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RESEARCH ARTICLE

AN EXPLORATION OF CRITICAL CARE ELEMENTS REQUIRED FOR BETTER OUTCOME

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ABSTRACT

Critical care is necessary to deal with life-threatening conditions, but there are major challenges in resource-poor environments, such as Cameroon, where there is insufficient infrastructure and personnel shortages. The purpose of this study was to determine ICU features, key constructs, and procedural aspects from a range of secondary sources like academic journals and government reports. The findings thus revealed that the major features of ICUs ought to be an integrated operational design, a well-trained workforce, sufficient resources, and good leadership. Key constructs include access to sophisticated technologies and strong policies. Procedural components must prioritize evidence-based care, technology interventions, knowledge sharing, and mobilization of resources.

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INTRODUCTION

Intensive care units (ICUs) are commonly referred to as the specialized hospital wards that provide life-saving services to critically ill patients who require round-the-clock intensive care from highly trained professionals (1). Given their cutting-edge technology and infrastructure, ICUs not only happen to be provisioned to provide needed care to patients with life-threatening conditions but are also well-placed to take on high-demand conditions, such as in the scenario of anaccidental trauma (2). Aside from delivering the needed and life-supporting clinical care to individual patients, ICUs are also equipped with the means for performing sophisticated R&D (3), which enables these specialized units to operate as a pool of knowledge of ever-improving clinical practice. In the areas of limited resources, including developing and low-income countries, ICUs usually do not succeed or perform poorly in their goal of keeping a lower mortality rate, quality of care management, and adding to sustained upgrades in knowledge and skills (4). Narrowing down to low-income or resource-poor settings, the existing literature presents that in Sub-Saharan nations, such as the Cameroonian healthcare environment, where the critical care units have been purported to be far behind compared to other comparable geographic locations, the quality of care delivered also remains below average. For example, in Cameroon, a major issue evolved due to the shortage of funds made available to the ICUs, contributing to their lack of infrastructure, proper medical equipment, and minimum supplies, such as ventilators, monitors, and life-saving drugs (5). Human resources shortages beyond physical capacity stretch to demographics with resource inadequacies (6), confirming shortcomings of proper skillsets and availability of trained medics hindering Cameroonian ICU efficiency levels. To make matters worse, inadequate coordination among ICU staff and other medical professionals intensifies the problem (6). Lack of trust in the healthcare system, costs, and overdependence on out-of-pocket expenditures bar most families from receiving healthcare for their dying relatives when they need it most (7). Corruption within the healthcare industry may also undermine the equitable allocation of resources, putting vulnerable groups at even greater risk (8; 9). The main challenge observed in this context is the paucity of knowledge regarding its profile and strengths within the ICU units in Cameroon that prevents the improvement of care models. Therefore, it is vital to determine the most important attributes of critical care models, which include care tendencies, patient groups, and outcomes.

Characteristics of Critical Care in ICUs: According to Christensen and Liang (10), being associated with highly advanced technologies, ICUs are required to have access to the

necessary infrastructure that can accommodate continuously and rapidly changing healthcare dynamics. Thus, ICUs need to be highly specialized in carrying out disciplines characterized by sophisticated technologies, high-level professionals, and their emphasis on treating life-threatening situations with intensive medical treatments (10). ICUs emphasize the precursors of critical care, including serious illnesses or traumas that, in turn, compromise physical and psychological functions and require elaborate interventions (10). The outcomes of critical care are also constructed as either survival, though frequently with the experience of post-ICU syndrome, or mortality, reflecting the extreme influence of ICU treatment on patient outcomes (10).

When emphasizing the characteristics of ICUs in Cameroon, Ntogwiachu (11) stated that the construction of a comprehensive model for critical and emergency care becomes difficult when addressing resource-poor environments. The fundamental characteristics of ICUs in developing nations, therefore, stress the relevance of context-specific remedies in the form of making the most out of existing resources while simultaneously educating healthcare providers to manage critical care cases effectively(11). Ntogwiachu (11) also indicates the necessity of interaction between government and non-government agencies in filling system-wide infrastructural limitations and personnel. Sharing a similar perspective, the study conducted by Jeong *et al*. (12) argued that a proper mechanism of data collection is as essential in the ICU infrastructure as other identified resources to improve the understanding of patient demographics, prevalent conditions, and outcomes.

