries, with the highest rates in South Asia (28%), followed by Sub-Saharan Africa (13%) (2, 3) (1). However, the true prevalence may be underestimated due to underreporting of births in homes in developing countries (4).

Several maternal factors, including anemia and underweight before and during pregnancy, as well as maternal hypertension, diabetes, and infection, may influence birth weight (5). WHO defines anemia as hemoglobin below 110 g/L in pregnancy (6, 7). Diminished hemoglobin levels negatively impact placental angiogenesis, limiting the fetus's access to oxygen and potentially restricting intrauterine growth, resulting in LBW (8). Anemic women are more likely to deliver LBW babies compared to non-anemic women (9). Globally, 36.5% of pregnant women were anemic, while the prevalence in Ethiopia was 29% in 2019 (10). Babies born with LBW have vast complications, including stunting, lower IQ, heart disease, diabetes, and death (5).

Despite maternal anemia and low birth weight being significant public health issues, developing countries like Ethiopia lack systematic reviews and meta-analyses on the subject. Considering the scarcity of such studies from various regions of Ethiopia, this review aims to systematically assess the relationship between maternal anemia and LBW. This information can guide policymakers and healthcare providers in implementing interventions to reduce the risk of LBW and improve maternal and child health.

Methods

Search strategy

The systematic review and meta-analysis used published studies from June 5 to 15, 2023, searching Medline/PubMed, Web of Science, EMBASE, CINHAL, Google Scholar, and Ethiopian University online research repository. The following MeSH terms were used to search studies: birth weight, low birth weight, underweight, macrosomia, big

baby weight, small baby, below normal birth weight, anemia, low hemoglobin, iron deficiency anemia, low hematocrit, AND Ethiopia.

Study design: included only observational studies
Population: Women of reproductive age
Exposure: Women diagnosed with anemia during pregnancy
Control: Women without anemia during pregnancy
Outcome: LBW

Data extraction and quality assessment

Two authors independently extracted all the crucial information using a standardized JBI data extraction format, with any disputes settled through discussions with two additional reviewers (11). The extracted data included the study's first author, area, publication year, measure of association, sample size, and confidence interval for the target group.

Data processing analysis

Egger's test and funnel plot assessed publication bias within and between studies. Heterogeneity was evaluated with the Cochrane Q-test and I^2 statistic (12). Pooled analysis was conducted using a random-effects model (13). A subgroup analysis was performed based on the study setting. Data analysis was done using STATA version 17, with results presented using a forest plot. The relationship between maternal anemia and LBW was indicated using a log OR, and the pooled effect size was reported with 95% CI.

Results

Identification and documentation of studies

Of 1,082 studies identified, 187 duplicates were removed, and 805 were excluded after title and abstract screening. Subsequently, full texts of 90 studies were evaluated for eligibility, with 31 studies deemed suitable for inclusion in quantitative meta-analysis (Figure).

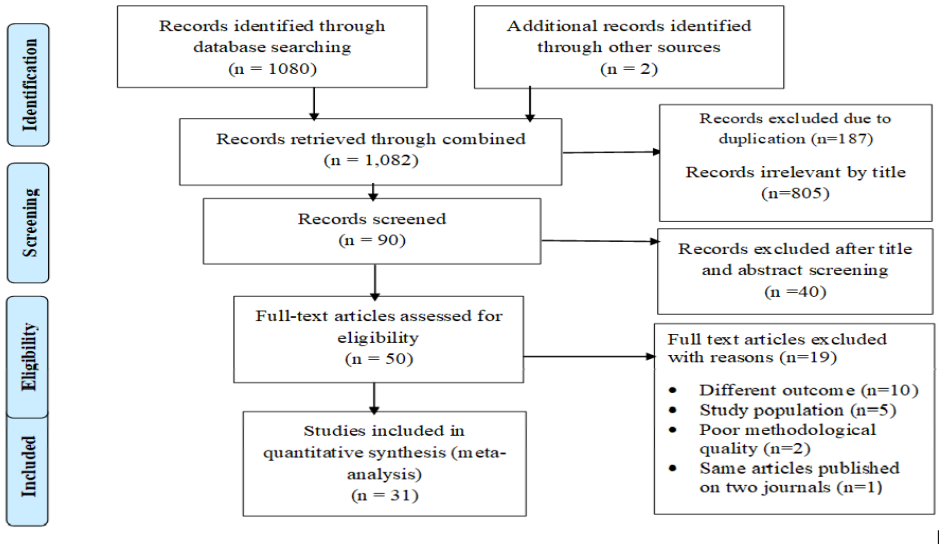


Figure 1: PRISMA flow diagram

Characteristics of included studies

This analysis included 31 studies with 29,012 participants. Most were cross-sectional studies conducted between 2016 and 2023, with sample sizes ranging from 211 to 11,872. Most studies were from the Amhara regional state.

The impacts of maternal anemia on LBW in Ethiopia

The pooled association between maternal anemia and LBW in the random-effects model was statistically significant. The overall pooled estimate indicates that women with a history of anemia had a 2.84 times higher risk of LBW (OR=2.84, 95% CI: 2.23-3.44). The heterogeneity test for this study was I2 =86.2, and the p-value was 0.001, showing the presence of substantial heterogeneity among studies.

Subgroup analysis

Subgroup analysis by region showed that the pooled odds ratio remained statistically significant across most regions, though the effect size varied. The odds of low birth weight were highest in the Amhara region (OR=3.84, 95% CI: 2.71-4.97) and lowest in studies conducted at the national level (OR=1.26, 95% CI: 1.11-1.42).

Risk of publication bias

The results of this systematic meta-analysis were heterogeneous. Visual analysis of the funnel plot and Egger's test (p=0.495) revealed no evidence of publication bias (p =0.495).

Discussion

The overall pooled estimate indicates that women with a history of anemia had a 2.84 times higher risk of LBW. This may be because Anemia can restrict oxygen delivery to developing fetus through the placenta, potentially leading to LBW by impacting fetal growth and development (8, 9, 14, 15). Furthermore, anemia can hinder the absorption and utilization of vital nutrients like iron, folate, and vitamin B12 necessary for fetal growth, potentially causing LBW by impeding proper development (16-19). Maternal anemia is often associated with complications such as premature birth, preeclampsia, and IUGR, which can further contribute to LBW (20-24). This finding is congruent with previous studies (14, 20).

The effect sizes in the subgroup analysis varied by geographical region, but pooled effect size remained statistically significant across all regions. The odds of low birth weight were highest in the Amhara region and lowest in studies conducted at the national level. This variation could be attributed to socio-demographics, study settings, and regional cultural differences. As the included studies covered larger areas of the country, this review provides comprehensive, evidence-based data to support interventions like iron supplementation and dietary adjustments among pregnant women to prevent maternal anemia and LBW.

Conclusion

The effect of maternal anemia on LBW in Ethiopia has been assessed in this meta-analysis. According to the findings, pregnant mothers who had anemia were 2.84 times more likely to have LBW. To reduce the occurrence of LBW, healthcare professionals, and other stakeholders must enhance targeted initiatives, such as access to affordable iron supplements and prenatal.

References

1. Organization WH. Global nutrition targets 2025: low birth weight policy brief. World Health Organization; 2014.
2. Kim D, Saada A. The social determinants of infant mortality and birth outcomes in Western developed nations: a cross-country systematic review. International journal of environmental research and public health. 2013;10(6):2296-335.
3. Muglia LJ, Katz M. The enigma of spontaneous preterm birth. New England Journal of Medicine. 2010;362(6):529-35.
4. Organization WH. Global Nutrition Monitoring Framework: operational guidance for tracking progress in meeting targets for 2025. 2017.
5. Organization WH. UNICEF-WHO low birthweight estimates: levels and trends 2000-2015. World Health Organization; 2019.
6. Control CfD. CDC criteria for anemia in children and childbearing-aged women. MMWR Morbidity and mortality weekly report. 1989;38(22):400-4.
7. Organization WH. The global prevalence of anaemia in 2011. Geneva: World Health Organization; 2015. 2017.
8. Stangret A, Wnuk A, Szewczyk G, Pyzlak M, Szukiewicz D. Maternal hemoglobin concentration and hematocrit values may affect fetus development by influencing placental angiogenesis. The Journal of Maternal-Fetal & Neonatal Medicine. 2017;30(2):199-204.
9. Rahman MM, Abe SK, Rahman MS, Kanda M, Narita S, Bilano V, et al. Maternal anemia and risk of adverse birth and health outcomes in low- and middle-income countries: systematic review and meta-analysis, 2. The American journal of clinical nutrition. 2016;103(2):495-504.
10. Organization WH. WHO global anaemia estimates, 2021 edition. World Health Organization. 2021.
11. Munn Z, Tufanaru C, Aromataris E. JBI's systematic reviews: data extraction and synthesis. AJN The American Journal of Nursing. 2014;114(7):49-54.
12. Higgins JP, Thompson SG. Quantifying heterogeneity in a meta-analysis. Statistics in medicine. 2002;21(11):1539-58.
13. Viechtbauer W. Conducting meta-analyses in R with the metafor package. Journal of statistical software. 2010;36:1-48.
14. Figueiredo A, Gomes-Filho IS, Silva RB, Pereira PPS, Mata F, Lyrio AO, et al. Maternal Anemia and Low Birth Weight: A Systematic Review and Meta-Analysis. Nutrients. 2018;10(5).
15. Rahmati S, Delpishe A, Azami M, Hafezi Ahmadi MR, Sayehmiri K. Maternal Anemia during pregnancy and infant low birth weight: A systematic review and Meta-analysis. Int J Reprod Biomed. 2017;15(3):125-34.
16. Abu-Ouf NM, Jan MM. The impact of maternal iron deficiency and iron deficiency anemia on child's health. Saudi Med J. 2015;36(2):146-9.

A Comprehensive Approach to Reduce the Burden of Esophageal Cancer in Southeastern Ethiopia Through Advocacy for Equitable and Accessible Health Services

Author: *Abebe Megerso[1], Haji Aman Deybasso[1], Biniyam Tefera Deressa[1], Jibril Bashir Adem[2], Dagim Tekeba[3],Mohammedaman Mama[3], Didha Batu[2], Bonso Bude[2], Gebi Agero[2], Gudeta Hinika[4], Ismael Tura[5], Mohammed Kabeto[6], Abdella Amano Abdo[7], Desalegn Fikadu[1], Abashamo Lencho[8], Melik Tiba[9]*

Affiliation: *[1]Adama Hospital Medical College, Adama, Ethiopia; [2]Arsi University, Asella, Ethiopia; [3]Madda Walabu University, Goba, Ethiopia; [4]California Hospital Medica Center, USA; [5]Sinai Hospital in Maryland, USA; [6]University of Michigan, Michigan, USA; [7]Negele Arsi General Hospital and Medical College, Negele Arsi, Ethiopia; [8]Ohio State University, Columbus, USA; [9]Mid-Atlantic Kaiser Permanente, USA*

Abstract

Background: Esophageal cancer ranks as the second most common cancer after breast cancer in the Arsi, Bale, and adjacent areas where health facilities are inaccessible and unaffordable to most patients. This document illustrates esophageal cancer's collaborative task force formation process as a serious public health problem.

Methods: Extensive formal and informal discussions were conducted over two years. After several meetings, a collaborative multi-sectoral and multidisciplinary task force was established. The task force identified the magnitude of the problem and the gaps in healthcare provisions and policy.

Results: Ethiopia's first guidelines for treating esophageal cancer developed. Additionally, an endoscopy curriculum was designed to train surgeons and internists for Asella and Goba teaching and referral Hospitals. The trained physicians began endoscopy services that fundamentally improved access to diagnostic services and better detected and treated cases in the area. A memorandum of understanding was signed between stakeholders to work on capacity building, system strengthening, research, and nationally channeled esophageal cancer actions.

Lesson Learned: Esophageal cancer is currently considered a serious public health problem in Ethiopia. Collaborative efforts were fundamental tools for identifying policy gaps, advocating public health concerns, and garnering national attention and action from policymakers.

