ORATION **DOI:** 10.21590/jsa.03.02.04

Shaping the Future: Acute Care Surgery & Traumatology for General Surgeons in India

Samir Misra

A Perspective of Policy, Training, and Systems

Received: 16th July, 2025; Revised: 17th August, 2025; Accepted: 25th August, 2025; Available Online: 05th November, 2025

ABSTRACT

Acute Care Surgery (ACS) represents an integrated approach that combines emergency general surgery (EGS), trauma, and surgical critical care into a cohesive subspecialty. In the USA and UK, ACS has evolved into a structured discipline, while Australia has progressively built trauma systems that integrate ACS principles. For India, where injury and emergency surgical burdens remain among the highest globally, the absence of an organized ACS framework creates gaps in care delivery. This perspective paper synthesizes global lessons, explores Indian realities, and argues for urgent policy, training, and system reformto embed ACS in national surgical services.

Journal of Surgery Archives (2025);

How to cite this article: Misra S, Shaping the Future: Acute Care Surgery & Traumatology for General Surgeons in India. Journal of Surgery Archives. 2025;3(2):22-23.

Source of support: Nil.

Conflict of interest: None

Why ACS for India—burden, Equity, and Accountability

India faces an enormous burden of emergency surgical conditions and injuries. According to the Global Burden of Disease, road traffic injuries alone accounted for over 200,000 deaths in 2017, with significant state-level heterogeneity. Emergency surgical diseases like perforations, intestinal obstruction, and sepsis contribute substantially to mortality. The Lancet Commission on Global Surgery recommends a minimum SAO workforce density of 20 per 100,000, but India remains well below this threshold. Equity is also a major concern: rural populations have disproportionately poor access to timely surgery, highlighting the urgency for an ACS-oriented approach.

Development in USA, UK, and Australia

The United States pioneered ACS in the mid-2000s when the American Association for the Surgery of Trauma (AAST) defined it as the integration of trauma, emergency general surgery (EGS), and surgical critical care. Hospitals restructured services with protected operating room time and trauma ICU leadership by ACS surgeons, leading to improved outcomes. The United Kingdom created Major Trauma Networks in 2012, linking regional centres with clear transfer protocols, which significantly reduced mortality. Australia and New Zealand implemented state-wide trauma systems verified by the Royal Australasian College of Surgeons, also achieving mortality reductions. These models illustrate the importance of structured training, coordinated networks, and robust verification systems.

India's Demand–supply Gap (Projection to 2050)

India's surgical workforce density remains well below the Lancet Commission's benchmark of 20 SAO providers per 100,000 people. In 2009, estimates suggested approximately 6.5 providers per 100,000, reflecting a severe shortfall. Projections indicate that even with gradual growth, India may only achieve 18 by 2050 — still short of the global target. This gap is amplified by rising trauma due to urbanization and road traffic, as well as increasing emergency general surgery needs from aging populations. Without targeted ACS training, district hospitals will continue to lack specialized providers, leaving large segments of the population without timely, life-saving surgical care.

Gaps in Current General Surgery Training (India)

Current postgraduate general surgery training in India provides broad exposure but lacks structured rotations in emergency general surgery, trauma, and surgical critical care. Trainees rarely receive dedicated EGS lists or opportunities to lead trauma teams. Formal certification in ATLS or trauma-specific competencies is not mandated. Surgical ICU exposure remains limited and inconsistently supervised, while non-technical skills such as crisis management, structured handovers, and simulation-based training are incorporated only sporadically. Furthermore, the curriculum does not adequately prepare surgeons for district hospital realities, where they are often required to independently perform bellwether procedures. This gap in structured training significantly undermines preparedness

for the evolving challenges of Acute Care Surgery (ACS) in India.

Roadmap 2025–2050

A phased roadmap can guide India towards strengthening Acute Care Surgery (ACS) by 2050. Between 2025 and 2030, national policy should define core ACS competencies and pilot structured fellowships incorporating rotations in trauma, emergency general surgery (EGS), and surgical intensive care units (SICU). From 2030 to 2040, state-level trauma systems with designated centers and inter-facility transfer protocols should be implemented, alongside the expansion of training seats and the establishment of rural ACS posts. By 2040–2050, the surgical workforce must reach at least 20 SAO providers per 100,000 population, with ACS coverage extended to all medical colleges and high-volume districts. Innovation in artificial intelligence–based triage, point-of-care ultrasound (POCUS), and simulation technologies should further consolidate and modernize ACS delivery across the country.

