

Anaesthesiologists at the Forefront of Health Emergencies: The Role of Essential Emergency and Critical Care (EECC)

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Abstract:

Anaesthesiologists play a pivotal role in the care of critically ill and emergency patients across all levels of the health system. Their expertise in resuscitation, airway management, and organ support positions them at the forefront of health emergencies. Essential emergency and critical care (EECC) provides a practical, system-wide framework that complements anaesthetic practice by standardising the identification, stabilisation, treatment, and communication processes required to save lives in any setting globally. EECC strengthens preparedness through continuous team and system readiness, guides coordinated and timely responses during emergencies, and supports recovery and resilience by embedding safe, structured practices into routine care. By integrating EECC into daily clinical and institutional processes, anaesthesiologists extend their influence beyond operating theatres and intensive care units to the broader health system. In doing so, they help ensure that every critically ill patient, regardless of location or resource level, both in the usual health system and in health emergencies, receives essential lifesaving care.

Key words: anaesthesia, EECC, critical care, continuum of care, health emergencies, systems strengthening

INTRODUCTION

Health emergencies such as pandemics, natural disasters, or mass casualty incidents can dramatically reveal the weaknesses in how health systems detect and respond to critical illness. Across the continuum of care, from emergency departments to wards, from operating theatres to intensive care units (ICUs), and from primary care to tertiary hospitals, patients often deteriorate silently, without being identified or cared for.¹

Anaesthesiologists play a pivotal role in this continuum because of their comprehensive understanding of physiology, resuscitation, airway management, and critical care.^{2,3} During the COVID-19 pandemic, anaesthesiologists played a vital role in leading patient triaging, provision of ventilatory support, managing patients in ICUs, and ensuring good quality of care to critically ill patients. The pandemic revealed that many health systems were not adequately prepared to provide critical care. In many hospitals, anaesthesiologists were stretched thin, and facilities had limited capacity to recognise and manage critical illness. These challenges reflected broader system gaps in readiness, staffing, and resource distribution rather than individual shortcomings. Many hospitals worldwide do not successfully care for

patients with critical illness, and many patients receive care without the involvement of anaesthesiologists.⁴ The African Critical Illness Outcome Study (ACIOS), published in *The Lancet* at the start of 2025, highlighted the situation starkly: Among critically ill patients admitted to African hospitals, more than 50% were not receiving the most basic care, and 21% died within 7 days.⁵

The essential emergency and critical care (EECC) concept offers a pragmatic solution to this need. It defines the most basic lifesaving care that all critically ill patients should receive in any hospital in the world, regardless of diagnosis or resource level. EECC defines the essential clinical processes and readiness requirements that every hospital should provide, ensuring timely care for all critically ill patients. It also emphasises clear communication and escalation of care so that deterioration in the wards or in peripheral facilities leads to timely senior review or transfer for advanced care. By embracing EECC, anaesthesiologists can capacity-build their colleagues, strengthen hospital readiness, ensure equitable access to lifesaving interventions, and enhance health system resilience in emergencies.^{6,7}