Keywords: *Esophageal, Cancer, Advocacy, Southeastern, Ethiopia*

Introduction

Esophageal cancer (EC) is a formidable malignancy arising from alterations in the esophageal epithelial lining. It ranks as the seventh most common cancer by incidence and the sixth leading cause of cancer-related deaths globally (1). It is challenging to know the exact burden of EC in Ethiopia. Low awareness about symptoms of EC, poor health-seeking behavior, absence of a cancer registry system, reporting EC under all Gastrointestinal (GI) cancers without assigning disease classification codes, and inaccessible and unaffordable healthcare services all contribute to the challenges.

Over the years, Arsi and Bale Zones have been identified as endemic areas for esophageal cancer within the African Esophageal Cancer belt, where more than 50% of cases originate (2,3). According to the data obtained from the oncology units of Adama, Asella, and Goba Hospitals, EC ranks as the second most common cancer after breast cancer in these areas (*unpublished data*).

Recent studies, however, revealed a significant increase in EC incidence across various parts of Ethiopia. Research conducted in ten rural hospitals found EC to be the third most prevalent cancer overall, the second most common cancer among males after prostate cancer, and the third most common among females, following breast cancer and cervical cancer. Aira Hospital in Western Oromia accounted for 64.2% of EC cases, an unusually high number of reports (4). In another study, Addis Ababa and the Southern nation and nationality regions each accounted for a 15% prevalence of esophageal cancer patients. The prevalence of EC stood at 7.4% and 4.9% in Amhara and other regional states, respectively (5). Furthermore, a recent study in Amhara regional state revealed that EC was the tenth most prevalent cancer, with a prevalence of 2.7% in Felege Hiwot Hospital in Bahirdar Town (6).

The gender and age distributions in EC endemic areas in Ethiopia showed that 51.8% of EC patients were females; 7.1% were ≤ 39 years of age; the youngest male and female patients were 19 & 25 years old, respectively(7). Occupationally, 92.3% were farmers from rural areas, and 9.6% reported a family history of cancer(3). The median survival

time after diagnosis is 6 months. The majority (about 80%) of EC patients presented at advanced stages (stages III and IV). As a result, most patients have poor treatment outcomes and survival (8). Patients diagnosed with EC exhibit a lack of knowledge of the early symptoms associated with the disease. The majority of cancer patients preferred to go home due to a large waiting list and a chronic scarcity of cancer medications due to supply and demand imbalances (9). Such a disproportionate burden of the disease and persistent challenges highlight the need for policy attention to design interventions for prevention, early diagnosis, and treatment and collaborative research between different stakeholders. However, EC was never on the agenda in Ethiopia until the Southeastern Upper GI Collaborative Task Force (SE_UGI task force) implemented advocacy efforts for policymakers, health professionals, and researchers in Ethiopia and abroad.

Context

The primary focus areas for the collaborative work were the Arsi and Bale Zones in the Southeastern part of the Oromia Regional state in Ethiopia. Arsi and Bale Zones are EC endemic areas that account for more than 60% of EC cases in Ethiopia. Then, a multi-sectoral and multidisciplinary team was established from Arsi University, Adama Hospital Medical College, Madda Walabu University, Negelle Arsi General Hospital and Medical College, IOHPA, Arsi University and the Ministry of Health. The team comprises health professionals born in the Arsi and Bale, individuals who lost their families, close relatives, and friends, and experts who witnessed the severity of the problem during professional activities.

Problem

Even though the disease's exact burden is unknown, studies show that EC is alarmingly increasing in Ethiopia, with a clustering of cases in hot spot areas. However, the risk factors for clustering EC cases were not well investigated. Esophageal cancer patients are diagnosed at an advanced stage of the disease due to poor knowledge of the early symptoms associated with the disease. In addition, healthcare services are inaccessible and unaffordable.

Therefore, most EC patients face a large waiting list and a chronic scarcity of cancer medications due to supply and demand imbalances.

In general, the disease was not considered a public health priority due to the absence of organized efforts to present empirical evidence for policy decisions.

Aim Statement

This document aims to illustrate the collaborative task force formation process and the advocacy work that led policymakers and stakeholders in Ethiopia in 2024 to recognize esophageal cancer as a serious public health problem.

Assessment of the problem and analysis of its causes

Extensive formal and informal discussions with health professionals born in the affected areas, individuals who lost their families, close relatives, and friends, and experts who witnessed the severity of the problem during professional activities and a review of the relevant literature were employed to identify the extent of the problem. *The* major activities encompassed collaborative discussions, detailed dialogues, and iterative reviews to capture the institutional priority areas and policy gaps. Experts from clinical and public health fields, actively involved throughout the program's lifecycle, contributed insights from its inception to its current state.

Interventions

The advocacy works have been underway for over two years (since 2022) by talking to the mainstream and social media, community mobilizations, communicating with international organizations, and organizing regional and national conferences. In those notable conferences, the task force efficiently communicated the empirical evidence to key policymakers in the country's health system, people's representatives, clinical practitioners, researchers, and community leaders. Subsequent activities were accomplished to illustrate the burden of the disease, key clinical features, and the need for the intervention.

Measurement of improvement

The effects of changes can be measured using multiple indicators. The consideration of EC in national cancer prevention and management strategies and guidelines is the principal indicator for checking the effectiveness of collaborative advocacy efforts. The number of health

professionals trained in the prevention, early diagnosis, and treatment of EC, physicians trained in endoscopy, number of patients diagnosed and referred without delay, utilization of the standard guidelines, research conducted using a standard tool, educational materials produced, distributed and utilized, availability of accessible and affordable health care services will be additional indicators for assessing the effects of change. The consortium will coordinate, facilitate, and monitor clinical services. It also guides health, continued medical education, and research activities. The activities will be reported through regular communication channels and presented during regular meetings. The impacts of the intervention will be evaluated by a reduced number of patients with an advanced stage of the disease, improved survival, and reduced incidences of the disease,

Results

Collaborative work led to the first conference at Arsi University in 2022, involving clinicians, researchers, public figures, and community leaders, along with four educational institutions, namely Arsi University, Madda Wallabu University, Adama Hospital Medical College, and Arsi Negelle General Hospital and Medical College, and International Oromo Health Professional Association (IOHPA). We established the Southeast Esophageal Cancer Task Force (SEECTF) at that conference. The task force developed the first endoscopy curriculum in Ethiopia, trained physicians, and initiated endoscopy diagnosis in two previously unequipped hospitals. Moreover, the task force developed the country's first esophageal cancer treatment guidelines and training manuals. In addition, the team conducted community education in local languages by distributing pamphlets and mass Media.

The advocacy work finally gained attention from policymakers, and esophageal cancer is currently considered one of the serious public health problems in Ethiopia. As a result, the federal Ministry of Health organized a national conference in 2023, which led to the signature of a memorandum of understanding (MOU) between different stakeholders, including academic, research, and health institutions. Finally, a centralized consortium was established in all four academic

institutions to work on advanced research, advocacy, and capacity building, channeling esophageal cancer actions nationally.

Lessons learned

Esophageal cancer is currently considered a serious public health problem in Ethiopia. Collaborative efforts were fundamental tools to identify policy gaps, advocate public health concerns, and garner national attention and action from policymakers.

Messages for others

Collaborative multi-sectoral and multidisciplinary teamwork is a practical and effective tool for identifying community problems and policy gaps and communicating empirical evidence to inform policymakers' decisions.

References

1. Bray F, Ferlay J, Soerjomataram I, Siegel RL, Torre LA, Jemal A. Global cancer statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. CA: A Cancer Journal for Clinicians. 2018 Nov;68(6):394–424.
2. Deybasso HA, Roba KT, Nega B, Belachew T.2021. Clinico-Pathological Findings and Spatial Distributions of Esophageal Cancer in Arsi Zone, Oromia, Central Ethiopia. Cancer Manag Res.13:2755-2762 https://doi.org/10.2147/CMAR.S301978.
3. Memirie ST, Habtemariam MK, Asefa M, Deressa BT, Abayneh G, Tsegaye B, et al. Estimates of Cancer Incidence in Ethiopia in 2015 Using Population-Based Registry Data. JGO. 2018 Dec;(4):1–11.
4. Abegaz K. Cancer incidence rates and trends in Addis Ababa, 2012–2016: Addis Ababa population-based cancer registry. International Journal of Infectious Diseases. 2020 Dec; 101:248.
5. Hassen HY, Teka MA, Addisse A. Survival Status of Esophageal Cancer Patients and its Determinants in Ethiopia: A Facility Based Retrospective Cohort Study. Front Oncol. 2021 Feb 15;10:594342.
6. Azage M, Zewudie S, Goedert MH, Hagos EG. Epidemiological Characteristics of Cancer Patients Attending at Felege Hiwot Referral Hospital, Northwest Ethiopia. Int J Environ Res Public Health. 2023 Mar 22;20(6):5218. doi: 10.3390/ijerph20065218. PMID: 36982127; PMCID: PMC10049658.
7. Deybasso HA, Roba KT, Nega B, Belachew T. Dietary and Environmental Determinants of Oesophageal Cancer in Arsi Zone, Oromia, Central Ethiopia: A Case–Control Study. CMAR. 2021 Feb;Volume 13:2071–82.
8. Feyisa JD, Adisse A, Kantelhardt EJ, Zingeta GT, Negash E, Wondimagegnewu A, et al. Clinical feature, treatment pattern and survival of Esophageal cancer at Tikur Anbessa Specialized Hospital, Ethiopia: a prospective cohort study [Internet]. Oncology; 2023 Feb [cited 2024 Jan 30]. Available from: http://medrxiv.org/lookup/doi/10.1101/2023.02.14.23285932
9. Haileselassie W, Mulugeta T, Tigeneh W, Kaba M, Labisso WL. The Situation of Cancer Treatment in Ethiopia: Challenges and Opportunities. J Cancer Prev. 2019 Mar 30;24(1):33–42.

Magnitude of Hypertension and Associated Factors among West Wollega Zonal Sectors Civil Servants, Western Oromia, 2023

Authors: *Keneni Ephrem Dibisa[1], Abiyot Lemma[1] Mengistu Tamiru Dinka[1], Lalisa Mekonen Moti[2], [1]Mesfin Tasew[1], Solomon Chala[3]Gemechis Mengesha [1], Getahun Fetensa[3], Gemechis Mesfin Bedane [1,4], Chala Befikadu[4], Berhanu Kenea[4]*

Affiliations: *[1]West Wollega Zonal Health office, Oromia Health Bureau, Gimbi, Ethiopia, [2]Gimbi, General Hospital, Oromia Health Bureau, Gimbi, Ethiopia, [3]Jimma University, Department of Health Behaviour and Society, Faculty of Public Health, Jimma University, Jimma, Ethiopia, [4] Oromia Health Bureau, Finfinnee, Ethiopia*

Abstract

Background: Hypertension, a serious worldwide health concern, affects 1.13 billion people and requires immediate attention due to its considerable impact on global morbidity and mortality.

Objective: To assess the magnitude of hypertension and associated factors among West Wollega Zonal sector civil servants, western Oromia, 2023

Method: Cross-sectional research of 376 West Wollega Zonal civil servants utilized a structured questionnaire and face-to-face interviews, with p-values <0.25 and ≤0.05, suggesting statistical significance.

Results: 376 study participants were interviewed during the study period, with a response rate of 100%. The mean (+SD) age of the respondents was 40.12+ 9.12. The magnitude of hypertension among the study participants was 32.4%, 95% CI (27.9%–37.3%), the magnitude of newly diagnosed hypertension was 14.9%, 95% CI (11.7–18.8), and the magnitude of known hypertension was 17.6%, 95% CI (14–21.7). In multivariable analysis, age, being male, body mass index, self-report of high salt consumption, and family history of hypertension were statistically significant for being diagnosed with hypertension.

