Original Article

The Role of locally driven Clinical Mentorship and Coaching to improve the advance critical care services in Ethiopia

Menbeu Sultan[1*], Lemlem Beza[2], Demelash Ataro[3], Ephrem Hassen[1], Yenegeta walelign[4], Mitiku Getu[1], Yonas Hagos[1]. Sue Anne Bell[5].

Abstract

Introduction: Critical care availability is limited in Ethiopia. Moreover, the available capacity to manage critically ill patients is concentrated in the capital city. Mentoring of smaller ICUs by the experienced provider from the larger ICUS is mentioned as a methods to improve the provision of critical care services but its impact is not well known.

Objectives: This study was aimed to assess the role of locally driven clinical mentorship and coaching and to improve critical care service in Ethiopia.

Methods: Qualitative study methods including in-depth interview and onsite observation was conducted from March 2021 to September 2022 among 24 selected hospitals of Ethiopia. Prior to the study, critical care trained senior professionals from the larger ICUs were deployed to 24 selected smaller ICUS for a two week immersion that included mentorship and coaching for ICU clinicians. Onsite observation was focused on the twelve parameters recommended by the international society intensivisits. In addition, the perceived impact was assessed qualitatively by interviewing 12 key informants from the selected hospitals. Interview was conducted in English and collected data analyzed thematically.

Results: The study included the role of mentorship and coaching for 24 hospitals in Ethiopia. There was consensus that the mentoring program improved their service and or has enabled them to start critical care in their hospitals. An improvement in unit design, human resource capacity and quality improvement projects and academic activities in the mentored hospitals was noted.

Conclusion: Country-specific mentorship and coaching from established ICUs to relatively smaller centers were found to be helpful to improve the clinical service status. Expanding the mentoring program and involving other departments like emergency medicine may help to improve the service. [*Ethiop. J. Health Dev.* 2023; 37(1) 000-000]

Key words: critical care, mentorship, coaching

Introduction

Critical care or intensive care is defined as "a multidisciplinary and inter-professional specialty dedicated to the comprehensive management of patients having, or at risk of developing, acute and life-threatening organ dysfunction" (1). Currently, critical care is in highly demand due to development of new and complicated surgical procedures such as organ transplantation, as well as the widespread use of invasive and non-invasive respiratory support equipment and monitoring devices (2-4). The Intensive Care Unit (ICU) team includes physicians, nurses, respiratory care technicians, pharmacists and other allied professionals who are highly trained and use their unique expertise and highly sophisticated equipment to care for critically ill patients in a collaborative environment (5).

Even as critical care has undergone significant evolution due to recent technological advances, the progress of critical care service delivery in low income countries like Ethiopia has lagged behind (6-9). The mortality rate of ICU admitted patients is reported as higher in resource limited settings. Several studies from developing countries have found ICU mortality rates greater than 40%, which is much higher than reports from developed countries (10-13).

A country-wide survey in Ethiopia found that while the capacity for critical care service is flourishing, a quarter of services are concentrated in Addis Ababa, while in other parts of the country the capacity for critical care is limited by inadequate trained professionals, equipment and supplies (14,15). Concomitantly, the overall mortality of patients admitted to ICUs in Ethiopia is especially high in smaller ICUs located outside of the capital city, Addis Ababa (14). Moreover, there is a pressing need to improve the situation due to the increasing caseloads of COVID-19 patients (19-21). To fill the gap in critical care delivery in Ethiopian federal ministry of health, implemented Mentorship and Coaching as one of the methods to improve the situation.

Mentorship and coaching using an onsite training system under which a senior or more experienced professionals (team) assigned in their ICU to act as advisor, a shadow and a guide to the junior ICU professionals may be an effective mechanism for improving ICU care (16) . Its goal is to equip health care providers with the clinical knowledge, skills and

[1] St. Paul's Hospital millennium medical college,
[2] Addis Ababa University, college of health science, Addis Ababa, Ethiopia
[3] Hawassa University, Ethiopia
[4] Ministry of health, Addis Ababa, Ethiopia
[5] University of Michigan school of nursing .
[*]Corresponding author E mail smenbeu@yahoo.com

attitudes to achieve competence and confidence in provision of quality healthcare service. Evidence in other settings have shown that peer mentoring for critical care nurses by senior experts was found to be a vital strategy to improve knowledge and skill in providing standardized care(17,18). Despite the implementation of the mentorship program, its impact in Ethiopia is not well known. Therefore this study was conducted to assess the impact of locally driven clinical coaching and mentorship on critical care services in selected hospitals in Ethiopia.