Minimal, Testable Standards

Establishing measurable benchmarks is crucial for effectively embedding Acute Care Surgery (ACS) within India's healthcare system. Emergency general surgery services should guarantee protected operating room blocks and aim for a median time-to-laparotomy of less than eight hours for acute abdomen cases. Trauma services should adhere to standardized activation criteria, enable computed tomography (CT) within 30 minutes, and ensure damage control surgery capabilities at Level II hospitals. Interfacility transfers should be completed within two hours to higher-level centers. Surgical intensive care units (SICUs) must be co-led by ACS surgeons and anesthesiologists, incorporating ventilator bundles, daily organ failure scoring, and ultrasound-guided procedures. Implementing these standards will facilitate performance monitoring, accountability, and continuous system improvement.

Curriculum Inserts

Reforming medical education is central to realizing the vision of Acute Care Surgery (ACS) in India. For MS General Surgery programs, training should include at least three months on ACS or emergency general surgery (EGS) services, two months in trauma bays, and a minimum of two to three months in surgical intensive care units (SICUs). Core competencies must encompass trauma laparotomy, fasciotomy, thoracostomy, point-of-care ultrasound (POCUS), and airway management. Simulation-based crisis resource management should be made mandatory, with quarterly competency assessments. A structured 12–18-month ACS fellowship should subsequently focus on trauma leadership, complex emergency procedures, ICU management, and registry-based quality improvement. Embedding these training modules within the national surgical curriculum will prepare surgeons for leadership roles in India's evolving ACS and trauma care systems.

Policyasks

Policy support is critical to institutionalizing Acute Care Surgery (ACS) in India. The Ministry of Health and the National Medical Commission should formally recognize ACS as a subspecialty within General Surgery, establishing dedicated training and certification tracks. Expansion of postgraduate seats and fellowship programs must be accompanied by incentives for surgeons serving in rural and district hospitals. Targeted investment is also required to develop protected emergency operating theatres, hybrid trauma bays, and round-the-clock anesthesiology support. Finally, national registries and trauma verification systems should be established and adequately funded to ensure continuous quality monitoring and outcome evaluation. Without coordinated policy action, India's ACS and trauma systems will remain fragmented, inequitable, and under-resourced.

CONCLUSION

India stands at a crossroads in the evolution of its surgical services. With a growing burden of trauma and emergency surgical diseases, adopting the principles of Acute Care Surgery (ACS) is no longer optional but imperative. By learning from global experiences in the United States, the United Kingdom, and Australia — and adapting these models to India's unique demographic and healthcare landscape — it is possible to build sustainable and resilient ACS systems. This transformation will require a coordinated effort focused on workforce expansion, training reform, system redesign, and strong political will. A well-structured ACS framework has the potential to reduce preventable deaths, enhance system-wide resilience, and define the future of surgical care in India.

FURTHER READING

1. Meara J. G., Leather A. J. M., Hagander L., *et al.* (2015). Global Surgery 2030: evidence and solutions for achieving health, welfare, and economic development. *The Lancet*, 386(9993), 569–624.
2. India State-Level Disease Burden Initiative Collaborators. (2020). The burden of injuries in India: findings from the Global Burden of Disease Study 2017. *The Lancet Public Health*, 5(1), e47–e60.
3. American Association for the Surgery of Trauma. (2005). Acute Care Surgery curriculum and fellowship model. *Journal of Trauma*, 58(3), 632–635.
4. National Health Service England. (2016). Evaluation of Major Trauma Networks. *Emergency Medicine Journal*, 33(12), 865–869.
5. Cameron P. A., Gabbe B. J., Cooper D. J., Walker T., Judson R., McNeil J. (2008). A state-wide system of trauma care in Victoria: effect on patient survival. *Medical Journal of Australia*, 189(10), 546–550.
6. Rao K. D., *et al.* (2023). Human resources for health in India: workforce size, composition, and distribution. *medRxiv.* https://doi.org/10.1101/2023.04.13.23288410
7. National Medical Commission. (2020). Competency-based postgraduate training programme for MS General Surgery. NMC India.