Conclusion: The study finds that participants have considerable hypertension, with characteristics such as age, gender, obesity, high salt consumption, and family history being strongly associated. It advocates community-based screening, triage screening, and health education about modifiable risk factors.

Keywords: *Hypertension, Magnitude, NCD, Civil servant*

Introduction

Hypertension is defined by high arterial blood pressure, which can lead to issues in the heart, brain, and kidneys. It affects 1.13 billion people globally and is the leading cause of illness and mortality. Globalization, poor eating habits, urbanization, tobacco use, obesity, strokes, diabetes, heart failure, income, alcohol consumption, education, and family history are all risk factors for hypertension. The Sustainable Development Goal is to reduce the severity of high blood pressure by 25% by 2030. However, 76.6% of the population does not measure their blood pressure, underscoring the critical need for hypertension therapy (1, 2, 3). This study examined hypertension prevalence and risk factors among Ethiopia's zonal government employees.

Method and Materials

A study in the West Wollega government sector, involving 376 personnel from 32 sectors, investigated hypertension prevalence among civil servants and independent variables such as age, gender, education, religion, marital status, income, family size, BMI, diabetes, salty diet, smoking, alcohol, and feeding habits.

Operational definition

Hypertension is diagnosed when systolic and/or diastolic blood pressures are ≥140 mmHg or ≥90 mmHg over two days. It is characterized as normal, high normal, grade 1, grade 2, grade 3, or isolated systolic hypertension. BMI and RBS classifications are also utilized. Blood pressure determines whether someone is diabetic.

Data collection tool, procedures, and analysis

A questionnaire and interviews were used to collect data on socio-demographics, behavior, dietary habits, blood pressure, glucose levels, and hypertension. The data were analyzed using SPSS software to evaluate frequency distribution and hypertension risk variables.

Results

The survey interviewed 376 people, with a 100% response rate. The average age was 40.12 + 9.12, with a median of 39. Most were married, educated, and held protestant religious beliefs, with 63% being men. Civil servants spend 91% of their time at work, with only 10.9%

exercising and 77.7% walking. 63% have high blood pressure, 44% have high blood pressure, and 63.6% are on hypertension medication. (Table 1)

Table 1: Anthropometric values, biochemical tests, status of hypertension, and behavioral characteristics of study subjects among West Wollega Zonal Sectors, Gimbi, Oromia, 2023

Variables	Response	Frequency (%)
Random blood sugar	<140mg/dl	338(89.9)
	140-199mg/dl	25(6.6)
	>200mg/dl	13(3.5)
Duration of stay in office in hours	1-4	34(9)
	5-8	342(91)
Did you drink alcohol within the past 12 months?	No	302(80.3)
	Yes	74(19.7)
Do you practice regular exercise?	No	335(89.1)
	Yes	41(10.9)
Have you ever measured your blood pressure?	No	139(37)
	Yes	237(63)
Does the client have hypertension?	No	254(67.6)
	Yes	122(32.4)
Status of Hypertension	No hypertension (normal)	254(67.6)
	Newly diagnosed	56(14.9)
	Known	66(17.5)
Presence of stress?	No	305(81.1)
	Yes	71(18.9)
	Yes	12(80)
Family history of DM?	No	337(89.6)
	Yes	39(10.4)
Perceived history of obesity	No	315(83.8)
	Yes	61(16.2)
Self-reported high salt consumption?	No	303(80.6)
	Yes	73(19.4)

Hypertension is associated with age, men's BMI, blood pressure measurement, perceived obesity, high salt consumption, stress, family history, and a family member's father's hypertension history, with those who measure blood pressure having a 3.6-fold higher risk.

Table 2: Multivariate analysis among study participants, West Wollega, Gimbi, Oromia, 2023

Variables (n=376)	Classification	Does the client have hypertension?		OR (95% CI)
		Yes	No	AOR
Sex	Male	90(38%)	147(62%)	2.33(95% CI;1.22-4.45)
	Female	32(23%)	107(77%)	
Age	20-29	5(12.5%)	35(87.55)	
	30-39	33(21%)	124(79%)	0.96(95% CI;0.32-2.94)
	40-49	37(36.3%)	65(63.7%)	1,25(95% CI;0.39-4.03)
	50-59	47(62.7%)	28(37.3%)	4.32(95% CI;1.31-14.28)
Body mass index	<18.49	5(10.6%)	42(89.4%)	
	18.5-24.9	67(30.2%)	155(69.8%)	2.78(95% CI;0.50-15.32)
	25-29.9	43(46.7%)	49(53.3%)	6.61(95% CI;2.04-21.43
	30-34.9	5(38.5%)	8(61.5%)	0.41(95% CI;0.07-2.28)
Have you ever measured your BP?	Yes	102(43%)	135(57%)	3.66(95% CI;1.96-6.82)
	No	20(14.4%)	119(85.6%)	
History of diabetic mellitus	Yes	11(73.35)	4(26.7%)	3.26(95% CI;0.62-17.24)
	No	111(30.7%	250(69.3%)	
Perceived history of obesity	Yes	28(5.9%)	33(54.1%)	2.24 (95% CI: 1.22-4.81)
	No	94(29.8%)	221(70.2%)	
Presence of stress	Yes	32(43.7%)	40(56.3)	1.81(95% CI;0.94-3.50)
	No	91(29.8%)	214(70.2%	
Self-report of high salt consumption	Yes	9(31%)	28(38.4%)	2.19 (95% CI: 1.09–.39)
	No	45(61.8%)	209(69%)	
Hx of hypertension: father?	Yes	31(43.7%)	40(56.3%)	2.55(95% CI;1.29-5.04)
	No	91(29.8%)	214(70.2%	

Discussion

The study revealed that 32.4% of participants have hypertension, a serious public health problem associated with advanced age, obesity, salt consumption, and family history. With higher rates among newly diagnosed and pre-existing cases compared to the Addis Ababa Federal Ministry of Civil Service (27.3%) (8,9). The cultural food "qocqocaa," which is strong in salt and spices, may contribute to the study area's high hypertension prevalence; however, it is lower than the 33.5% prevalence among Gimbi people. (4). The study indicated that older age greatly increased the likelihood of being diagnosed with hypertension, like a study conducted in southern Ethiopia. (10-13) Men had higher odds of developing hypertension compared to women; this finding is comparable with research done in Sidama and different parts of Ethiopia (5). In most

cases, males are more likely than females to be exposed to hypertension-related behavioral risks.

According to research in the Gurage Zone and nationally representative surveys, there is a significant link between hypertension and a body mass index of more than 25 kg/m2. (14, 15). Obesity causes hypertension through a variety of processes, including increased sympathetic nervous system activity and renal failure. (6). Self-report of high salt consumption had a higher odd of developing hypertension, comparable to research done in Northwest Ethiopia. High salt disrupts the natural sodium balance in the body. This causes fluid retention, which increases the pressure exerted by the blood against the blood vessel walls (7).

Conclusion

The study revealed a high prevalence of hypertension among participants, with age, gender, obesity, excessive salt consumption, and family history all strongly associated with the illness. It promotes community-based screening programs and health information.

Reference

1. Federal Ministry of Health E. National Non-Communicable Diseases Management Protocol, 2021 (November).
2. Hunter PG, Chapman FA, and Dhaun N. Hypertension: Current trends and future perspectives. Vol. 87, British Journal of Clinical Pharmacology, 2021, p. 3721–36.
3. Benken, ST. Hypertensive Emergencies Benken, S. T., and Cardiology, B.-A. (n.d.). Hypertensive Emergencies. 2018;(7):7–30. Available from: https://www.accp.com/docs/bookstore/ccsap/ccsap2018b1_sample.pdf
4. Yadecha B, Bobo FT, Fetensa G, and Woyessa AH. Prevalence of Hypertension and Its Associated Factors Among Gimbi Town Residents, Ethiopia: A Community-Based Cross-Sectional Study. 2020;(November).
5. Id BB, Yoseph A, and Id AA. Prevalence and risk factors of hypertension among civil servants in Sidama Zone, south. 2020;1–17.
6. Shariq OA, Mckenzie TJ. Obesity-related hypertension: A review of pathophysiology, management, and the role of metabolic surgery. Gland Surg. 2020;9(1):80–93.
7. Sutradhar P., Mondal RN. Prevalence and Risk Factors of Hypertension among Government Employees Serving in Rangpur City, Bangladesh. Ethiop J Heal Sci. 2020 (January).

8. Abebaw S, Id T, Bukayaw YA, Yigizaw T, and Angaw DA. Prevalence of hypertension and its determinants in Ethiopia: A systematic review and meta-analysis, 2020;
9. Angaw K., Dadi AF, and Alene KA. Prevalence of hypertension among federal ministry civil servants in Addis Ababa, Ethiopia: A call for a workplace screening program. BMC Cardiovasc Disord. 2015;15(1):1–6.
10. Kebede B., Ayele G., Haftu D., and Gebremichael G. The prevalence and associated factors of hypertension among adults in southern Ethiopia. Int J Chronic Dis. 2020;1–7.
11. Wolle SZ. To determine the prevalence of hypertension and its lifestyle risk factors in the Amhara Region of Debre Birehan Town among Zonal Civil Servants, Ethiopia. 2020;0–22.
12. Chuka A, Gutema BT, Ayele G, Megersa ND, Melketsedik ZA, and Zewdie TH. Prevalence of hypertension and associated factors among adult residents in Arba Minch Health and Demographic Surveillance Site, Southern Ethiopia. PLoS One. 2020;15(8 August):1–13.
13. Laurent S., Boutouyrie P. Arterial Stiffness and Hypertension in the Elderly. Front Cardiovasc Med. 2020;7(October):1–13.
14. Hossain FB, Shawon SR, Adhikary G, and Chowdhury A. Association between body mass index (BMI) and hypertension in the South Asian population: Evidence from the Demographic and Health Survey. bioRxiv. 2019;605469.
15. Haligamo D, Ayalew A, Genemo H, and Yiriga N. Hypertension and Management Undiagnosed Hypertension and Its Associated Factors among Adult People Living in Southern Ethiopia: Evidence from Gunchire Woreda of Gurage Zone. 2021;7(1):1–8.
16. Teshome DF, Balcha SA, Ayele TA, Atnafu A, Sisay M, Asfaw MG, et al. High burden of hypertension amongst the adult population in rural districts of Northwest Ethiopia: A call for community-based intervention. PLoS One. 2022;17(10 October):55–64.

Magnitude of cesarean delivery and associated factors among women who gave birth at Gimbi town Hospitals, West Wollega, Oromia, 2023

Authors: *Keneni Ephrem[1], Mengistu Tamiru[1], Lalisa Mekonen[1, 2], Zemanu Shasho[2], Getahun Fetensa[3]*, Gemechis Mengesha [1], Kenanisa Leyo[4], Gemechis Mesfin[4], Galmessa[5], Muzemir[5]*

Affiliations: *[1]West Wollega Zonal Health office, quality unit; [2]Gimbi General Hospital; [3]Departments of Nursing, Institute of Health Science, Wollega University; [4] Oromia Health Bureau, Finfinnee, Ethiopia, [5]Partners (WHO and QHA)*

Abstract

Background: A cesarean section is performed when safe vaginal delivery is either not feasible (absolute) or would impose undue risks to the mother or fetus (relative), and the most significant lifesaving procedures play a key role in declining maternal and perinatal morbidity and mortality rates. Therefore, this study is intended to determine the magnitude of cesarean sections, associated factors, and gaps at Gimbi town hospitals in West Wollega, Western Ethiopia, in 2023.

Method: A retrospective cross-sectional study of 420 women who gave birth the previous year was undertaken at Gimbi town hospitals from September 21 to October 1, 2023. Data was collected using extraction sheets, entered Epidata, and then exported to SPSS. Results with p-values <0.05 were considered significant.