Table 1. Characteristics of Critical Care in ICU

ICU	Characteristics
Integrated operation model	Integrating different approaches and techniques to offer the highest quality of care, which may include but is not limited to AI integration in addition to Internet of Things (IoT) use to optimize resource management, emphasize adequate scheduling, capacity management, and accessibility of resources to enhance overall efficiency standards.
Human resources	A well-trained and highly proficient workforce requires a multidisciplinary team to function efficiently, and may include specialized doctors, nurses, pharmacists, respiratory therapists, physiotherapists, occupational therapists, pharmacists, dietitians, and secretarial as well as transport staff.
Stability and performance	In effective ICU management, strong leadership plays a crucial role, whereby the leaders are required to have the qualities of prompt and critical thinking, team building and communication, emotional intelligence, crisis management, foresightedness, and decision-making for patient-centered care.
Multi-disciplinary team layout	Collaborated operational systems include a dedicated central nursing station equipped with an objective-oriented training system and patient-centered module, and specialized areas to execute the daily functions of the department, such as a conference room to discuss issues and make decisions, digital dashboards, patient monitoring systems, and similar others.
High-risk patient groups	High-risk patient groups in the ICUs may include elderly patients, individuals who have suffered from severe trauma, post-surgical patients undergoing complications, patients having organ failures, and others facing life-threatening health conditions that require round-the-clock treatment and care facilities.

Foundational Construct of ICUs: According to Hutton *et al*. (13), the unreliable supply of electricity and poor sanitation further aggravate the delivery of quality care. Nonetheless, initiatives to enhance infrastructure, for example, setting up community health centers and increasing telemedicine services, are slowly filling in these gaps (14). These are efforts to advance the coverage and dependability of critical care provisions, especially for rural and neglected populations, as was widely observed during COVID-19 (15). Human resources for the ICU include trained medical practitioners, nurses, and respiratory therapists, whereby the lack of qualified personnel is a chronic problem in Cameroon, and most healthcare personnel are not specifically trained in critical care (16; 17). Illustratively, workshops and exchange programs with international critical care experts have been applied widely to enhance the ability of specialized healthcare practitioners (18). Technology is also at the center of ICUs in the present time, ensuring enhanced monitoring, diagnosis, and therapy. Tele-ICU technology has, in Cameroon, helped bridge gaps between resource-poor hospitals and specialist services (19). Besides, the integration and analysis of EHRs progressively update ICU practice, driving informed decision-making and resource optimization (20; 21; 22). Despite the infrastructural backlogs, vacancies, and technological adoption shortcomings, being the paramount challenges, increased efforts and improvements can be geared toward the construction of quality ICU services (23).

Table 2. Foundational Construct of ICUs

Type	Description
Physical structure	To function efficiently, ICUs need to have access to advanced technologies, such as digital dashboards, ventilators, equipment to continuously monitor the vitals of the patients, infusion pumps, and a dedicated nursing station for the nurses to conduct their regular examinations, reporting, and decision-making.
Basic requirements	Highly proficient and trained nurses are an integral par of the ICUs, besides the basic requirements of advanced technology, up-to-date equipment, doctors, and other resources, including adequate funding.
Structural foundation	Policies form the structural foundation in ICUs, which include infection control guidelines, admission and discharge protocols, ethical standards, code of conduct, and emergency response mechanisms.
Performance structure	Governance systems, which function through the designed leadership models, patient safety guidelines, quality care standards, interdisciplinary coordination, and transparency maintained in financing as well as resource management considerations, contribute to the overall performance structure of ICUs.
Enhanced capacity to treat high-risk patients	ICUs function through resource optimization, which is aimed at efficient capacity building and management, in addition to the recruitment and retention of qualified human resources to offer routine as well as specialized care to high-risk patient populations (e.g., patients suffering from life-threatening diseases).
Improve staff productivity and quality of care	Knowledge sharing is observed as fundamental to the efficient function of ICUs, with emphasis on training and development efforts, mentorship, research and development, and similar other efforts that enrich staff capacity to perform.