Methodology

Study area and Study design

The study was conducted in Ethiopia with a population of 120 million. Ethiopia has a three tier health care system. The study was conducted from March 2021 to September 2022. During the study period there were 54 intensive care units in Ethiopia. A fourth of the intensive care units capacity were in the capital city Addis Ababa. Federal ministry of health had implemented mentorship and coaching program for smaller ICUs. In the program a critical care trained physician and a masters level nurse were selected from the mentor hospitals located in Addis Ababa and deployed for two weeks to those purposively selected mentee ICUs. The mentors were assigned to these smaller ICUs with specific activities including making daily round both with the doctor's team and nurse's team and shadowed clinical activities both during working and off working hours.

Study population and sampling

The interviewee was the study hospital leadership including either the medical director or the ICU director. Perposefully4 hospitals were selected by federal ministry of health considering their smaller size and have less developed in terms of design, quality of care, infection prevention practice, and academic activities.

Data Collection Instruments

An interview was done involving the either ,medical director, or the ICU director in all the mentee hospitals The data collection was done at the end of the mentorship period by trained data collectors not involved in the mentorship role. In addition on site observation by the team were used to assess the role of mentorship and coaching the 12 parameters proposed by World Federation of Societies of Intensive and Critical Care Medicine (WFSICCM) task force listed in table 1 below. Those parameters were also used as an interview guide for the key informant interview. A one day training on mentoring concept, identified gaps, objectives and mentoring methods and data collection and reporting were given to the data collectors before deployment.

Table 1: Interview guide adapted from the World Federation of intensive and critical care society

1. Improve availability of skilled medical personnel
2. Improve availability of skilled nursing personnel (we utilized nurse to patient ratio)
3. Task shifting training to professionals i regarding the role of respiratory therapists, physiotherapists, nutritionists, etc
4. Improve capacity to monitor acutely ill patients
5. Improve availability of resources for the support of failing organ function
6. Optimize design and structure of the physical space according to a level of care
7. Integration with ICU outreach services—in the emergency department and hospital ward, as well as services for follow-up of discharged patients
8. Initiate or strengthening of formal educational and professional development services for staff
9. Presence of dedicated house staff and role as a center for training expert personnel
10. Quality improvement activities
11. Improve referral service and transportation of critically ill patients in the hospital
12. Ability to scale-up services in response to a disaster or pandemic outbreak.

Data analysis

The collected data were transcribed and the findings were analyzed thematicaly by reapited leading of their response and the observation result. The themes were identified as role of the mentorship and coaching program and challenges were described and quotes were provided in each section of the identified themes.

Operational definition

***Mentorship and coaching*;** an onsite training system under which a senior or more experienced professionals (team) acts as advisor, a shadow and a guide to the junior ICU professionals.

***Critical care unit/ intensive care unit*:** is a dedicated patient treatment area where a comprehensive management of patients having, or at risk of developing, acute and life-threatening organ dysfunction.

Ethical considerations

Consent from the hospital administration and permission from the federal ministry of health was obtained before the data collection. Interviwee was informed on the research ojective and concent was optained befor data collection. In adition autonomy and confidentiality of the interviewee was assured. Identification of the interviwee was not collected to assure confidenciality.

Results

For this study, we analyzed mentoring and coaching activities conducted at 24 Ethiopian hospitals from March 2021 to September 2022 Almost all regions of Ethiopia were involved in the program where seven were found in Oromia, four in SNNPR and two in Sidama (Table 2).

Fourteen medical directors and team leaders of the intensive care units were interviewed. 18 (75%) of the interviewee were males. Four themes emerged during the analysis. The selected themes included the perceived impact of the program to improve the ICU status, its role in ICU leadership and quality of care, the impact of utilizing ICU equipment, and the challenges.

Table 2: Names and regions of involved hospitals in the Mentorship and Coaching Program.

Institution involved	Region
Bishoftu Hospital	Oromia
Dessie Referral Hospital	Amhara
Dilla University Hospital	SNNPR
Metu Karl University Hospital	Oromia
Tirunesh Beijing Hospital	Addis Ababa
Wachamo University	SNNPR
Wolaita Sodo	SNNPR
Arbaminch Hospital	SNNPR
Debreberhan Comprehensive Specialized Hospital	Amhara
GUDER Primary hospital	Oromia
Shashemene Referral Hospital	Oromia
Injibara	Amhara
Karamara Hospital	Somali
MizanTepi University Teaching Hospital	SNNPR
Mojo Primary Hospital	Oromia
Nekemte Specialized Hospital	Oromia
Wolkite University Specialized Hospital	SNNPR
Assosa Hospital	Benshangul
Gambela	Gambela
Yirgalem	Sidama
Bona	Sidama
Debre Markos	Amhara
Felege Hiwot Hospital	Amhara

Perceived Impact in Improving the ICUs

All participants agreed that their intensive care units have improved with the mentorship and coaching program. There is a consistant agreement in the improvement of academic activities. Nursing and doctors and clinical rounds were strengthened to improve clinical skill of staff. Most of them reported that the confidence level of staff to manage patients has improved.“It has been one year since we have opened our ICU and we had decided not to intubate patient but now we have started it”

They also reported that intensive care unit design was improved and able to open their ICU and most ICUs started quality improvement projects for their ICUs. Please refer table 3 below for detail of the peceived impact of the mentorship and coaching and the result of onsite observation..