Results and discussion: Charts were reviewed during the study period. The mean (±SD) age of the respondents was 25±4.4. The overall prevalence of cesarean sections was 33.3% (95% CI: 28.8–37.8). Moreover, antenatal visits, the presence of risk factors, bad obstetrics history, and partograph utilization are associated with cesarean delivery: [AOR = 7.70 (95% CI: 1.79–33.17), [AOR = 3.39 (95% CI: 1.45-7.94), [AOR = 6.72 (95% CI: 2.81–16.1)], and [AOR = 3.74 (95% CI: 1.03–13.61].

Conclusion: High cesarean delivery rates in Gimbi town hospitals are linked to antenatal care visits, risk factors, poor obstetrics, and partograph use. Cesarean sections, photography during labor, and the provision of informed antenatal care should all be governed by national standards.

Keywords: *Cesarean delivery, Magnitude, and Vaginal delivery*

Introduction

A cesarean section is a life-saving technique used in comprehensive emergency obstetric and newborn care to reduce morbidity and maternal death when safe vaginal delivery is not possible or poses unacceptable risks (1). A cesarean section is an optional treatment with known hazards to the woman and fetus during childbirth. Still, it must be performed immediately in situations of emergency that pose health problems (2). The treatment was initially intended to save the expecting mother's life, but it has evolved to include delivery due to hidden risks and should be undertaken based on evidence (3).

Cesarean section has both immediate and long-term consequences, including internal organ trauma, anesthetic concerns, maternal death, and transient tachypnea, as well as long-term hazards such as uterine rupture, infertility, and placental accretion (4). The World Health Organization predicts that 5–15% of pregnancies may result in major health problems; however, cesarean section births can reduce maternal mortality, and success is dependent on adequate prenatal care (5). The magnitude and what factors are predisposing mothers to cesarean sections in Gimbi town, Western Oromia, have not been investigated yet. Therefore, this study is intended to determine the magnitude of cesarean sections and associated factors in the study area.

Method and Materials

The study was conducted in two hospitals in Gimbi town from September 21 to October 1, 2023.

Study Design: The study utilized an institution-based retrospective cross-sectional design, focusing on charts of mothers who gave birth the previous year at Gimbi General and Gimbi Adventist Hospitals while excluding cesarean sections for extra-uterine pregnancy and incomplete charts. The study employed a population of 422, accounting for 10% of the missing data, and included individuals from both hospitals in Gimbi town. It focuses on cesarean delivery and independent variables such as sociodemographic, obstetrics, maternal and fetal characteristics, medical problems, and health facility-related factors. SPSS 25 was used for data analysis.

Results

420 medical charts were reviewed during the study period, with a response rate of 99.5%. The mean (+SD) age of the respondents was 25+4.4. Most participants were married, 406 (96.7%), and about 159 (37.3%) were Protestants.

Table 1: Socio-demographic characteristics of women who have given birth at Gimbi town health facilities, West Wollega, Ethiopia, 2023

Variable(n=420)	Variable categories	Frequency	Percent
Age of respondents	17-19yrs	36	8.6
	20-34yrs	367	87.4
	35-49yrs	17	4
Marital status	Single	3	0.7
	Married	406	96.7
	Divorced	7	1.7
	Widowed	4	1
	Others	9	2.1
	Others	8	1.9
Family size	<4	84	20
	>=4	336	80
Residence	Urban	177	42.1
	Rural	243	57.9

According to the study, 52.4% of mothers are multigravida, 50.5% are multipara, and 49.5% give
birth after two years, with 85% having never had a cesarean birth.

Table 2: Obstetrics and medical illness-related factors of women who have given birth at Gimbi town health facilities, West Wollega, Oromia, Ethiopia, 2023

Variable	Variable categories	Frequency	Percent
Gravidity	Prim-Gravida	187	44.5
	Multi-Gravida	220	52.4
	Grand-multi-Gravida	13	3.1
Inter-pregnancy interval (n = 225)	<=2yrs	17	4
	>2yrs	208	49.5
Previous Hx of C-Section	Yes	60	14.3
	No	360	85.7
Fetus presentation	Normal	369	87.9
	Abnormal	51	12.1
ANC follow	Yes	301	71.7
	No	119	28.3
Number of ANCs (n = 301)	<4 visit	66	21.9
	>=4 visit	235	78.1

The study showed a 33.3% prevalence of cesarean sections, with 79% of deliveries owing to emergencies and 67% spontaneous vaginal deliveries.

Table 3: Prevalence of CS among pregnant women who gave birth at Gimbi Town Hospitals, 2023

Variables (n=420)		CS performed	
		Yes (#/%)	No (#/%)
Overall prevalence of cesarean delivery at both hospitals		140 (33.3%)	280(66.7%)
Instrumentation applied (n = 280)		44(15.7%)	226(84.3%)
Types of Cesarean Delivery (n = 140)	Emergency	111(79.3%)	0
	Elective	29(20.7%)	0

The study showed that women with fewer ANC visits, risk factors, poor maternal history, and partograph use were more likely to have a cesarean birth, with risk factors three times more likely and a bad birth history four times more likely.

Table 4: Crude and adjusted odds ratios of factors associated with cesarean delivery both at hospitals in Gimbi town, West Wollega, Ethiopia, 2023

Variables (n=420)	Categories	Cesarean Delivery			
		Yes	No	Adjusted OR	P-value
Number of ANC Visits	>= 4 visits	94(40%)	141(60%)	7.70(1.79-33.17)	0.006*
	< 4 Visits	9(12.9%)	61(87.1%)		
	Normal	109(29.5%	260(70.5%		
Previous History of CS	Yes	48(80%)	12(20%)	0.35(0.1-1.2)	0.96
	No	92(25.6%)	268(74.4%)		
Presence of risk factors	Yes	118(54.1%)	100(45.9%)	3.39(1.45-7.94)	0.005*
	No	22(10.9%)	180(89.1%)		
Bad Obstetric History	Yes	25(46.3%)	29(53.7%)	3.74(1.03-13.61)	0.04*
	No	115(31.4%	251(68.6%		
Partograph utilization	No	115(60.5%)	75(39.5%)	6.72(2.81-16.1)	<0.001*
	Yes	25(10.9%)	205(89.1%		

Discussion

According to the study, the study area had a 33.3% cesarean delivery prevalence, which is lower than other countries but comparable to other regions. The research site, population, socioeconomic status, healthcare access, policies, technology monitoring, malpractice concerns, and older motherhood are some factors influencing this discrepancy (9,18,19). On the other hand, the findings of this study

were higher than the studies conducted in Bangladesh 23.94% (15), Felegehiwot referral hospital 25.4% (17), Butajira general hospital 21% (20), Suhul General Hospital of Tigray Region 20.2% (2), and Ado-Ekiti (Nigeria) which was 19.9% (16). The study found a disparity in cesarean deliveries, presumably due to improved access and hospital referrals for obstetric patients, with 79.3% being emergency-related. According to the study, mothers who have fewer than four antenatal visits have a higher risk of cesarean birth, whereas women with risk factors had a threefold increased risk. The study's results are supported by the survey conducted at Felegehiwot Referral Hospital, Northwest Ethiopia (17), and Addis Ababa hospitals (5)(22).
According to studies conducted in Dessie town hospitals, Northeast E thiopia, and Hawwasa Hospital, moms who do not undergo partogra ph monitoring are more likely to have a cesarean delivery (5).

Research conducted in multiple Ethiopian hospitals shows that women with a poor obstetric history are more likely to have a cesarean delivery. This suggests a substantial relationship between these factors (5)(17)(18)(19)(2). However, after controlling confounding, previous cesarean delivery, fetal presentation, antepartum hemorrhage, and instrumental delivery did not correlate with the outcome variable.

Conclusions and Recommendations

The study discovered a high rate of cesarean sections in the area, with 55% of mothers utilizing a partograph during labor. Emergency obstetric births were widespread, with increasing failure and unstable fetal states being the primary indications. The study advocates adhering to national guidelines, performing pathology, and providing information about operation risks and benefits.

References

1. Tigray W. Criteria Based Clinical Audit of Cesarean Section in a General Hospital in Journal of Women ' s Health Care. 2017;6(6):3–7.
2. Tesfaye T, Hailu D, Mekonnen N, Tesfaye R. Magnitude of Maternal Complication and Associated Factors among Mothers Undergone Cesarean Section at Yirgalem General Hospital ,. 2017;7(May):264–72.
3. WHO Statement on Caesarean Section Rates. 2014;
4. On R, Federal O, Republic D, January H. M p s o t. 2010;
5. Tenaw Z, Kassa ZY, Kassahun G, Ayenew A. Maternal Preference , Mode of Delivery and Associated Factors among Women Who Gave Birth at

Public and Private Hospitals in Hawassa City , Southern Ethiopia. 2019;85(1):1–7.
6. Al-rawashdeh I, Kharboush I, Al-kubaisy W. Disparities in Cesarean Section among Women in Jordan : 2020;(August).
7. Caesarean section rates continue to rise, amid growing inequalities in access.
8. Gedefaw G, Demis A, Alemnew B, Wondmieneh A, Getie A. Prevalence , indications , and outcomes of caesarean section deliveries in Ethiopia : a systematic review and meta-analysis. 2020;1–10.
9. Gelaw M, Nega F, Hunie M, Kibret S, Fentie Y, Desalegn W, et al. Prevalence and factors associated with caesarean section in a comprehensive specialized hospital of Ethiopia : A cross-sectional study ; 2020. Ann Med Surg [Internet]. 2023;67(June):102520. Available from: https://doi.org/10.1016/j.amsu.2023102520
10. Access O. Prevalence and associated factors of caesarean section in Addis Ababa hospitals, Ethiopia. 2019;8688:1–9.
11. Betran AP, Ye J, Moller B, Souza JP. Trends and projections of caesarean section rates : global and regional estimates. 2023;1–8.
12. Betrán AP, Ye J, Moller A, Zhang J, Gülmezoglu AM. The Increasing Trend in Caesarean Section Rates : Global , Regional and National Estimates : 1990-2014. 2016;1–12.
13. Rai SD, Jan R. Caesarean Section rates in South Asian cities : Can midwifery help stem the rise ? 2019;6(2):4–22.
14. Awoyemi BO. The Rate and Costs of Caesarean Section among Women in Ado-Ekiti , Nigeria. 2020;6(3):1–5.
15. Hasan F, Alam M, Hossain G. Associated factors and their individual contributions to caesarean delivery among married women in Bangladesh : analysis of Bangladesh demographic and health survey data. 2019;9:1–9.
16. Akinola OI, Fabamwo AO, Tayo AO, Rabiu KA, Oshodi YA. Caesarean section – an appraisal of some predictive factors in Lagos Nigeria. 2014;
17. Abebe FE, Gebeyehu AW, Kidane AN, Eyassu GA. Factors leading to cesarean section delivery at Felegehiwot referral hospital , Northwest Ethiopia : a retrospective record review. Reprod Health [Internet]. 2016;1–7. Available from: http://dx.doi.org/10.1186/s12978-015-0114-8
18. Ayalew M, Mengistie B, Dheressa M, Demis A. Magnitude of Cesarean Section Delivery and Its Associated Factors Among Mothers Who Gave Birth at Public Hospitals in Northern Ethiopia : Institution-Based Cross-Sectional Study. 2020;1563–71.
19. Hussen a. prevalence and indication and outcome of cesarean section in Jugal Hospital , Harari regional state , Ethiopia , 2019 : a retrospective study. 2019;5(4):85–90.
20. Tadesa H, Beyene A. Prevalence of cesarean section and associated factor among women who give birth in the last one year at Butajira General Hospital , Gurage Zone , SNNPR ,. 2020;6(1):16–21.

Partograph Utilization and Its Associated Factors Among Obstetric Caregivers in Qellem Wollega Zone Public Health Institutions, Western Ethiopia, 2023

Author: *Kemal Hirko*
Affiliation*: Dambi Dollo University*

Abstract

Background: A partograph is a graphic representation of labor used by health professionals to monitor labor progress and fetal and maternal well-being. However, its utilization and associated factors have yet to be studied in Qellem Wollega Zone public health facilities in Western Ethiopia. Hence, this study aimed to assess the magnitude of partograph utilization and its associated factors among obstetric care providers at public health facilities in Qellem Wollega Zone, Western Ethiopia, in 2023.

