Practice Patterns of Anesthesiologist-Intensivists in the US
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Critical care medicine as an anesthesiology board sub-specialty was established in 1986. Interestingly, in the early 1980s, other specialties, including internal medicine and surgery, attempted to create a unified Board of Critical Care Medicine (Anesthesiology 2001;95:781-8). This was ultimately unsuccessful due to disagreements on training qualifications, hence the individualized board certifications within disparate fields as we know them today. In the United States, most intensivists are pulmonary critical care specialists; in Europe, more than 50% are anesthesiologists. Despite the subspecialty existing in almost 40 years, at the turn of the century, less than 4% of the U.S. were also trained as intensivists.

The potential for practice variations can be diverse, including, but not limited to, academic versus private, amount of research required, ICU type (open/close/semi-open), patient population (cardiac/surgical/medical/neuro/mixed), proportion of ICU versus OR time, ICU size, night-floating versus call, presence of physician extenders (NP, PA, etc.)

The survey conducted on anesthesiologist-intensivists sheds light on the diverse practice patterns within the field. Respondents were distributed nationwide, with over half working in large hospitals with more than 500 beds. Only a small fraction of anesthesia intensivists surveyed worked in smaller hospitals with under 200 beds. Over 90% of respondents work in academic medical centers, showing the relative absence of the anesthesia critical care specialty outside academia.

Half of anesthesia intensivists work in a “semi-open” ICU system, while 30% work in a closed ICU system, where only the ICU team writes orders. Anesthesiologist intensivists work predominantly in surgical and cardiovascular ICUs and least common in burn and medical ICUs. Most respondents cover ICUs in multiple locations with varying coverage models.

The average patient census runs at 10-15 patients per intensivist for over half of the respondents, with one-third covering 15-20 patients and a small minority over 20 patients. Interestingly, most respondents indicated a patient census cap in the medical ICUs but not in the surgical ICUs. Half the respondents report covering ICUs 24 hours a day, and rapid responses assigned to the ICU. One-third report covering tele-ICU services; in 30%, this counts toward their mandatory ICU time. Most anesthesiologist intensivists work with other specialties to cover their respective ICUs, most commonly intensivists with trauma surgery, pulmonary/CCM, and emergency medicine backgrounds.

Weekly coverage models vary: a full week of 24-hour calls, a week of either days or nights, or a few days in a row of either nights or days. Over 60% of respondents...
work in ICUs at night with an in-house attending coverage model. The next most common model was home-call with residents, fellows, or advanced practice providers (APPs), although this model often varied from unit to unit. Over 40% of respondents report a pay differential for day and night shifts.

**Compensation and work-life balance**

Compensation structures for anesthesia intensivists demonstrated a wide range of models, with over 60% reporting no higher salary than their general anesthesiology counterparts. Factors contributing to compensation differentials included fellowship training, call burden, and institution-specific practices. The availability of compensatory time off following ICU shifts exhibited considerable variability. Twenty percent of respondents get a full week of nonclinical time after a set of ICU shifts, 30% get one to two days off, and over 20% get no nonclinical time after a set of ICU shifts. Most respondents reported no professional responsibilities during their compensatory time off, while over one-third still had administrative duties. What constitutes 1 FTE in critical care varied between institutions, and no discernible pattern can be reported.

**Trainees and the role of advanced practice providers**

Even at predominantly academic institutions, over 70% of respondents report having physician trainees and APPs in the ICU, with a small minority having APPs only. Half the respondents indicate that the role of the APP is identical to that of the physician trainee in the ICU. Only one-third of the respondents indicate that APPs can perform invasive procedures, including endotracheal intubations, independently.

**Discussion**

Our survey complements a recently published SOCCA survey (Anesth Analg 2023;136:295-307). Both surveys found that anesthesiologist intensivists work in various critical care unit types, ICU coverage models vary considerably, and respondents are most likely part of in-house 24-hour/7-day coverage. Our survey gives further insight into the variety of compensatory nonclinical days provided after ICU coverage, the responsibilities during the post-ICU time, and the stark variability in workload reflected by the patient census.

Anesthesia-trained critical care physicians exhibit adaptability across various clinical settings, serving as a versatile hospital resource. Recent surveys have highlighted concerns for practicing intensivists. In a 2021 survey by ASA and the Society for Education in Anesthesia, factors impacting satisfaction were identified, including burnout, work-life balance, and respect issues (Anesth Analg 2021;132:761-9).

Following a 2000 report predicting a shortage of critical care physicians, efforts have been made to mitigate this challenge with varying success (JAMA 2000;284:2762-70). The staffing and organizational approaches to ICUs, particularly overnight, remain unclear. In cardiac surgery ICUs, literature is mixed regarding whether 24-hour/7-day in-house intensivist coverage improves outcomes (Crit Care Med 2017;45:993-1000; Crit Care Med 2017;45:1472-80). The debate on the impact of 24/7 in-house coverage on outcomes continues, suggesting additional factors affecting staffing decisions.

Our findings underscore the need for further exploration of critical care anesthesia practice. Future research should investigate finer details such as compensation factors, temporal ICU coverage trends, and specific clinical practice patterns. These insights will be invaluable for making informed decisions regarding staffing, clinical organization, and compensation structures. Anesthesiologists specialized in critical care medicine are well-equipped to provide adaptable critical care coverage across various ICUs. As patient complexity grows, addressing the challenges anesthesiologist intensivists face becomes increasingly important to ensure the delivery of high-quality critical care services.