

# Patient Safety in Intensive Care Unit: What can We Do Better?

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## ABSTRACT

Patient safety is an important step in providing high-quality health care. Every intensive care unit (ICU) is unique and its needs would be different; it is thus necessary to build a safety culture based on local and cultural characteristics. Various measures such as regular training, the use of bundles of care, and a blame-free environment can promote patient safety in ICUs. These measures are simple to implement even in resource-limiting settings and can go a long way in improving patient outcomes in our country.

**Keywords:** Communication skills, Complication, Intensive care unit, Patient safety.

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## HIGHLIGHTS

The ICU is among the most complex and fast-paced environments in the hospital treating critically ill patients in need of advanced treatment. This commentary highlights factors affecting patient safety in an intensive care unit and how we can improve it, especially in the context of resource-limited settings.

The management of critically ill patients in the ICU is a battleground that tests the intensivist's mettle with complex, constantly evolving clinical scenarios requiring nuanced decision-making skills, all in a split-second. Long working hours, high patient load, understaffing, and physician burnout all contribute to high error rates in an ICU setup; a lamentable phenomenon, which understandably garners some empathy, yet is potentially disastrous for patient safety and outcomes. In addition, every ICU is unique with differing needs, making the development of universally applicable guidelines challenging. In such a scenario, it is vital that local and cultural characteristics be considered to tailor safety guidelines for varying ICU setups. This commentary highlights factors affecting patient safety in an ICU and how it can be improved, especially in the context of resource-limited settings.

## HOW TO GET STARTED?

The most important step in improving patient safety in ICU is acknowledging the fact that patient safety can be compromised and accepting that errors can occur that may jeopardize patient outcomes. Leadership involvement at an early stage is essential. Allocating an individual, or a group of people as dedicated patient safety advocates can be a starting step. The idea is to promote a safety culture in the unit with the available facilities.

## ROLE OF INTENSIVE CARE UNIT STAFF AND STRUCTURE

Most Indian ICUs are open ICUs, defined as those where the care of the patient is directed by non-ICU doctor teams, and non-ICU team doctors can write orders. Many studies from the West have suggested that a closed unit is a better organizational structure for a good ICU, which is staffed by dedicated intensivists.<sup>1,2</sup>

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Open ICUs accounted for 85% of all ICUs in the first Indian Intensive Care Case Mix and Practice Patterns Study (INDICAPS) study,<sup>3</sup> which showed no difference between the outcomes of open and closed ICUs. This data contradicts western literature which favors a closed ICU structure in order to achieve better outcomes. On the contrary, the INDICAPS-II<sup>4</sup> study indicated that having a closed ICU structure was an independent predictor of mortality, wherein the closed ICU was defined as one in which, only the ICU team doctors wrote the final orders for the patient. A third model, the hybrid model or mandatory consult model is in which all patients admitted to the ICU are seen by the primary consultant and the ICU team, with both having the privilege to write orders. Since this lends a higher level of expertise, and possibly better outcomes, using a hybrid model for critical care services can be a way forward in resource-limited settings.<sup>5</sup>

The employment of specialized nurses who are trained in critical care is vital to achieving good outcomes. Intensive care in India is cheaper than in Western countries; however, Parikh and Karnad found a higher standardized mortality ratio (SMR) of 1.67 in an ICU of a public teaching hospital.<sup>6</sup> They attributed this finding to the low nurse-to-patient ratio due to nurse shortage, budgetary constraints, and higher nursing workload.<sup>6</sup>

While ideally 1:1 nursing should be provided for patients requiring level-III ICU care, logistical, financial, and manpower constraints necessitate the employment of non-ICU-trained nurses in Indian ICUs. The negative impact of such a staffing pattern can be offset to a great degree by increasing supervision by a trained critical care nurse to minimize errors.