Objective: To Assess the level of partograph utilization and its associated factors among obstetric care providers in public health facilities in the Qellem Wollega zone, western Ethiopia, in 2023.

Methods: A facility-based cross-sectional study design was conducted from November 1–December 20, 2023. A single population proportion formula was used to estimate the sample size, which was 289. A simple random sampling method was carried out on 20 health facilities. A structured and pretested questionnaire was administered to collect data. The collected data was cleaned and entered into the Epi-Data version 4.6 statistical package, then exported to SPSS version 23.0 for analysis. Binary logistic regression analysis was used to detect the association between variables.

Results: The overall magnitude of partograph utilization was 159 (55.0%) with a 95% CI of (20.0, 40.3). Good knowledge (AOR [95% CI] =2.796 [1.019-7.673]) and a positive attitude toward partograph use (AOR [95% CI] = 1.657 [1.637-4.310]) were significantly associated with partograph use.

Conclusion: Overall, partograph utilization was low in this study. Receiving on-the-job training for OCPs, having good knowledge, and having a positive attitude toward partograph use were factors associated with partograph use.

Keyword: *Partograph, Obstetric, Qellem Wollega*

Background

Partograph is a graphic illustration of labor used by health professionals in obstetric care to monitor the progress of labor and fetal and maternal well-being (1). It consists of three components: maternal, fetal, and labor progress. (2). In 1954, Friedman introduced the concept of partograph by graphically plotting cervical dilatation against time. Labor progress is assessed through cervical dilatation and descent of head and uterine contractions. On the other hand, the fetal condition is monitored by fetal heart rate, the color of the liquor, and the molding of the fetal skull. Furthermore, the maternal condition is also assessed by monitoring maternal pulse rate, blood pressure, temperature, and urine for volume, protein, and ketone bodies (3).

To reduce maternal and neonatal morbidity and mortality due to obstructed and prolonged labor, especially in developing countries, the World Health Organization (WHO) recommends universal and routine partograph utilization. Obstructed labor is one of the common, easily preventable causes of maternal and prenatal morbidity and mortality in developing countries, including Ethiopia (3). It was first used in 1950 and became an international standard method in 1987 in Nairobi, Kenya. In 1994, the World Health Organization declared its essential use in all settings for enhancing labor management and lowering maternal and fetal mortality (4).

The utilization of the partograph allows early recognition of obstructed labor and reduces the chances of prolonged labor and unnecessary cesarean section (5). A cross-sectional study done in Southwest Ethiopia in 2018 revealed that, in labor monitored by partograph, prolonged labor was reduced from 6.4 to 3.4 %, augmentation was reduced from 20.7 to 9.1 %, emergency cesarean section was reduced from 9.9 to 8.3 %, and stillbirths were reduced from 0.5 to 0.3 % (6). The cross-sectional study conducted in the Hadiya zone revealed that the associated factors related to the utilization of partographs in many health facilities are the type of health facility they are working in, the job training on partographs, knowledge about the partographs, and attitude toward partographs utilization (7). It has been indicated that

utilization of the partograph was significantly associated with improved maternal and neonatal labor outcomes (8).

Objective

To assess the magnitude of partograph utilization and its associated factors among obstetric care providers at public health facilities in Qellem Wollega Zone, Western Ethiopia, in 2023.

Methodology

Study Area and Period

Qellem Wollega Zone, Western Ethiopia, from November 1, 2023, to December 20, 2023.

Study Design

A facility-based cross-sectional study design was implemented.

Source Population

Healthcare workers working in all public health facilities in Qellem Wollega Zone during the study period in 2023.

Sampling Unit

Selected obstetric care providers working in selected Qellem Wollega Zone 2023 public health facilities.

Sample Size Determination

The sample size was determined by using a single population proportion formula by using Epi- info version 7.2.2.2.6, taking the expected frequency or prevalence of partograph utilization as 64.4% of the study conducted in Buno Bedele zone (9), LOC 95%, design effect 1 and source population was 639. The calculated sample size was 263 plus 10% non-response rate. Since the source population was less than 10,000, a correction formula was used to estimate the final sample.

Sampling Technique and Procedures

The study participants were selected using simple random sampling (lottery method) after the sample size was proportionally allocated to each selected health facility.

Data Collection Tool and Procedure

A structured questionnaire was adapted from previous relevant literature related to the problem under study to include all the possible variables that address the study's objectives. The study participants

were instructed on how to fill out the questionnaire. Six trained data collectors collected data from all selected obstetric care providers; they were trained for one day. Two trained BSc midwives were also assigned to supervise and review a recently used partograph to check its completeness.

Data Quality Control and Management

The questionnaire was structured. The investigators supervised close daily; all incomplete data were identified, and corrections were made immediately. Every piece of data was cleaned and coded before entering the Epi Data version 4.6. Questionnaires were reviewed and checked for completeness and clarity, and the necessary feedback was given to the data collectors.

Data Analysis

The questionnaire was checked for completeness, coded, and entered Epi Data version 4.6 and then exported to SPSS version 23.0 for analysis. Binary logistic regression assessed any association between the dependent and independent variables. Hosmer-Lemeshow was performed to test the goodness of fit result ($p > 0.3$).

Ethical Consideration

The Research and Ethical Review Committee of Dambi Dollo University granted permission to conduct the study.

Results

Socio-Demographic Characteristics of Study Participants

The questionnaire received a response rate of 100%. The mean and standard deviation of the respondents' ages were 35.5 and ±7.841 years, respectively. Female participants account for more than half (149, 51.6%). Most participants' educational status (51.9%) was at degree level. Most respondents (65.1%) were from hospitals, and 108 (34.9%) were from health centers. Most worked ≥ 6 years 168 (58.1%), followed by a range of 3-5 years (109, 37.7%).

Knowledge of Partograph of Obstetric Care Providers

The knowledge status of respondents on partograph utilization was assessed using criteria such as those who responded 50% and above on knowledge-related questions classified as having good knowledge. In this study, 106(36.7%) participants knew about the definition of a

partograph, 170(55.7%), components of a partograph, 158(54.7%), when to plot on the partograph, how often it is used once active phase of labor started 141(48.8%), cervical dilation followed 238(82.4%), the importance of partograph 203(70.2%).

Attitude of Obstetric Care Providers toward Partograph Utilization

Participants agreed on the beneficial effects of the partograph on laboring women at 184 (63.75%); it alerts skilled birth attendants of any deviation from normal strongly agreeing at 197 (68.2%); by using a partograph, healthcare providers can identify problems, recognize complications early, strongly agreeing at 221 (76.5%), and using a partograph enables health care providers to perform essential basic interventions strongly agree at 168 (58.1%), that using the partograph misleads management as the progress of labor and the partograph alert line are not aligned in most pregnant women strongly agree 178 (61.6%).

The attitude of obstetric care providers toward partograph utilization was assessed using Likert scale questions and classified as positive and negative after calculating the mean score. The mean score calculated was 1.38, and those who scored 1.38 and more were classified as having a positive attitude. More than half, 178(61.6%) participants, scored 1.38 and above and were considered positive toward partograph utilization.

Partograph Utilization

The magnitude of partograph utilization among participants to monitor labor for all laboring mothers was 159(55.0%) with 95% CI. Respondents who were not using partograph routinely endorsed their reason as absence of job training (30.4%), lack of supervision (29.0%), shortage of staff (15.9%), and non-availability of partograph (10.4%) in the labor ward.

Factors Associated with Partograph Utilization by Obstetric Care Providers

Attitude towards partograph use (COR =1.657), knowledge of partograph use (COR=2.796), and Sex (COR =3.02) were candidate variables for the multivariate binary logistic regression model. Three

variables were significantly associated with the multivariable analysis: good knowledge, positive attitude towards partograph, and job training for partograph. In this study, respondents with a positive attitude towards partographs are 1.6 times more likely to utilize partographs (AOR =1.657), and those with good knowledge are 2.7 times more likely to use partographs (AOR =2.796).

Discussion

According to this study, the overall utilization level of partographs was 159 (55.0%) 95% CI of (20.0, 40.3). This finding is higher as compared with studies conducted in the North Shoa zone, Central Ethiopia (40.2%), Gojjam (53.85%), West Shoa Zone (41.22%), and Amhara (31%; BAR & 3(5):291). The reason might be that the Federal Ministry of Health has set targets and is working for institutional skilled delivery coverage at 90%, enabling all health facilities to use partograph and provide all BEmONC functions (10). The findings of this study were lower than studies conducted in Addis Ababa (57.3%), Bale Zone (73%), Gambia (78%), South Africa (64%), and Ghana (87%). The differences between these findings might be due to differences in the level of knowledge of obstetric care providers (11). This study also revealed that a lack of on-the-job training was one factor in using a partograph. As stated in this study, participants who received on-the-job training (221, or 76.4%) utilized a partograph. In contrast, obstetric health care providers who didn't receive on-the-job training (49, or 16.9%) did not use a partograph routinely.

The main reason might be that obstetric care providers who received on-the-job training on partographs had better information, skills, and confidence about using them, improving their use. The current study participant's attitude towards partograph use was shown as follows: 169 obstetric care providers had a positive attitude towards partograph use (61.8%). When we compare the study conducted in West Shoa Zone, obstetric care providers' positive attitude towards partograph use was 68(21.25) (10). The overall knowledge of obstetric care providers in this study showed that participants with good knowledge of partograph-related questions were 158 (54.6%). This study was low compared to the study conducted in Addis Ababa 511 (86%), (4). The possible reason might be the knowledge that qualifies them to

understand what critical labor progress will occur and decide on another option, such as referral and caesarian section, which encourage obstetric care providers to use partograph as a decision-making tool (6).

In this study, participants' reasons for not using the partograph were as follows: lack of training 88 (30.4%), lack of supervision 86 (29.8%), staff shortage 46 (15.95), and unavailability of partograph 30 (10.4%). When we compare the above reasons with the study conducted in Addis Ababa, it is not similar except for the lack of training (99, 16.7%) and the lack of supervision (20.4%). This indicates that obstetric care providers may have a skill gap and need more supervision in the recording of partograph charts by the concerned body.

Conclusion

This study found that partograph utilization was low, and incomplete recording of required parameters was observed. Partograph utilization was significantly associated with on-the-job training, knowledge, and obstetric care providers' attitudes toward partographs. Lack of supervision, unavailability of partographs, and shortage of obstetric care providers were reasons for low partograph utilization.

Recommendation

Qellem Wollega Zone Health Department

- It is better if obstetric care providers receive on-the-job training on how to use the partograph.

Woreda Health Offices and Health Facilities

- Employing more midwives in the labor and delivery ward at all health facilities.
- Always have preprinted partograph charts available in labor and delivery rooms.
- Conducting close supervision and following up with senior obstetric care providers is better.

Obstetric Care Providers

- Using partographs as a vital tool for diagnosing abnormalities like prolonged and obstructed labor during the progress of labor and as a decision-making tool to reduce maternal and neonatal mortality and provide quality health care.