Procedural Characteristics of ICUs: The procedural character of ICUs is informed by procedure and practice that maintain efficient and safe patient care in Cameroon by removing the paucity of resources and enhancing the delivery of care (24). In highlighting that the adequate alleviation of pain in ICUs represents a procedure as crucial to clinical success in terms of maintaining standards of efficient procedure in intensive therapy. Nomo *et al*. (25) conducted a study that unveiled gigantic gaps in both treating and evaluating pain. Opioids, for example, were the most commonly used analgesic, whereas non-pharmacological treatment was not being optimally used (25). Nomo *et al*. (25) also propagandized the need for universal pain management guidelines in order to ensure the comfort and rehabilitation of patients. Infection prevention is a basic rule of ICU practice, especially in low-resource settings (26). It could be argued,

with the COVID-19, in Cameroon, that the lack of adequate sanitation facilities and the use of PPE limits the standards of infection control interventions (27). Interventions to implement infection control bundles, including hand hygiene strategies and antimicrobial stewardship initiatives, have proven a greater success in reducing infection rates (26; 27).

Mechanical ventilation is an everyday procedure within ICUs and needs to be precisely measured and adjusted in order to stay ahead of hindrances (28). Ventilators and respiratory therapists being rare in Cameroon decreases the ability to provide quality ventilation care (25). Telemedicine interventions and partnerships with multinational organizations have helped in providing education and support toward improving ventilation care (25). The Cameroon ICUs, though, experience limitations in the delivery of appropriate nutritional care based on resource constraints (29). Practice-shaping interventions with nutritionists in the ICU team and context-specific nutritional algorithms address these constraints, especially in resource-limited environments (30). Interpretatively, management maintenance of delirium and promotion of early mobilization are also delineated as important procedural aspects of ICU management (31; 32).

Table 3. Procedural Characteristics of ICUs

Procedure	Description
Care quality and patient safety	Evidence-based practice articulated in the form of clinical guidelines, peer-reviewed research, and standardized protocols for improvement in patient care are fundamental to ICUs in providing quality care to the patients.
Care quality and patient safety	Practice-defining technology interventions for ICUs include AI-based diagnostics, automated monitoring of patients, and robot-assisted operations.
Efficient decision-making	Knowledge exchange among medical professionals through interdisciplinary forums, clinical case discussions, and digital information platforms largely contribute to the procedural efficiencies of ICUs.
Functional efficiency	Resource mobilization for the effective management of ICU patients is concerned with the optimized scheduling of staff, real-time tracking of supplies, and emergency readiness frameworks.
Gradual increase in efficiency	Emphasis on continuous learning and growth through professional training initiatives, skills training sessions, and medical research partnerships also form a noteworthy procedural characteristic of ICUs.

DISCUSSION

Characteristics of Critical Care in ICUs: Different scholars have argued about the complexities of ICU critical care with impressive contributions by Christensen and Liang (10), Ntogwiachu (11), and Jeong *et al*., (12). For instance, Christensen and Liang (10) explained the foundational nature of ICUs as reliant on their access to superior technology, professional specialization, and special emphasis on overcoming life-or-death situations and listing the effects as either survival (that most times carries along post-ICU syndrome) or mortality. Their views corroborate with Ntogwiachu (11), suggesting the need to design ICU practice models for impoverished environments through the optimization of available resources and the training of healthcare workers. Jeong *et al*. (12) also stressed the significance of integrating thorough data gathering to understand patient demographics and patterns for resource optimization and more effective interventions. Similarities also exist among authors on the dependency on interdisciplinary teamwork and sophisticated models of care to enhance outcomes. Christensen and Liang (10) and Ntogwiachu (11) both identify the drastic effect of ICU management on the reduction of mortality risks among critically ill patients, whereas Jeong *et al*. (12) emphasize the importance of data in optimizing interventions within limited settings. These authors also realize that there are still gaps in realizing the scalability of such models. For example, Christensen and Liang (10) offer a conceptual model for the operations of ICU but do not consider how such can be framed for low-resource environments. Jeong *et al*. (12) also established the value of patient databases, but there were gaps in the study to capture the implementation challenges of under-resourced health systems. Ntogwiachu (11) is more focused on context-specific strategies but does not fully discuss long-term sustainability.