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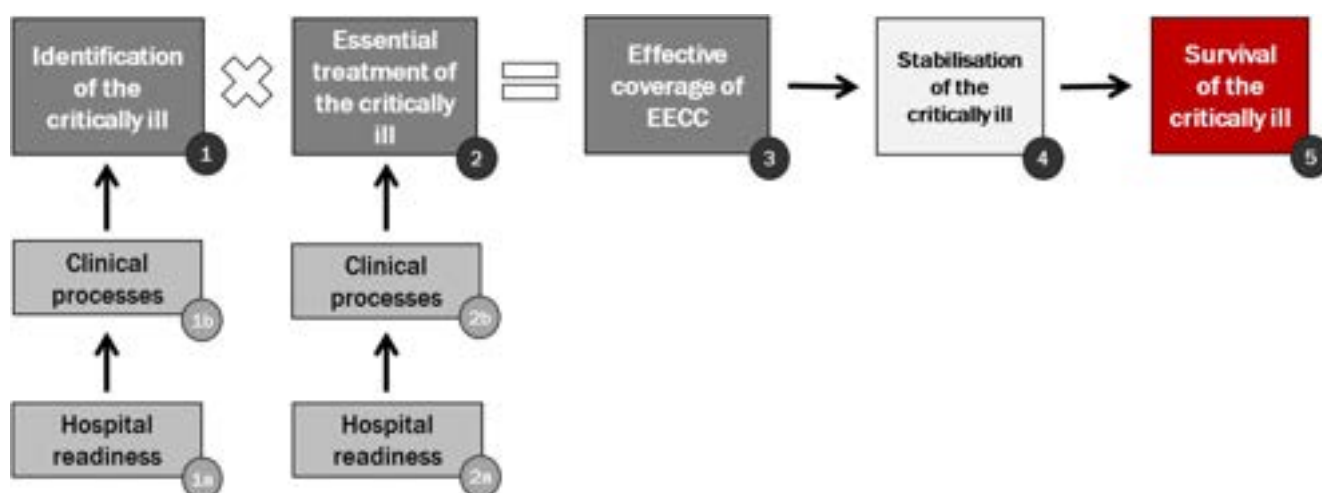


Figure 1 – Essential emergency and critical care conceptual framework

ESSENTIAL EMERGENCY AND CRITICAL CARE: CONCEPT AND SCOPE

EECC is care that includes three necessary elements:

- *Critical illness care*: EECC is care for critically ill patients, including for any patient with an acute, life-threatening condition. Such patients can fall in the gaps between health system programs, and the quality of such care can be low, leading to high mortality.^{6,7}
- *Stabilisation of vital organ functions*: EECC focuses on supporting the vital organs (maintaining a free airway, oxygen therapy, intravenous fluids) to keep critically ill patients alive while providing time for providers to diagnose and provide the definitive care of the underlying pathology. Such supportive care is often neglected in health systems.^{6,7}
- *Essentialness*: EECC is the first-line basic care that is low-cost care and feasible to provide in all settings. It is the care that should always be provided, regardless of context, and upon which more advanced care can be built.^{6–8}

EECC embodies several values and characteristics:^{6–8}

- *Equity*: Quality essential care to all rather than advanced care to a few
- *Efficiency*: Provision of the most effective care at the lowest cost
- *Feasibility*: Interventions that are feasible and can be provided in all hospitals in the world
- *Systems approach*: Integrating care of critical illness throughout the health system
- *Universality*: For all critically ill patients, regardless of the patient’s age, sex, location, underlying condition, medical specialty, or social status
- *Pragmatic quality improvement*: Bridging the gap in the current practice of care of critical illness through focus on essentialness
- *Task-sharing*: Can be provided by anaesthesiologists, other doctors, nurses, and all healthcare providers

- *Complementing other care*: Not aiming to be comprehensive but complement the diagnostic investigations, with the provision for definitive care or advanced care
- *Globally relevant*: Equally relevant in high-, middle-, and low-resource settings

EECC can be conceptualised within the two-domain framework. It consists of (1) identification and (2) treatment of the critically ill. To provide EECC, hospitals must be ready to identify and treat, and the appropriate clinical processes must be used. The effective coverage of EECC depends on the effectiveness of these two domains, which will lead to the stabilisation of critically ill patients and improved survival (Figure 1).^{7,9}

EECC CLINICAL PROCESSES AND HOSPITAL READINESS REQUIREMENTS

The 2021 Delphi EECC content consensus identified 40 clinical processes and 66 readiness requirements in the two domains of identification and care provision (Tables 1–4). These requirements are key for effective provision of EECC, which will allow stabilisation of vital organs and improve the outcome of critically ill patients.^{7,9}

Why EECC Matters for Anaesthesiologists in Health Emergencies

Anaesthesiologists are at the centre of emergency and critical care, bringing essential skills in resuscitation, airway management, and organ support to every stage of a health emergency. From prehospital triage and resuscitation to emergency surgery, intensive care, and system coordination, they play a vital role across the continuum of care. Their expertise in managing airway compromise, circulatory collapse, and respiratory failure makes them central to the provision of EECC. EECC reinforces core anaesthetic principles—readiness, early recognition, timely intervention, and clear communication. Applying these principles across theatres, ICUs, wards, and primary care strengthens perioperative safety, improves outcomes, and enhances team coordination during crises. In large-scale emergencies such as pandemics, strong EECC systems enable anaesthesiologists to