References

1. Haile. (2020). Partograph utilization as a decision-making tool and associated factors among obstetric care providers in Ethiopia: a systematic review and meta-analysis. 1–11.
2. Hailu, T., Nigus, K., Gidey, G., Hailu, B., & Moges, Y. (2018). Assessment of partograph utilization and associated factors among obstetric care givers at public health institutions in central zone, Tigray, Ethiopia. BMC Research Notes, 11(1), 1–6.
3. Markos D, Bogale D. Knowledge and utilization of partograph among health care professionals in public health institutions of Bale zone, Southeast Ethiopia. Public Health. 2016 Aug;137:162-8..
4. Gebreslassie, G. W., Weldegeorges, D. A., Assefa, N. E., Gebrehiwot, B. G., Gebremeskel, S. G., Tafere, B. B., Gebreheat, G., Gebru, T. T., Kiros, D., Tekola, K. B., & Welesamuel, T. G (2019). Utilization of the partograph and its associated factors among obstetric care providers in the eastern zone of tigray, northern ethiopia, 2017: A cross-sectional study.
5. Lavender T, Hart A, Smyth RM. Effect of partogram use on outcomes for women in spontaneous labour at term. Cochrane Database Syst Rev. 2013 Jul 10
6. Desta, M., Mekonen, Z., Alemu, A. A., Demelash, M., Getaneh, T., Bazezew, Y., Kassa, G. M., & Wakgari, N. (2022). Determinants of obstructed labour and its adverse outcomes among women who gave birth in Hawassa University Referral Hospital: A case-control study. PLoS ONE, 17(6 June), 1–14.
7. Tegegne, B. S. (2020). Utilization of Partograph and its associated factors among midwives working in public health institutions, Addis Ababa City. BMC Pregnancy and Childbirth, 20(49), 1–9.
8. Zelellw, D. A., & Tegegne, T. K. (2018). Level of partograph utilization and its associated factors among obstetric caregivers at public health facilities in East Gojam Zone, Northwest Ethiopia.
9. Wakgari, N. (2022). Factors Associated with Partographs Utilization in Jimma and Bedele Zones, Oromia Regional State, Ethiopia. Texila International Journal of Public Health, 153–165.
10. Tilahun, A. G., Gebeyehu, D. G., Adinew, Y. Y., & Mengstu, F. W. (2021). Utilization of partograph and its associated factors among obstetric caregivers in public health institutions of Southwest Ethiopia. BMC Pregnancy and Childbirth, 21(1), 1–8.
11. Tesfaye, N., Tariku, R., Zenebe, A., & Woldeyohannes, F. (2022). Critical factors associated with postpartum maternal death in Ethiopia. PLoS ONE, 17(6 June), 1–23.

Section III – Lesson from Innovation Experiences

Health Facilities Network of Care: Learning from Tulu Bolo General Hospital and Bacho Woreda Health office

Authors: *Engida Kabeta[1], Dereje Moti[1], Teka Degefa[1], Tujo Dechasa[1], Olana Jeldu[1], Tadela Efa[1], Dereje Mosisa[2], Milkesa Girma[2], Erena Negesa[2], Talga Kapitano[2], Kenenisa Gelena[2], Tolosa Jaleta[2], Gudeta Teresa[2], Jote Ararsa[3], Guteta Degefa[3], Teshome Olijira[4]*

Affiliation: *[1]Tulu Bolo General Hospital, [2]Bacho Worede Health Office, [3]Southwest Shoa Health Department, [4]IHI*

Abstract

Background: The NOC Innovation project designated Becho Woreda as one of the care network sites. The members of this network at Becho Woreda comprised the Becho Woreda health office, four health centers, and Tulu Bolo General Hospital. We wanted to examine the feasibility and effectiveness of NOC implementation strategies in our context.

Methods: The NOC project was introduced in Woreda-based networking, where health facilities providing maternal and newborn health services were deliberately interconnected to function as one unit providing client-centered care. Clinical bundle indicators were measured using all or no adherence every month. A time-series analysis using an annotated run chart was employed to assess the effect of system-level interventions.

Interventions: Networked facilities signed MOU. The interventions outlined in the MOU include hospitals providing clinical support through mentorship visits, conducting outreach sonography screenings, offering virtual consultations by senior clinicians, equipping ambulances with emergency supplies, and implementing refined protocols: clinical management, communication, transport, and referral systems.

Results: Implementing the district health facilities' care innovation network has fostered collaboration among health facilities and healthcare workers, enhancing health service delivery. Pre-referral communication improved significantly from a baseline of 53% to an average of 87%. Additionally, health center staff engaged in virtual clinical consultations with senior physicians, increasing from 0% to an average of 70%. These improvements have enhanced pre-referral clinical management, reducing unnecessary referrals. At the Becho district NOC site, the innovation reduced early neonatal deaths (from 18/1000 live births to 10/1000 live births).

Conclusion: Though further testing is ongoing**,** the network of care model is a promising approach to considering health system improvement and clinical outcomes at the primary healthcare level.

Keywords: *Network of Care, District health facilities, Innovation*

Introduction

Network of Care (NOC) is a group of public and private health service delivery sites deliberately interconnected through an administrative and clinical management model that promotes a structure and culture that prioritizes client-centered, effective, efficient operation and collaborative learning, enabling providers across all levels of care, not excluding the community, to work in teams and share responsibility for health outcome. Public facilities within the Woreda health office will play a major role in cascading the Maternal and Newborn Health (MNH) care delivery as a group to improve maternal and newborn health outcomes by strengthening the functionality of the Networks of care. The MNH NOC promotes a structure and culture prioritizing client-centered, effective, and efficient care. MNH NOC aims to reduce neonatal mortality and stillbirth rate by focusing on standardizing basic care for ANC, delivery, and birth, as well as improving the management of preterm labor, low birth weight, premature newborns, newborn infection, birth asphyxia, and severe preeclampsia/eclampsia.

Bacho District Network of Care is an excellent innovation for the national health service because of the following points:

- Collaborate with health facilities in the district as one family member to deliver quality healthcare service for the community.
- Active senior physicians' involvement in the district Network of Care
- Active Woreda and zonal political leaders' participation in the district Network of Care
- Active community representative involvement in the district Network of Care

Criteria

Becho Health Facilities Network of Care is a new idea developed and implemented involving clinical leadership from Woreda and hospital, administrative leadership from Zone and Woreda administration, senior physicians, community representatives, and NGOs to deliver standard quality health service at all facility levels with shared responsibilities. /Innovation defined by Van de Ven (19860) /. In the

Network of Care, the facilities collaborate with startups and adopt new approaches to stay competitive. These innovative work activities started with capacitating staff at all levels with knowledge, attitude, and practice, equipping ambulances with essential drugs and equipment, conducting mobile obstetric U/S at health centers by obstetricians, pre-referral management at health centers by virtual consultation, training health center staff to do obstetric U/S by obstetrician, mentoring and coaching and sharing resources.

This activity, in turn, solves problems related to drugs, referrals, and relations between health centers and hospitals. This results in the decrement of patient morbidity and mortality. /Innovation defined by Covin and Slevin (1991), Knox (2002), Lumpkin, and Dess (1996) /. To sustain the improvement and implement the action plan for the gaps in the NoC activities, an executive committee conducts regular meetings, onsite and offsite training is given to capacitate the health professionals, and regular clinical audits and coaching are conducted on quality healthcare service delivery. Innovation is defined by Brunet (2015).

Objectives

- To work towards creating a shared purpose.
- To establish operational norms using standards and protocols: clinical protocols, referral communication protocols, transportation protocols, translating the standards to the standard of care (answer who, when, how, and why);
- To engage and communicate with NOC communities (members, partners, communities, clients, and their families), including creating communication platforms (face-to-face and virtual) and huddles.
- For capacity-building mentorship, coaching, training, and workshops.
- For resource mobilization and sharing.
- For learning monitoring and knowledge management: establish/strengthen structures for learning, monitoring, and knowledge management; generate and share data; establish visual boards; create platforms for learning and sharing

(learning session, review meetings, supportive supervision); problem-solving methods; and
- Strengthening the quality structures at each facility.

Methodology

NOC implementation followed the six steps.

Assessment: Continuous measurement of various aspects of functional NOC will be initiated through a baseline assessment process. Such assessments will be done to capture relevant data within facilities and across facilities.

Co-design: NOC member sites will co-design on joint interventions and create an agreement to work as a network with clear protocols and SOPs to be followed.

Collaboration: With a signed MOU and based on findings from the continuous assessment process, the NOC members will collaborate to address the readiness of facilities for MNH service provision. Such collaborations include resource mobilization, capacity building, mentorship, and coaching.

Integration: NOC members will, as shown in the Figure: NOC implementation cycle, provide care as one team for maximum integration and coordination of service provision across the continuum.

CQI: Continuous quality improvement will be applied within and across facilities to improve evidence-based and patient-centeredness of care provision. Processes and outcomes of care will be targeted for improvement.

Learning and adaptation: Learning and adaptation for the NOC will be facilitated through learning sessions, data sharing, and review meetings led by senior physicians. These will help improve care provision and outcomes across the NOC.

Results

Overall, the establishment of Becho district NOC collaborates with all health facilities in Woreda to execute standard health service delivery

as one family. This resulted in an increment of pre-referral communication from a line of 53% to an average of 87% (Figure 1) and an increase in health center staff to senior physicians' virtual consultation from 0% baseline to an average of 70% (Figure 2), which improve pre-referral management and avoid unnecessary referrals. Early neonatal death decreased from the baseline of 17/1000 live births to 7/1000 live births by the end of September 2016 E.C (Figure 3). Stillbirth decreased from a baseline of 30/1000 total births to 16/1000 total births at the NOC site. There were no maternal deaths or complications at the site during the implementation of the project.

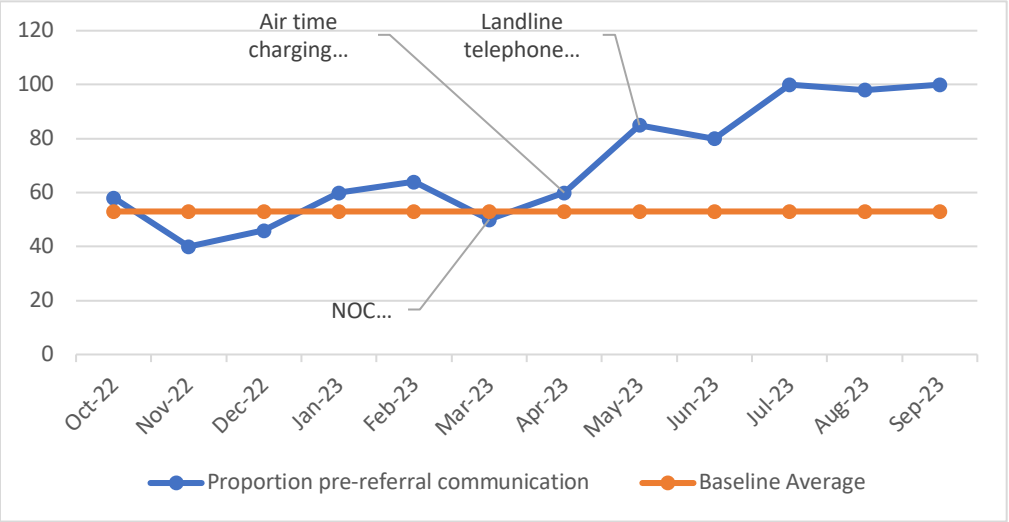


Figure 1: Proportion of pre-referral communication at Becho District Network of Care

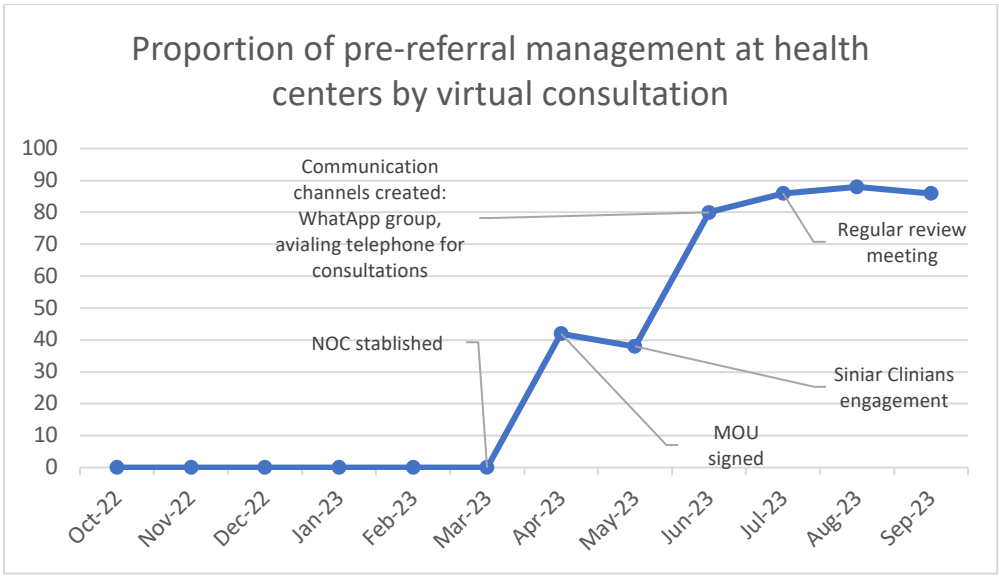


Figure 2: Proportion of pre-referral management at HCs by virtual consultation, Becho District NOC

