Measure Background

Each year, over five million patients are admitted to intensive care units (ICUs) across the US.[1] An ICU is a consolidated area of a hospital where patients with acutely life-threatening illnesses or injuries receive around-the-clock specialized medical and nursing care, such as mechanical ventilation and invasive cardiac monitoring. Mortality rates in patients admitted to the ICU average 10-20% in most hospitals.[2] Overall, over 200,000 patients die in US ICUs each year.[3] Given the high stakes involved, the quality of care delivered in ICUs is particularly important. Unfortunately, evidence suggests that quality varies widely across hospitals.[4]

ICU Physician Staffing (IPS)

A growing body of scientific evidence suggests that quality of care in hospital ICUs is strongly influenced by: (i) whether "intensivists" are providing care; and (ii) how the staff is organized in the ICU. Intensivists are familiar with the complications that can occur in the ICU and, thus, are better equipped to minimize errors. The Leapfrog Group defines intensivists as board-certified physicians who are additionally certified in the subspecialty of critical care medicine.

Neurointensivists are an approved alternative to intensivists in providing care in ICUs. The Leapfrog Group defines neurointensivists as board-certified physicians who are additionally certified in the subspecialty of Neurocritical Care Medicine. Certification in Neurocritical Care Medicine is awarded by the United Council for Neurologic Subspecialties (UCNS) or, beginning in 2021, by the American Board of Psychiatry and Neurology, Inc. (ABPN).

More information regarding Leapfrog's board-certification requirements, including our expanded definition of certified in critical care medicine, is available in the Leapfrog Hospital Survey.

IPS and Quality

Mortality rates are significantly lower in hospitals with ICUs managed exclusively by board certified intensivists. Dr. Peter Pronovost, a former intensivist at Johns Hopkins, conducted a systematic review of the existing literature regarding ICU physician staffing and quality.[5] He found that high intensity staffing (ICUs where intensivists manage or co-manage all patients) versus low intensity staffing (where intensivists manage or co-manage some or none of the patients) is associated with a 30% reduction in hospital mortality and a 40% reduction in ICU mortality.[6]

Evidence suggests that over 54,855 deaths that occur in the ICUs could be avoided if The Leapfrog Group's IPS Safety Standard were implemented in all urban hospitals with ICUs across the US.[3] Studies have also demonstrated a reduced hospital and ICU length of stay with high intensity versus low intensity staffing.[5,7]

Having intensivists available via telemedicine (or teleintensivists) has also been shown to reduce mortality, but at a lower rate than a closed ICU unless accompanied by in-person intensivist coverage. Recent evidence suggests that teleintensivist coverage can reduce ICU mortality by 15-30%.[8,9] However, the impact on patient care is not as significant as the reduction in mortality associated with on-site intensivist coverage. Thus, hospitals must have at least some daily on-site intensivist coverage in order to achieve Leapfrog's Standard.

ICU Physician Staffing Standard

Leapfrog was advised by national experts in quality improvement to focus on IPS as one of its original safety standards because of the potential to benefit patients. The IPS Standard was established over 20 years ago after review of published research in the field and consultation with leading experts in intensive care. This standard has since been reviewed and revised, incorporating more current data and input from the hospital and physician communities.[7]

Hospitals achieving the standard for adult and pediatric IPS assure that:

1. Physicians certified in critical care medicine (i.e., "intensivists"), when present on-site or via telemedicine, manage or co-manage all critical care patients in adult and pediatric general medical and/or surgical ICU(s) and neuro ICUs
2. One or more intensivist(s) is/are
   - Ordinarily present on-site in each ICU during daytime hours for at least 8 hours per day, 7 days per week, providing clinical care exclusively in one ICU during these hours

- Present via telemedicine, in combination with on-site intensivist coverage, for a total of 24 hours per day, 7 days per week; meet all of Leapfrog's ICU requirements for intensivist presence in the ICU via telemedicine; and supported by an on-site intensivist who establishes and revises the daily care plan for each ICU patient

3. When intensivists are not present (on-site or via telemedicine) in these ICUs, one of them returns more than 95% of calls/pages/texts from these units within five minutes
4. When intensivists are not present (on-site or via telemedicine) in the ICU or not able to physically reach an ICU patient within 5 minutes, another physician, physician assistant, nurse practitioner or FCCS certified nurse "effector" is on-site at the hospital and able to reach ICU patients within five minutes in more than 95% of the cases

Note: When telemedicine is employed as a substitute for on-site intensivist coverage, it must meet all ten requirements detailed in the survey endnotes (in the hard copy of the Survey), which includes some on-site intensivist time to manage the ICU patients' admissions, discharges, and care planning.

Download the complete Leapfrog Hospital Survey scoring algorithms document at Hospital Scoring and Results webpage.

Challenges to IPS Implementation

There are a number of challenges that hospitals continue to face in meeting The Leapfrog Group's IPS Standard. The challenges include:

- In some hospitals without IPS, non-intensivist physicians may be simply unwilling to relinquish care of their patients in the ICU to intensivists.
- Alternatively, hospitals may be unable to hire intensivists, because of a shortage of available trained personnel.
- Many teaching hospitals have decreased the size of their fellowship programs in critical care for financial reasons, thus reducing the supply of newly certified intensivists.
- Related to reimbursement issues, many board-certified intensivists are choosing not to work in the ICU.[10]
- Hospitals with small units may lack the economies of scale necessary to support full-time intensivists for their ICUs. Thus, implementing IPS broadly may require consolidating ICU care into larger hospitals, or implementing telemedicine IPS at all hospitals that are currently without it.

Why Purchasers Need to Get Involved

Employers and purchasers can use marketplace incentives to encourage hospitals to implement IPS — particularly those that have an open model ICU by choice. Where appropriate, they can also promote consolidation of small ICU facilities, or investment in telemedicine intensivist services that meet The Leapfrog Group's criteria. By educating consumers and calling attention to the importance of the IPS Standard, purchasers may create greater demand for intensivists and encourage the growth of programs for filling this need.

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For a comprehensive list of references, please review the ICU Physician Staffing Bibliography available here: https://ratings.leapfroggroup.org/measure/hospital/2026/specially-trained-doctors-care-critical-care-patients