Foundational Construct of ICUs: The construct at the basis of ICUs, according to Mandeng *et al*. (6), Kwizera *et al*. (17), and Udeh *et al*. (19), is centered on the three major pillars of infrastructure, human resources, and technology. Mandeng *et al*. (6) emphasize the insufficiency of fundamental infrastructure, including ventilators, monitors, and a steady power supply in Cameroonian ICUs, while Hutton *et al*. (13) refer to infrastructural deficits as a major hindrance to quality care. Kwizera *et al*. (17) further criticized the lack of skilled healthcare workers in these ICUs, consequently compromising patient safety and the overall quality of critical care being delivered to the population. Udeh *et al*. (19) bring forward the possibility of tele-ICU systems in curbing resource deficits through remote monitoring along with expert consultation. The commonalities between these authors promote the importance of training and infrastructure in providing quality ICU services. Both Mandeng *et al*. (6) and Kwizera *et al*. (17) emphasized the significance of developing capacity enhancement programs for equipping healthcare professionals with the relevant competencies. In the meantime, Udeh *et al*. (19) and Hutton *et al*. (13) identify the ways telemedicine and other technology-based interventions are increasingly revolutionizing ICU practices. Nonetheless, there are loopholes in the long-term execution of these solutions. For instance, although Udeh *et al*. (19) explain the possible advantages of telemedicine, the study does not address the logistics of extensive implementation in Cameroon. Likewise, Kwizera *et al*. (17) recommend training the workforce, but there is little mention of retaining trained personnel in resource-limited settings. To eliminate these loopholes, it can thus be argued that there is a need for a multi-faceted approach through government policies, global cooperation, and sustainable financing to establish high-performing ICU systems.

Procedural Characteristics of ICUs: The procedural features of ICUs, as pointed out by Nomo *et al*. (25), Abbas (26), and Ali and Cascella (32), revolve around pain management, infection prevention, ventilation, nutrition, and mobility. Contextually, Nomo *et al*. (25) emphasized that the inconsistency in pain management practice in Cameroonian ICUs is that pharmacological interventions prevail, while non-pharmacological approaches are yet to be fully explored. Abbas (26) emphasizes infection control as a procedural priority by incorporating conventional practices of hand hygiene and antimicrobial stewardship programs. Ali and Cascella (32), on the other hand, emphasize mobility and delirium management, with early mobilization being identified as a primary driver of better patient outcomes. All these

authors are united by the significance of using standard guidelines in optimizing procedural results, focusing on the implementation of evidence-based guidelines for efficient pain and infection control system integration (25; 26). Ali and Cascella (32) also focus on the inclusion of mobility practices into ICU care paths for a faster recovery with a reduced rate of mortality. In contrast, there are large implementation gaps as well. For example, Nomo *et al*. (25) noted pain management guidelines but ignored the hindrances clinical institutions have to face when implementing those guidelines in resource-scarce environments, such as in Cameroon. Abbas (26) mentions the advantages of infection control bundles but not much about how supply chain limitations of PPE and hygiene supplies may be overcome. Ali and Cascella (32) appreciate the importance of mobility but are silent on training the workforce to put these practices into place in a consistent manner. Addressing these gaps needs strategic investments in education, infrastructure, and resources designed to meet the particular challenges of low-resource environments.

CONCLUSION

ICUs are life-saving tools, but they are challenged by resource shortcomings, including poor infrastructure, staff shortages, and restricted technology applications. Their distinguishing features depend upon high technology, specialized staff, and individualized patient care strategies, wherebythe gaps between resource-dense and resource-deprived settings, such as Cameroon, emphasize the necessity for creative delivery models. Irrespective of these challenges, the take-up of tele-ICU and electronic health records is on the increase, which portends progress towards effective ICUs. Enhancement of procedural measures such as pain management and infection control holds hope, albeit with discrepancies. Experiences from Cameroon can be replicated in other resource-limited regions, with a focus on sustainable methods for strong critical care systems. Emphasizing sustainability and scalability is also important for healthcare reforms addressing systemic problems such as financial limitations and policy loopholes. Cameroon's efforts can pave the way for enhancements in the same regions of the world. The technological advancements in telemedicine and capacity-building programs further exhibit a promising trend, highlighting the need for tailoring solutions to local requirements while drawing inspiration from worldwide innovations. These programs are eventually aimed at enhancing patient-centric care and well-being nationwide.

