

Critical Care Delivery in India: Stats, State(s) and Strategies

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Received on: 05 March 2023; Accepted on: 25 March 2023; Published on: 31 March 2023

Keywords: Critical care delivery, Intensive care unit, Need analysis.

Indian Journal of Critical Care Medicine (2023): 10.5005/jp-journals-10071-24445

STATS

Critical Care in India has evolved over the past two decades not only with the increased number of intensive care unit (ICU) beds but also with the number of trained professionals.¹ The growth of medical tourism for elective and complex surgeries has also increased the need for comprehensive ICU care by qualified specialists. The awareness and requirement of ICUs also increased severalfold during the coronavirus disease (COVID) pandemic.

The epidemiology and delivery of critical care in India are complex. The diversity in patient background, clinical practices, goals of caregivers, resource allocation, and lack of structured evaluation contribute to the complexity and limited data availability.² A cross-sectional study of 23 Asian ICUs indicates that there are cumulatively 3.6 ICU beds per 100,000 population which is significantly lower than in western countries. In India, there are varying estimates amounting to 2.3 ICU beds per 100,000 population. Based on models using the percentage of ICU beds per hospital, it is felt that this may be inaccurate and an underestimate. Of note, the distribution is uneven and urban cities have a higher proportion of ICU beds and Intensivists in comparison with semi-urban and rural areas.³

In this issue of *IJCCM* Prabu et al.⁴ have performed a need analysis of critical care delivery in India. The very fact that they had to rely primarily on internet sources including websites of professional societies highlights the fact that we need better availability of statistical data but the efforts of the authors to make this information available in a peer-reviewed publication is laudable. The authors have attempted to validate the information from government websites and highlight the deficit in the critical care workforce and infrastructure and the disparity in the public and private sector hospitals. An earlier attempt at needs assessment was performed by Kashyap et al.⁵ who conducted a semi-structured Critical Care Needs Assessment (ININ 2018) survey which included 134 ICUs from 24 of 29 states and 2 of 7 union territories. The survey highlighted the need for improved manpower and reducing patient to nurse ratios.

STATE(S)

In India, Public Health management is under the purview of States. The variation in critical care delivery amongst the different states as noted by the authors may reflect the budgetary, institutional, and capacity constraints of the states. Interestingly, the distribution of states that rely on the public vs private sectors appears to be evenly distributed as outlined by the authors.⁴ Superficially, it appears that at a country-wide level, there isn't

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How to cite this article: Ramakrishnan A, Ramakrishnan N. Critical Care Delivery in India: Stats, State(s) and Strategies. *Indian J Crit Care Med* 2023;27(4):231–232.

Source of support: Nil

Conflict of interest: None

a reliance on one sector over the other. However, state-wide differences exist, and being cognizant of this can help guide policy decisions in states which have a significant disparity in ICU beds and ventilators in public and private sectors. Some states with below-average availability of ventilators in public hospitals have better availability in private hospitals. One could infer that the private hospitals have identified the gap and utilized the opportunity to provide this service. The growth of critical care in the urbanized states has been significantly more in the private sector where, unfortunately, the costs are unregulated and often prohibitive. The cost of creating and maintaining a 12-bed-ICU and providing services is high. Critical care is often considered expensive care and cost analysis has been difficult with varied input and expectations in the public and private sectors.^{6,7} The National Health Mission aims to provide support to the states to provide accessible, affordable, and quality healthcare. The recent focus on national insurance schemes and Universal healthcare provides a socialistic direction with an approach to comprehensive need-based healthcare rather than a sectoral and segmental approach. The COVID-19 outbreak revealed that the states have to work cohesively with each other and concurrently with the central government for technical expertise and financial support.

It is common knowledge that infrastructure, while important, is inadequate to provide quality care if skilled manpower is not available.^{8,9} Critical Care Medicine has evolved as a formal subspecialty (super specialty) in India over the past two decades. The authors highlight the role of the Indian Society of Critical Care Medicine in pioneering the efforts for training and defining the roles and responsibilities of Intensivists.¹⁰ The National Board of Examinations (NBE) established a two-year fellowship (FNB) program in 2009 which was subsequently changed to a three-year DrNB in 2019 aligning with the three-year super specialty/

subspecialty Doctor of Medicine (DM) program. Interestingly, DM programs are predominantly in academic universities and public institutions while National Board training programs are predominantly in private institutions. The current ratio of seats available in DM programs (21 Institutions and 71 seats) in comparison with DrNB programs (145 Institutions and 367 seats) aligns with the proportion of ICU beds as outlined in the needs assessment study.¹¹

Critical care is a classic example of a specialty that relies on a multidisciplinary team, infrastructure, and technology. While it is key to have trained Intensivists, one should not undermine the need for skilled nurses, respiratory therapists, physiotherapists, clinical pharmacists, and clinical dieticians all of whom are important in providing cohesive and comprehensive care. Mid-level practitioners including physician assistants and nurse practitioners are being trained in some states and would add value provided their roles and responsibilities are uniformly defined, accredited, and utilized.

STRATEGIES

The 5S management principles where 5S stands for the five Japanese words Seiri (Sort), Seiton (Set in order), Seiso (Shine), Seiketsu (Standardize), and Shitsuke (Sustain) was originally used in manufacturing industries for improving productivity and quality. It is often referred to as common sense and cost-effective approach and could be applied to healthcare facilities regardless of location. Of note, this can be a participatory approach for health workers and facility managers and can also be adopted as a strategic option by leaders and policy-makers. We propose a 5S framework to revamp critical care delivery in India.

1. *Sort* – Define and categorize ICUs to provide tiered levels of care. Not every center needs a fully equipped ICU. ‘Resuscitate and Transfer to higher level of care’ may be an appropriate model for smaller hospitals and ICUs with limited infrastructure and lack of qualified professionals.
2. *Set in order* – Multidisciplinary care concept with clear definition of roles and responsibilities of every member of the team including Intensivists, Nurses, Respiratory Therapists, Physiotherapists, Clinical Pharmacists and Clinical Dieticians. Each of these professionals providing specialized care in their area of expertise would add up to providing focused and comprehensive care for patients.
3. *Shine* – Invest in infrastructure and training. Healthcare budgeting to improve the public health facilities and marching towards universal healthcare should be our goal. The use of technology such as Tele-Critical Care would help overcome barriers and help reach essential critical care farther.¹²
4. *Standardize* – Care pathways and standardized evidence-based protocols to be implemented uniformly in all ICUs. Short term training for personnel in smaller facilities would be essential to ensure standardization of initial care prior to transfer.
5. *Sustain* – Consider and be open to Public-Private partnership models to augment training, retain skilled manpower to provide better care.

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