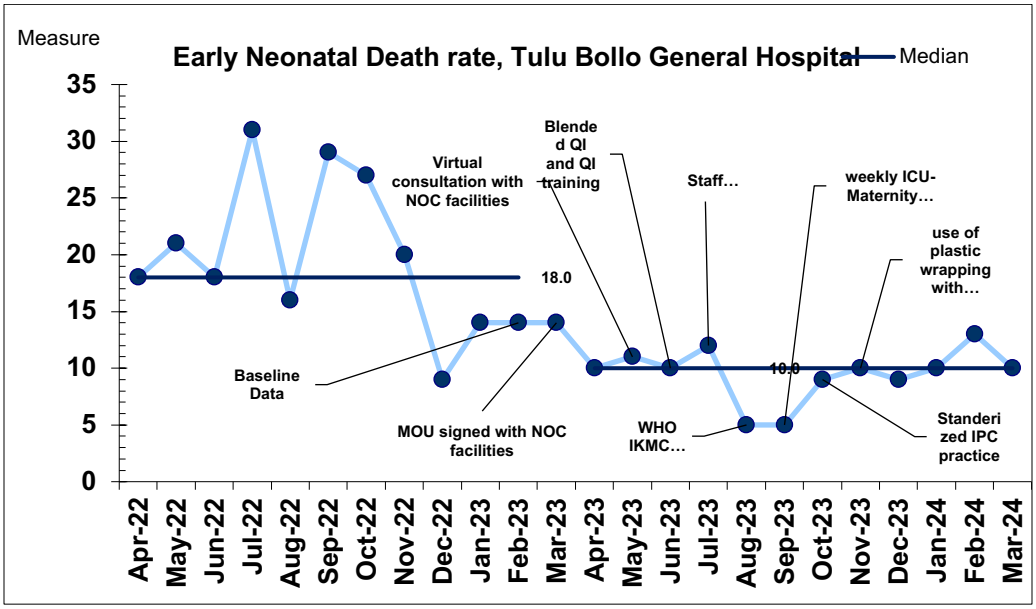


Figure 3: Early Neonatal death rate at Becho District NOC

Conclusion

Though further testing is ongoing, the network of care model is a promising approach to considering health system improvement and clinical outcomes at the primary healthcare level.

Scale Up

As the testing process is still ongoing with promising results, documenting what was learned during the implementation of the NOC model is the cornerstone for future successful scale tests and full scale up.

HIV/AIDS Performance Monitoring Information System (HAPMIS)

Author: *Getachew Chala Dab*
Affiliation*: Oromia Health Bureau*

Introduction

HAPMIS is a web-based application designed, developed, and deployed to capture, process, and store HIV/AIDS Clinical data/information, generate reports, and manage dashboards online. It is an independent platform. It is one of OHB's strategies in the information revolution endeavor, one of the HST transformation agendas.

HAPMIS contains different subsystems like Service Delivery (SDP), Appointment Spacing Model, Clinical System Mentorship (GSM), Cervical Cancer Screening and Treatment, Gender-Based Violence (GBV), HIV Self-Testing, Key Population (KP) (both FCS and PREV), License Renewal, Lost To Follow-up (LTFU), Linkage Audit Summary, Mental Health Integration (MHI), PFB ICT, Partner Notification Services, Positive Tracking, Pre-exposure Prophylaxis, Social Networking Services (SNS), ART Initiation Status, and others.

Problems Solved

By implementing this innovation, HIV/AIDS clinical data are collected, organized, summarized, and reported promptly for decision-making at all levels. In addition, it served as a data source for DHIS2/ DATIM and a central HIV/AIDS clinical data management.

Criteria

Among the criteria for selecting this were relative Advantages, the alliance of multiple functions into one system, better service, better quality, decreased need for equipment and supplies, improved interface, increased customizability, longevity, empowerment of users, improved customer satisfaction, reduced users' effort and environmental impact, increased productivity, and saving of time, money, space, and storage.

Compatibility
Designed, developed, deployed, and used with all stakeholders' existing lifestyle, knowledge, skill, attitude, and technology (hardware, software, and connectivity).

Simplicity
Because HAPMIS is a web-based system like Google, Telegram, Facebook, and so on, it is intuitive and simple for users to adapt.

Trialability
The trialability period of HAPMIS was too short. With 5-day training for experts at OHB, Zone/Cities/Towns, and ART Sites, there was no trial period.

Observability
- Side-by-side comparison – manual vs digital
- Before and after – before HAPMIS and after HAPMIS implementation
- Testimonials – feedback from stakeholders with gratitude

Newness
Oromia is the only region using online HIV/AIDS clinical data gathering, storing, analyzing, and providing for decisions from all ART Sites.

Objectives
This innovation aims to facilitate online decision-making, improve healthcare quality, enhance healthcare digitization service, and increase productivity.

Methodology
Different techniques were used as methods in this innovation. These are:
- Requirement identification and analysis were done.
- System designing (back-end, front-end, and middleware) were employed.
- System development happened,

- system testing and rectification was done, system installation, configuration, securing, and deployment
- Document preparation (end-user manual, technical manual, and SOP) has done
- Training (for HIV/AIDS Directorate Experts at OHB, Zones/Cities/Towns, and data clerks and providers at ART Sites) was provided
- The system was launched by OHB Management.

Results

450 ART Sites are using the system for HIV/AIDS clinical data gathering, storing, analyzing, and reporting. All ART Sites use HAPMIS as a data source for DHIS2 and DATIM.

- The fund is raised by CDC for OHB to support HAPMIS.
- Report developed (Ontime and updated reports, which include detail reports, exception reports and summary reports, tabular and visualized reports, and interactive dashboard)

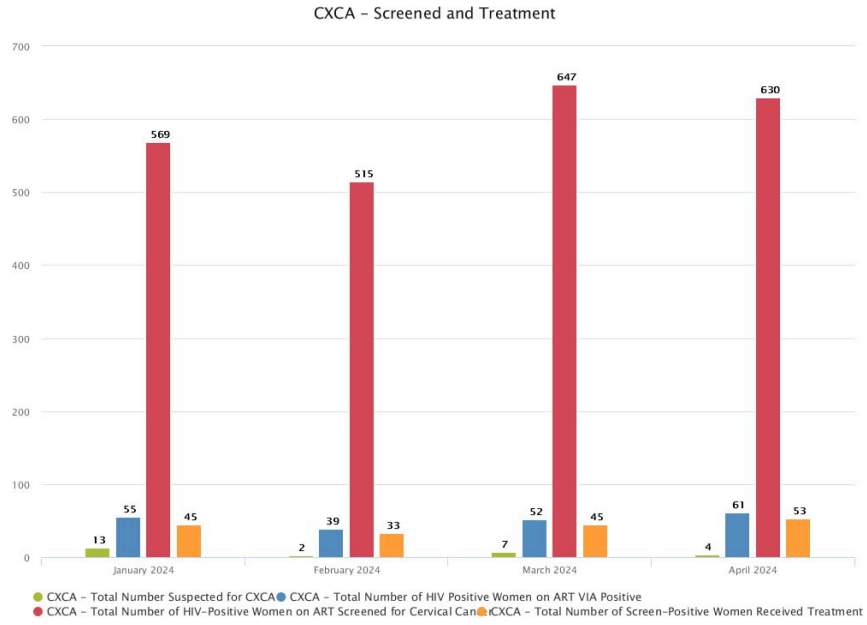


Figure 1: Percentages of CXCA – screen and treatment

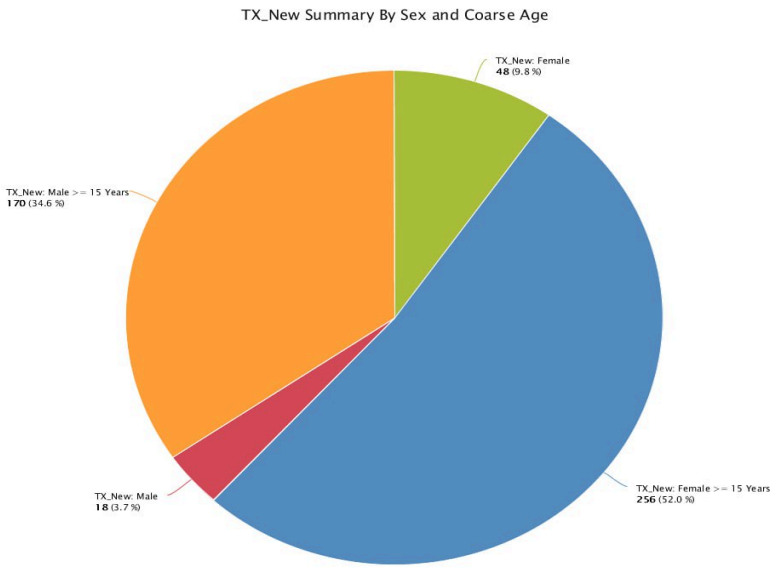


Figure 2: Percentages of TX-New Summary by sex and Coarse age

Conclusion

The Main Point of the Innovation Work (HAPMIS)is online data capture, storage, analysis, and reporting for decision-making.

Potential Impacts will be

- Practicing information revolution
- Increased loyalty, access to service
- Enhanced reputation since (Monitoring and Evaluation Officers (simple data analysis and presentation mechanisms)
- Data Clerks and Providers (Improved data quality since HAPMIS can serve as the data source for both DHIS2 and DATIM)
- Improved service, productivity, customer satisfaction, and community service quality and time.

Scale-up

HAPMIS is already accessible across the border both locally (within the region) and nationally (across the nation) as well as globally to those who have authentication and authorization (including CDC) because it is web-based (online accessible system) as far as there is an internet connection. However, for the system to be used as a national health system, we are cordially working with the Federal Ministry of Health and other regions. We are also working to assure and legalize the patent and copyright of HAPMIS.

Health Regulatory Management Information System (HRMIS)

Author: *Getachew Chala Dabi*
Affiliation: *Oromia Health Bureau*

Introduction

HRMIS is a web-based application designed, developed, and deployed to capture, process, and store professional licensing (from application to license generating), manage license status, generate reports, and manage dashboards online. It also manages professional license history (hardcopy) archival, converting it to softcopy. It is platform-independent. It is one of OHB's strategies in the information revolution endeavor, one of the HST transformation agendas.

HRMIS contains subsystems such as professional licensing archival management, competency licensing archival management, new license management, license renewal management, license upgrading management, license replacement (in case of lost/damaged) management, and others. HRMIS is accessed online by OHB regulatory experts, zone/City/town regulatory experts, and applicants (health professionals) as per their respective authentication and authorization.