RECOMMENDATIONS

- **Invest in advanced technologies:** Since technology advancements are storming the healthcare sector, it has become a necessity for the leaders to think about investing and making technology improvements of the ICUs.
- **Invest in training and development approaches:**Leaders of ICUs functioning in a resource-constrained environment should focus on enhancing the skills of the human resources available regionally to mitigate the performance gap while also encouraging new people into the profession by offering a healthy workplace culture and remunerations/compensations.
- **Establish collaboration with national and international agencies:** Collaborating with humanitarian agencies through governmental initiatives can significantly assist in the process of overcoming restrictions in availing necessary resources for the continuous development of the ICUs in the long run.

REFERENCES

1. Marshall JC, Bosco L, Adhikari NK, Connolly B, Diaz JV, Dorman T, *et al*., What is an intensive care unit? A report of the task force of the World Federation of Societies of Intensive and Critical Care Medicine. Journal of Critical Care. 2017;37(37):270–6.
2. Shime N. The right care at the right place: Significance of intensive care units for critically ill patients. The Lancet Regional Health - Western Pacific. 2021; 13:100198.
3. Masbi M, Tavakoli N, Dowlati M. Challenges of providing special care services in hospitals during emergencies and disasters: a scoping review. BMC Emergency Medicine. 2024;24(1).
4. Agyei E, Kumah E. Navigating the complex terrain of healthcare systems in Sub-Saharan Africa: challenges and opportunities for progress. Discover Health Systems. 2024;3(1).
5. Tolefac PN, Nana TN, Chichom AM, Tchente CN, Siegning LK, Efie DT, *et al*. Challenges in Emergency Medical Services in a ResourceLimited Setting in Sub-Sahara Africa; Perspectives from Cameroon: a Review Article. The International Annals of Medicine. 2017;1(10).
6. Mandeng E, Bikoi CB, Noutakdie JT, Ndo EN, Bikoy JM, Ekoube CE, *et al*., In-ICU Outcomes of Critically Ill Patients in a Reference Cameroonian Intensive Care Unit: A Retrospective Cohort Study. Critical Care Research and Practice. 2023;2023:1–10.
7. Kibu OD, Kepgang E, Sinsai R, Conner A, Asahngwa C, Ngwa W, *et al*., Barriers and Motivations for Health Insurance Subscription Among Health-Care Users in Cameroon. Journal of Surgical Research. 2024;293:158–67.
8. Oleribe OE, Momoh J, Uzochukwu BS, Mbofana F, Adebiyi A, Barbera T, *et al*., Identifying key challenges facing healthcare systems in Africa and potential solutions. International Journal of General Medicine. 2019;12(1):395–403.
9. Yamb B, Bayemi O. Corruption Forms and Heath Care Provision in Douala Metropolis Public Hospitals of Cameroon. Turkish Economic Review. 2017;4(1):96–105.
10. Christensen M, Liang M. Critical care: A concept analysis. International Journal of Nursing Sciences. 2023;10(3):403–13.
11. Ntogwiachu DK. Emergency and Critical Care in Resource-Limited Settings: An Integrated Workable Concept Piloted in Cameroon. International Journal of Critical Care. 2024;18(4):10–1.
12. Jeong J, Kim YJ, Kong SY, Shin SD, Ro YS, Wi DH, *et al*., Monitoring of characteristics of the patients visiting an emergency center in Cameroon through the