Table 1 – Hospital Readiness Requirements for Identification of Critical Illness

Category	Requirements
Equipment	Clock with second hand; pulse oximeter + probe; BP machine + stethoscope; BP cuffs (adult & paediatric); light source; thermometer
Consumables	Soap/hand disinfectant; examination gloves
Drugs	None
Human resources	Staff able to identify critical illness, available 24/7
Training	Training on identification of critical illness
Routines	Standard routines for triage & identification
Guidelines	Guidelines for identification of critical illness
Infrastructure	Designated triage area; running water

Abbreviation: BP, blood pressure

lead structured, coordinated responses and maintain safe, effective care across all levels of the health system.⁶ EECC is a useful approach for anaesthesiologists in all phases of a health emergency from preparedness and response to recovery by providing a framework for readiness, coordinated action, and sustained quality of care across the health system.^{6,7}

Table 2 – Hospital Readiness Requirements for Care of Critical Illness

Category	Requirements
Equipment	Suction machine; 24-h oxygen supply; flow meters; leak-free connectors; bag-valve masks (all sizes); sharps containers; external heat source
Consumables	Suction catheters; Guedel airways; pillows; oxygen tubing; nasal prongs; face masks; nonrebreather masks; BVMs; compression bandages; tape; gauze; IV cannulas & giving sets; skin disinfectant; syringes; nutrition supplies; NG tubes & lubricant; IM needles; IO needles; blankets; PPE (masks, gowns); documentation charts & pens
Drugs	ORS; IV crystalloids; dextrose; oxytocin; epinephrine; antibiotics; diazepam; magnesium sulphate; paracetamol; local anaesthetic
Human resources	Staff trained to care for critically ill; senior help available 24/7
Training	Training on care of critical illness
Routines	Routines for managing critical illness, payment-blind EECC delivery, escalation pathways, integration with speciality care
Guidelines	Guidelines for essential care of critically ill patients
Infrastructure	Designated critical care area; segregation for infectious patients

Abbreviations: BVM, bag-valve mask; EECC, essential emergency and critical care; IM, intramuscular; IO, intraosseous; IV, intravenous; NG, nasogastric; ORS, oral rehydration solution; PPE, personal protective equipment

Table 3 – Essential Emergency and Critical Care Clinical Processes: Identification of Critical Illness

Category	Clinical Processes
Vital signs-based triage	Pulse rate; BP; respiratory rate; SpO ₂ ; temperature; level of consciousness; abnormal airway sounds; general appearance
When to triage	On arrival; every 24 h for inpatients (more if high risk); when staff/patient/caregiver is concerned; during/after surgery; during/after transfer; after any treatment (reevaluation)

Abbreviations: BP, blood pressure; SpO₂, peripheral oxygen saturation

Preparedness

Preparedness is the foundation of an effective emergency and critical care response system, and EECC provides a practical framework for achieving it. Teamwork is central to anaesthesia practice; hence, preparedness extends beyond individual clinical competence to include the readiness of teams, resources, and systems for timely identification and response to critical illness. EECC defines the essential resources and care processes that should be in place across all areas of a health

Table 4 – Essential Emergency and Critical Care Clinical Processes: Care of Critical Illness