“This ICU would not have been opened if the mentoring team came to our hospital” (sc1)

We started to use mechanical ventilation only after the mentoring team came to our hospital, we were scared of using ICU equipment until we get training and supervision from the team”

“We have increased our bed capacity from 4 bed to 10 bedded ICU by renovating our old ICU with the technical support of the team” (sc2)

“Mentoring and coaching program has helped to exchange equipment among each other” (Sm3)

“It has been one year since we opened our ICU and we had decided not to intubate a patient. Since there was no patient extubated. We have intubated and extubated the first patient after the mentoring team stayed with us” (ID 4).

Table 3: Observed impact of mentorship and coaching to improve recommended parameters.

No	Objective criteria	Outcomes
1	Therapeutic Capacity	● Therapeutic capacity building was done for all hospitals. ● ICU staff were trained to provide support for failing organ
2	Personnel	● The nursing to patient and physician to patient ratio was improved. ● Mentored hospitals have assigned ICU directors after the mentorship ● At last half of the hospitals have started a hiring process for EMCC or anesthesiologists during and after the mentorship
3	Academic Activity	● Morning activities were supported and the mentorship team has participated in taking the leadership in all hospitals. ● Daily round has been initiated in most of the hospitals ● Bedside teaching has been initiated in non-teaching hospitals
4	Training Expert Personnel	● the mentorship team has discussed with hospital leaders assigning a focal person
5	Monitoring Capacity	● Noninvasive monitoring capacities were available in all hospitals after the program
6	Intensive care unit design	● Most of the ICU setups were found to be crowded. Therefore, the following outcomes were earned after the mentorship: ○ Bed spacing has been rearranged in all hospitals ○ Utility room was separated from a toilet in 5 hospitals ○ Crash carts were rearranged in all hospitals ○ Renovation has also been started in 5 of the mentored hospitals such as Dessie Specialized Hospital, Jinka General Hospital ○ Relocation of ICU has been done in 2 hospitals because it was found to be far from the operation theatre and emergency unit ○ Number of beds has been increased in 4 hospitals which can accommodate more beds without disrupting the bed spacing principle in the ICU ○ Waste segregation was done and dedicated bins were arranged in all hospitals. Family waiting areas arranged in 4 hospitals
7	Organ Support	● The mentee hospital staff were trained and capacitated on using a mechanical ventilator (intubation and weaning), perfusion, defibrillator, etc ● Staff were capacitated to use, set, and troubleshoot medical equipment
8	Integration within the hospital	● The mentee team has strengthened this culture of working in close with the different departments such as emergency medicine and other departments
9	Research and Quality	● Documentation of medical data was well explained to mentee hospitals that it will assist them in doing research. ● Formal Quality initiative projects were initiated in most of the mentored hospitals during the mentorship and coaching activities.
10	Referral service and transportation of critically ill	● A referral linkage and better preparation for referral was instituted with a training to all staff on transportation of critically ill sick patients.
11	Responsiveness to regional and societal needs	● The centers were capacitated to serve as disaster management centers for the pandemic in their respective societies and regions.

Leadership and Quality service

During the mentorship period, some of the reported leadership roles were establishment of multidisciplinary (MDT) team and ICU committee. Leadership focuses on relocating and renovation of ICU setup, taking corrective actions including proper waste disposal, establishment of functional utility rooms towards maximizing proper infection prevention

practices in ICU. Hospital's leadership also increased the bed capacity of ICU setup, proper human and resource demand forecasting and allocation.The leadership al-so, approved resource allocation for patient referral system.

"The mentoring team helped us to improve delayed admission and better triaging of patients from emergency department and ward" (HMD4)

"A QI project to improve 35% documentation level to 70 % is started" (HMD3)

"Infection prevention practice transformed from nonexistent segregation of west to separate utility room" (HMD 1)

Existing protocols from the federal Ministry of Health were distributed among the ICUs and the healthcare professionals working in the ICU setup in hard and/or soft copy format. ICU protocols and guidelines including admission and discharge protocol, ICU manual, national ICU implementation guide and case specific patient referral and End of life care policies implementation were observed during mentorship period.