development of hospital patient database. African Journal of Emergency Medicine. 2022;12(1):77–84.
13. Hutton G, Chase C, Walker RK. Costs of Health Care Associated Infections from Inadequate Water and Sanitation in Health Care Facilities in Eastern and Southern Africa. Policy Research Working Paper. 2024;(10708).
14. Vranas KC, Slatore CG, Kerlin MP. Telemedicine Coverage of Intensive Care Units: A Narrative Review. Annals of the American Thoracic Society. 2018;15(11):1256–64.
15. Payán DD, Frehn JL, Garcia L, Tierney AA, Rodriguez HP. Telemedicine implementation and use in community health centers during COVID-19: Clinic personnel and patient perspectives. SSM - Qualitative Research in Health. 2022;2:100054.
16. Rietdijk WJR, van der Kuy PHM, den Uil CA. Human resource management at the intensive care unit: A pragmatic review and future research agenda for building a learning health system. Learning health systems. 2023;8(2):e10395.
17. Kwizera A, Sendagire C, Kamuntu Y, Rutayisire M, Nakibuuka J, Muwanguzi PA, *et al*., Building Critical Care Capacity in a Low-Income Country. Crit Care Clin. 2022;38(4):747–59.
18. Forsetlund L, O'Brien MA, Forsén L, Mwai L, Reinar LM, Okwen MP, *et al*., Continuing education meetings and workshops: effects on professional practice and healthcare outcomes. Cochrane Database of Systematic Reviews. 2021;2021(9).
19. Udeh C, Udeh B, Rahman N, Canfield C, Campbell J, Hata JS. Telemedicine/Virtual ICU: Where Are We and Where Are We Going? Methodist DeBakey cardiovascular journal. 2018;14(2):126–33.
20. Ismukhamedova A, Uvaliyeva I, Belginova S. Integrating machine learning in electronic health passport based on WHO study and healthcare resources. Informatics in Medicine Unlocked. 2023;44:101428.
21. Jalilian L, Khairat S. The Next-Generation Electronic Health Record in the ICU: A Focus on User-Technology Interface to Optimize Patient Safety and Quality. Perspectives in Health Information Management. 2022;19(1).
22. Holmes JH, Beinlich J, Boland MR, Bowles KH, Chen Y, Cook TS, *et al*., Why Is the Electronic Health Record So Challenging for Research and Clinical Care? Methods of Information in Medicine. 2021;60(01/02):032–48.
23. Ongolo-Zogo C, El-Khechen H, Morfaw F, Djiadjeu P, Zani B, Darzi A, *et al*., The Cameroon Health Research and Evidence Database (CAMHRED): tools and methods for local evidence mapping. Health Research Policy and Systems. 2023;21(1).
24. Balgah NP, Atanga MBS. Acute and Chronic Pain: Best Management Approaches in Resource Limited Setting, Cameroon. Pain Studies and Treatment. 2022;10(01):1–8.
25. Nomo SVN, Bikoi CETB, Njeunji AGK, Bifouna CRI, Mbengono JAM, Binam F. Evaluation and Management of Acute Pain in the Intensive Care Unit: A Single-Center Study at the Essos Hospital Centre, a Leading Referral Hospital in Cameroon. Open Journal of Emergency Medicine. 2025;13(1):32–43.
26. Abbas S. The challenges of implementing infection prevention and antimicrobial stewardship programs in resource-constrained settings. Antimicrobial stewardship & healthcare epidemiology. 2024;4(1):1–4.
27. Arnaud B, Tandi E, Ndongo CB, Bissouma-Ledjou T, Acho A, Campbell J, *et al*., Status of Infection Prevention And Control In Cameroon Healthcare Facilities: Lessons Learned From The Who Covid-19 Scorecard Tool Under The Hierarchy Of Control Model. Infection Prevention in Practice. 2024 Oct 30;6(4):100407–7.
28. Hickey SM, Giwa AO. Mechanical Ventilation (Internet). PubMed. Treasure Island (FL): StatPearls Publishing; 2024 (cited 2025 Mar 23). Available from: https://www.ncbi.nlm.nih.gov/books/NBK539742/
29. Valentine TM, Marcel NR, Wilfred ND, Raoul SN, Archange MG, Roger D, *et al*., Evaluation Of Caloric Intake, Knowledge, And Practices On Postoperative Refeeding In Digestive Surgery In Digestive Surgery In Ngaoundere Hospitals, Adamawa Region, Cameroon. Universal Journal of Pharmaceutical Research. 2023;8(4):31–8.
30. Enyew EF, Bitew DA, Gelagay AA. Incidence, time to recovery, and predictors among neonates admitted with respiratory distress to the neonatal intensive care unit at the University of Gondar Comprehensive Specialized Hospital, Northwest Ethiopia, 2021. PLOS ONE. 2022;17(12):e0278887.
31. Mart MF, Williams Roberson S, Salas B, Pandharipande PP, Ely EW. Prevention and Management of Delirium in the Intensive Care Unit. Seminars in Respiratory and Critical Care Medicine. 2020;42(1):112–26.
32. Ali M, Cascella M. ICU delirium (Internet). PubMed. Treasure Island (FL): StatPearls Publishing; 2024 (cited 2025 Mar 23). Available from: https://www.ncbi.nlm.nih.gov/books/NBK559280/

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