Problems Solved

- Hardcopy professional license and competency license converted to softcopy
- Archival tracing is also automated
- Professional Licensing service quality is improved (24 hours to get a license without moving from their home or workplace and without incurring any cost)
- Health professional challenges to get professional licensing is eradicated
- OHB regulatory image is changed
- Printing and stationary cost for Professional Licensing is eradicated
- Bureaucracy and corruption are minimized
- Los/damage of professional and competency licensing documents is eradicated
- Health professionals' cost is eradicated

- Community healthcare service quality is improved.
- Unnecessary queue for Professional Licensing at OHB is eradicated.
- Zero-cost revenue is generated
- Responsibility and accountability are improved
- Complicated customer and service routes (workflow) minimized
- Central data management

Criteria

Relative Advantages

- Alliance of multiple functions into one system
- Better service
- Better quality
- Decreased need for equipment and supplies
- Improved interface
- Increased customizability, longevity
- Empowerment of users
- Improved customer satisfaction
- Reduces users' effort and environmental impact
- Increased productivity
- Saving time, money, space and storage
- Less bureaucracy and corruption

Compatibility

- Designed, developed, deployed, and used with all stakeholders' lifestyles, knowledge, skills, attitudes, and technology (hardware, software, and connectivity). The bureau incurred zero cost to design, develop, deploy, and use the system.

Simplicity

- Because HRMIS is a web-based system like Google, Telegram, Facebook, and so on, it is intuitive and simple for users to adapt.
- Trialability—The HRMIS trialability period needed to be longer. After five days of training for experts at OHB and Zone/Cities/Towns, the trial period ended, and the system started full service within one month.

Observability

- Side-by-side comparison – manual vs digital
- Before and after – before HRMIS and after HRMIS implementation
- Testimonials – feedback from stakeholders with gratitude

Newness

- HRMIS is a new online professional licensing system (without customer physical contact) as a nation in the health system.
- Oromia is the only region using online professional licensing without health professionals' physical availability.

Objectives

The objectives of this innovation were to:

- Digitize existing hardcopy professional and competency licenses
- Minimize service and customer routes to get a professional license
- Eradicate health professionals' challenges to get their professional licensing
- Improve regulatory service quality
- Minimize bureaucracy and corruption
- Save customers time, and money
- Improve healthcare quality service since health professionals never move from their routine duty to get a professional license
- Enhance healthcare digitization service
- Increase regulatory experts' productivity and
- Save space and storage for all stakeholders.

Methodology

- Requirement identification and analysis
- System designing (back-end, font-end and middleware)
- System development
- System testing and rectification
- System installation, configuration, securing, and deployment
- Document preparation (end-user manual, technical manual and SOP)

- Training (for regulatory experts at OHB and Zones/Cities/Towns)
- Launching the system by OHB Management

Results

The 73,889 professional licenses of health professionals and 6,107 competency licenses of facilities' records of health professionals are digitized and indexed. From nine thousand twenty-one licensed applications, 5,667 new, 1,815 renewal, 1,247 upgrades, 286 designations and replacements. From 9311,391 Licenses with CPD, of which were renewed.

Different reports were produced, such as

- Ontime and updated reports (detail reports, exception reports, and summary reports)
- Tabular and visualized reports
- Interactive dashboard

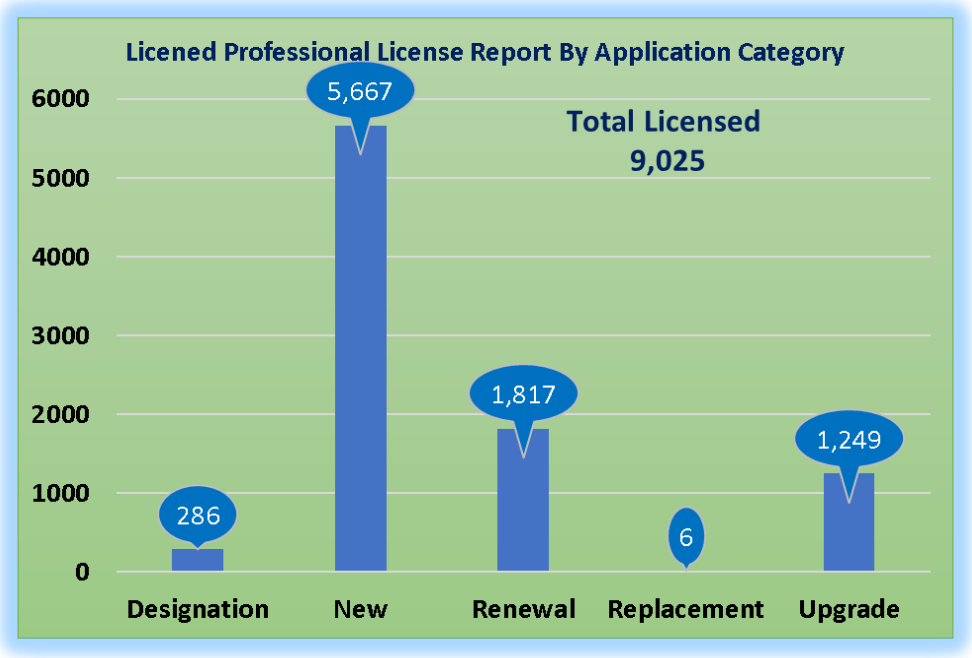


Figure 1: Percentages of licensed professional license report by application category

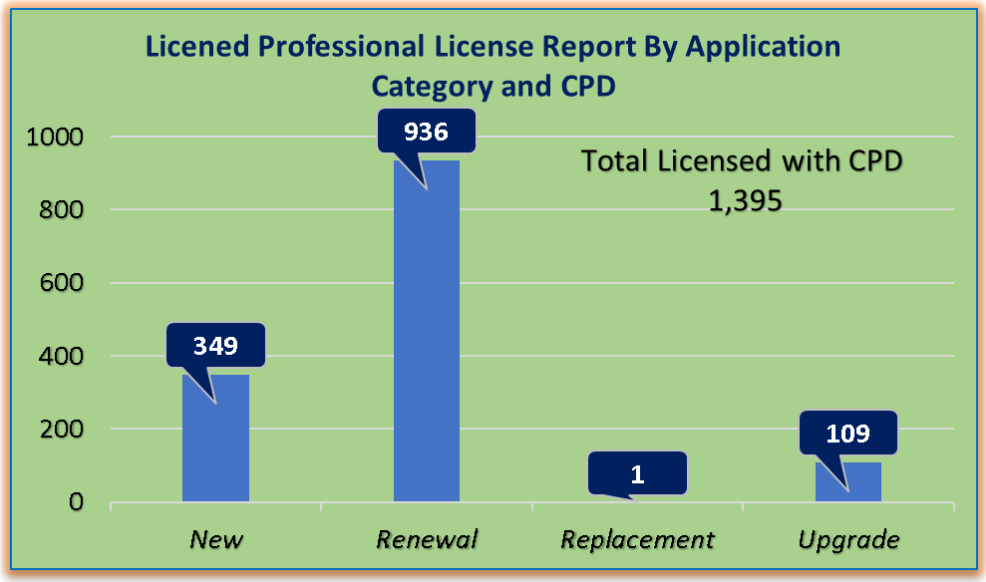


Figure 2: Percentages of licensed professional license report by application category and CPD

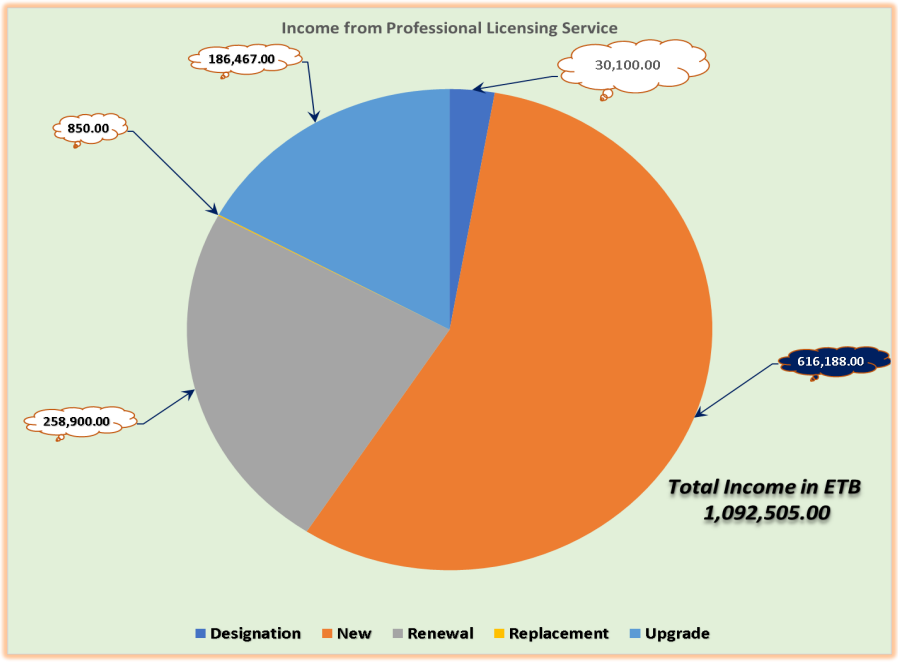


Figure 3: Percentages of income from professional licensing service

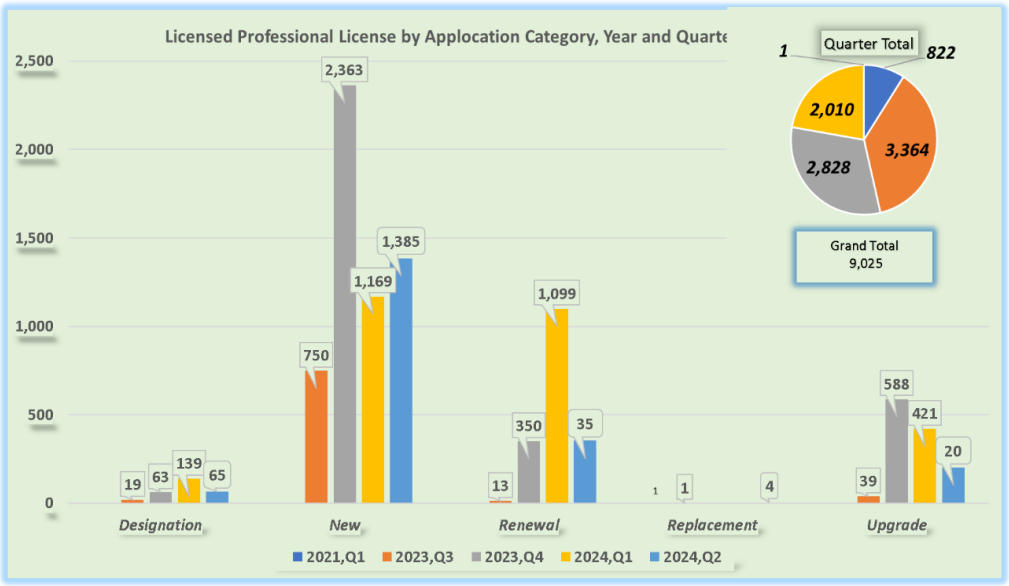


Figure 4: Percentages of CXCA – screen and treatment

Conclusion

Main Points of the Innovation work (HRMIS) were:

- Professional and competency license archival digitization and indexing
- Online application for professional licensing (New, Upgrade, Renewal, Replacement, Designation and Letter of Good Standing)
- Online approval of professional licensing (New, Upgrade, Renewal, Replacement, Designation, and Letter of Good Standing)
- Online Professional Licensing Service Payment and Approval

The potential Impacts sought for OHB were:

- Exercising the information revolution practically
- Increased loyalty, access to service
- Enhanced regulatory services and reputation
- Minimized bureaucracy and corruption
- Saved hardcopy storage staff, including shelves and rooms
- Saved stationary and other related costs

- Health Professionals (saved time and money, eradicated challenges of bureaucracy and corruption, avoided unnecessary moves from their chores and services for the community, saved from theft and robbery on journey, and on-spot service from OHB)
- Improved service quality, productivity, customer satisfaction, community service quality, and time

Scale-up

HRMIS is already accessible across the border both locally (within the region) and nationally (across the nation) as well as globally to those who have authentication and authorization because it is web-based (an online accessible system) as far as there is an internet connection. However, for the system to be used as a nation's health system, we are cordially working with the Federal Ministry of Health and other regions. We are also working to assure and legalize the patent and copyright of HRMIS.