"We had documents including protocols and guidelines but utilization was difficult until the leadership understood their role"

Utilization of Critical care Basic Equipment

Almost all reported the provision of training on how to utilize ICU equipment including ECG machine, defibrillator, mechanical ventilators, infusion pumps and suction machine were provided. Various equipment were discovered to be available in the store but not used due to communication gaps and/or lack of proper skill and knowledge to use such devices.

"Mentoring and coaching program has helped to exchange equipment among each other" (HMD8)

Mentors helped mentees to stock, rearrange and label their existing crash carts. With the goal of equipping the crash cart with essential mandatory and lifesaving drugs and other equipment, proper labeling and rearranging of crash cart and proper drug list available were carried out

"We started to use crash carts and mechanical ventilation only after the mentoring team came to our hospital" (HMD11)

Challenges

Some hospitals leadership thought ICU will demand much of its budget and reluctant to set it as a priority. They also expected ICU equipment from the visiting team. The short time of mentorship program make follow up of started projects difficult. Lack of Consumables and equipment limited the impact of the mentorship program. Some ICUs are opened in remote areas where getting oxygen supply is difficult. Poor integration of the ICU with the other hospital services like emergency departments led to delayed admission, poor transfer of critically sick patients and insufficient resuscitation which may led to poor patient outcome. Competent priorities and cost issue made purchase of equipment difficult during mentoring time.

"We have to bring oxygen from 500 kilometers which made ICU expansion challenging" (HMD17)
"Limited organ supporting devises and expensive equipment are the challenges in our ICU services" (HMD20)

Discussion

With the collaborative effort between the mentors and hospital management team, most of the recommended objectives were achieved or begun to be achieved. Major improvements in the design of the ICUs including renovations and expansion activities were carried out by most of the mentoring teams over rounds of mentorship. The program also allowed to strengthen the service, infrastructure and also human resources of smaller ICUs. It helped to improve those gaps which can be solved within the short-term plan of mentors including academic activities, quality improvement projects, application of protocol and guide lines.

One of an implementation study in five African countries found that incorporating mentorship and coaching activities was associated with improvements in quality of care and health systems (22, 23). In another study, supportive supervision has been shown to increase job satisfaction and health worker motivation(24). But there is mixed evidence on whether mentorship will increase clinical competence and there is little evidence of the effect on clinical outcomes(25). Although we were unable to identify the impact of the implementation of protocols, the program allowed us to integrate national protocols and policies into the smaller ICUs. On a study done elsewhere where application of supporting rural district hospitals to implement evidence based protocol has significant improvement in several quality of care indicators (26, 27).

The study team also has identified the ICU challenges are linked to emergency room issues like delayed admission, poor transfer of critically sick patients and insufficient resuscitation. Evidence also showed Human resource and supply shortages as well as insufficiencies of supporting disciplines like laboratories and radiology and delayed presentation of critically sick patients to the intensive care unit, contribute to comparably high mortality rates in developing nations(8) (27). Expanding the mentorship and coaching program to other departments, especially emergency departments may help to improve the situation.

The program also helped to identify the major gaps and priority areas for future improvement like human resources (lack of professionals trained in quality and quantity), limited infrastructure (substandard ICU with critically low number of beds as compared to the demand); lack of supplies and equipment. Most of these problems need strategic solutions, hence the focus of resource allocation should be redirected to the resource limited areas. Professional motivation and retention mechanisms to work outside of the bigger

cities are important.

Most of the human resources especially nurses are not well trained in monitoring and caring for critically ill patients. In low resource settings the specialty care including physiotherapy care nutritionists and respiratory therapy are unavailable hence task shifting is a potential solution to help address the very limited access to those care. Research from most developing settings demonstrated task shifting and peer mentoring for nurses in emergency care and those care with limited human resources are effective in improving the health care need (28-30).

This study is limited by the brief mentorship and coaching duration and the long term impact on the clinical outcomes and skill of professionals was not assessed. Despite this limitation, the present mentorship and coaching program was found to be vital to strengthening smaller critical care units.uture directions include to strengthen the program with selecting graduated units and involving them as a mentor hospitals and expanding as a spoke and hub model from the nearby ICU with better specialty professionals, infrastructure, training, supplies and equipment is a timely recommendation.

Conclusion

Country specific mentorship and coaching help to improve the advance of underdeveloped services like critical care. In addition to improving the clinical care capacity of the health care professionals, it will help to improve the critical care unit's infrastructure and service delivery in smaller ICUs.

Declaration of Competing Interest: authors declare no conflict of interest to this work.

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