Category	Clinical Processes
Airway	Recovery position; airway positioning; removal of visible foreign body; suctioning; insertion of oropharyngeal airway
Breathing	Optimize position (e.g., sitting up); oxygen therapy (prongs/mask/nonrebreather); bag-valve mask ventilation
Circulation	Position optimization; compression/elevation for bleeding; IV fluid bolus; oral rehydration if no shock; IM adrenaline for anaphylaxis; uterine massage/oxytocin if indicated
Disability	Treat as threatened airway; give dextrose unless glucose known; protect during seizures; give antiseizure agents; cooling for severe hyperthermia
Other care	IV/IO access; cervical spine stabilization; antibiotics for sepsis; pain/anxiety management; keep warm; feeding/NG tube; prevent delirium; regular turning; early mobilization
General clinical processes	Seek senior help early Patient-centred and respectful care Care not dependent on the ability to pay Critically ill cared for in an observable area IPC: hand hygiene, separation of infectious cases Clear communication within team & documentation Escalate or adjust care if poor response Discontinue unnecessary interventions Recognize when EECC alone is insufficient Integrate EECC with definitive care & referrals

Abbreviations: EECC, essential emergency and critical care; IM, intramuscular; IO, intraosseous; IPC, infection prevention and control; IV, intravenous; NG, nasogastric

facility, not just in operating theatres or ICUs. Ensuring that these resources are always available promotes a state of continuous readiness, where the early identification and stabilisation of critically ill patients become possible in everyday care. This creates a better prepared environment for anaesthesiologists with early alerts and fewer unanticipated adverse events. Through EECC, anaesthesiologists can help ensure that facilities are systematically prepared to deliver timely, coordinated, and effective responses when emergencies occur. Ultimately, EECC transforms preparedness from a static focus on equipment and protocols into a dynamic culture of anticipation, collaboration, and effective communication.^{6,7}

Response

When emergencies occur, anaesthesiologists are often the first responders to critical illness. EECC principles guide their response by prioritising timely identification, immediate stabilisation, and clear communication while determining the underlying diagnosis. EECC emphasises that essential interventions, such as airway positioning, oxygen delivery, fluid resuscitation, and vital sign reassessment, save the most lives and must occur promptly, allowing time for preparation of advanced interventions if needed and for definitive care. EECC ensures that the patient receives timely and effective basic care even in settings where advanced care is not readily available. Anaesthesiologists most often apply these core processes instinctively, but EECC helps ensure that the entire team can do so, even in their absence.⁷

In mass casualty events, EECC also helps anaesthesiologists lead scalable responses. By establishing “step-up wards” or high-dependency areas, they can extend critical care capacity beyond the ICU, ensuring that patients receive foundational care while awaiting transfer or definitive care. EECC reinforces communication under pressure. Structured handovers and escalation pathways, elaborated in the EECC vital signs directed therapy (VSDT) protocol, allow anaesthesiologists to coordinate multidisciplinary teams so that the overall response is faster, safer, and more coherent across departments.⁷

Recovery

Recovery following a health emergency goes beyond patient survival. Once a health emergency has passed, EECC continues to guide improvement and sustainability. Recovery allows return to baseline, and it is also an opportunity to learn and strengthen health systems and institutional memory for the future. Anaesthesiologists can lead postevent debriefs and use EECC indicators, such as rates of vital sign monitoring, time to oxygen initiation, or effective communication for assistance to analyse what worked and what did not. These data informed quality improvement cycles, refining both clinical care and communication systems of a health care facility. EECC also embeds long-term resilience by normalising good practices beyond crises. The same early identification tools, such as the VSDT protocol, identification and care provision routines, and teamwork, that prevent

perioperative complications or postoperative deterioration also prepare hospitals for the next outbreak, disaster, or surge.

For anaesthesiologists, this phase reinforces their dual identity as both clinicians and system leaders. By sustaining EECC routines, training refreshers, and team drills, they ensure that readiness and coordinated critical care become a routine rather than emergency exceptions, making responses in case of emergencies more streamlined.^{6,7,10}

SUMMARY

Anaesthesiologists are at the epicentre of emergency, perioperative care, and critical care, and EECC provides a unified framework that strengthens their role wherever critical illness occurs. By championing EECC, they help ensure that lifesaving care is consistently accessible, coordinated, and delivered promptly across the health system. As emergencies and critical illnesses place increasing demands on health systems, anaesthesiologists equipped with EECC are positioned to lead efforts toward safer, more equitable, and resilient care.

Authors' Contributions

All authors conceptualised the manuscript, conducted the literature review, drafted the article, and approved the final version.

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