## HOW CAN WE TRAIN AND FUNCTION BETTER?

Critical care medicine is an ever-growing, and ever-changing body of knowledge which makes it important for staff doctors, nurses, technicians, and pharmacists to continually update their knowledge and training, regardless of their innate abilities. Large teaching institutes must lead the way in fostering a culture where a continuum of medical training is the norm. Mandatory teaching and training sessions for all ICU staff will ensure that all caregivers are up to date on the latest developments in the field of critical care. The development of institutional guidelines must be adapted to the infrastructural, technical, and manpower limitations to enable the consistent application of said guidelines and standardize patient care in the ICU. During such training sessions, inculcating patient safety measures into daily clinical practice must receive paramount importance.<sup>7</sup>

We feel that practices contributing to patient safety must be inculcated into medical students early in their training, with mandatory rotations in the ICU, enabling them to gain real-world exposure to such systems. Such early clinical experience will greatly benefit the functioning of peripheral hospitals with smaller ICU setups, in semi-urban, and rural settings.

Evidence suggests that implementing bundles of care in the ICU reduces the risk of nosocomial infections.<sup>8</sup> Implementation of these care bundles is not resource intensive and can help in standardizing care. In the Keystone Intensive Care Unit Project, a group of simple evidence-based interventions resulted in a sustained and large reduction in rates of catheter-related bloodstream infection.<sup>9</sup>

A bedside checklist is a cost-effective and simple method to prevent errors of omission in basic domains of ICU management that might otherwise be overlooked due to more urgent care requirements. Such checklists should be introduced in the ICU.<sup>10</sup>

There is overwhelming evidence demonstrating that the single most-effective action to stop the spread of infection is appropriate hand hygiene, when integrated with other critical measures. The WHO hand hygiene moment can be implemented easily and is not resource heavy.<sup>11</sup>

Drug errors are the most common type of error and account for 78% of serious errors in the ICU, amounting to 106 errors per 1,000 patient ICU days.<sup>12</sup> These can be reduced in various ways. For example, unique and differently designed port connectors for connecting intravenous infusion as opposed to sets for the administration of various medications *via* enteral route/enteral feeds will help in preventing accidental administration of medications or other infusions *via* the wrong route (termed administration or delivery errors). Involving a pharmacist in the daily round will help reduce prescription errors.<sup>13</sup> A two-person drug check and checking the patient's name against the patient's name band attached to the wrist and drug charts are ways to ensure the correct patient gets the correct drug at the correct dose. All the above measures which are not resource intensive can be used to decrease drug errors.

## WORKING AS A TEAM

Teamwork was one of the key initiatives that help in the delivery of quality health care, while also preventing medical errors and

subsequent harm to the patients.<sup>14</sup> It is important to have a team leader, preferably an intensivist who communicates clear goals and makes decisions, after taking inputs from team members.

Where the staff is a mix of those trained and some not ICU trained, they should always be working under the direct supervision of a trained critical care physician/nurse. Junior doctors and trainees should be working under local or distant supervision and should be well supported at all times.

Effective communication results in a better transfer of information, ideas, and opinions across ICU team members, who may have widely varying backgrounds, experiences, and skill levels. Team briefing before and debriefing after complex patient encounters is a good exercise in learning and reflecting on an event. Effective communication among healthcare team members is one of the hallmarks of highly reliable and safe patient care.

Dedicated and undisturbed handover time in a separate area helps in the effective face-to-face communication while preventing a breakdown in the transfer of essential clinical information and improving clinical continuity. This should ideally be included in the training of both ICU doctors and nurses.

## PROMOTING SAFETY CULTURE

It is essential to move away from a culture where individuals are blamed or penalized and imbibe a just culture in all ICUs. The idea is to identify correctable/preventable systemic faults and rectify them rather than blaming an individual team member. This will ensure that the staff feels safe to report any adverse event in the critical incident reporting system, without the fear of retribution, prevent errors in the future and make for a safe ICU environment.<sup>15</sup>

## CONCLUSION

Patient safety in ICU is an essential component of high-quality intensive care. Various measures such as regular training, the use of bundles of care, and a blame-free environment can promote patient safety in ICU. These measures are simple to implement even in resource-limiting settings and can go a long way in improving patient outcomes in our country.

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