Another Meaningful End Point for Nighttime Intensivist Coverage

To the Editor:

We read in earnest the retrospective study by Kerlin et al1 in the recent issue of CHEST (April 2015), which found that nighttime intensivist staffing is not associated with a reduction in ICU or hospital mortality rate and overall length of stay. This study, as the authors noted, supports the existing body of work, from a single-center randomized controlled trial, multicentered observational study, and meta-analysis, that shows this staffing model failing to improve upon patient-centered outcomes such as mortality rate and length of stay in high-intensity daytime staffed ICUs.1 Other clinical end points outside of patient-centered outcomes, such as reduced financial costs and reduced physician burnout,3 have also been examined. As physicians in various stages of our medical training, we contend that the next most important question to address is to what degree nighttime intensivist presence impacts the education of residents and fellows. Survey data from two studies suggest that house staff perceive less autonomy when having 24-h supervision.3,4 Whether this translates into less overall competency and more overreliance on guidance that can affect trainees’ future medical practice and knowledge base has yet to be resolved. Identifying a causal relationship, if any, between nighttime intensivist coverage and house staff education may prove to be an arduous task. Nonetheless, surrogate end points, such as patient, family, and nursing evaluations of overnight house staff trained in these two different staffing models; procedural complication or failure rates of overnight house staff; or even simulation-based testing, may help clarify this murky relationship. Furthermore, the curtailed clinical exposure of house staff in the era of duty hour regulations more than ever necessitates verifiable assurance of high-quality training. Even in the single-centered randomized trial conducted at the University of Pennsylvania, residents were “expected to review all new admissions and critical events with a fellow, an intensivist, or both, in person or by telephone within 1 hour.”5 As more academic medical centers move toward adopting nighttime intensivist supervision, gone may be the days when house staff, yet not their patients, have to live, die, and learn with the decisions that they alone make. We call on future investigators and studies of 24-h intensivist coverage to include house staff education as a meaningful end point.

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References

Should Quality of Care Provided by Nighttime Intensivists Be Judged by Mortality?

To the Editor:

We read with great interest the article in a recent issue of CHEST (April 2015) by Kerlin et al,1 who retrospectively reported the outcomes of patients admitted to ICUs with nighttime staffing with an attending intensivist. The study showed no significant difference in mortality when compared with ICUs without nighttime attending
intensivist staffing. Their results are consistent with their previous single-center randomized trial\textsuperscript{2} and other studies.\textsuperscript{3,4}

As the authors have already discussed in the limitations of the study, although mortality is an important outcome, it may not capture many other roles of an intensivist. More than providing artificial organ or life supports, intensivist physicians also help patients and families establish goals of care with either primary intention of cure or focus on comfort. Once the goals of care are established, intensivist physicians may help establish and provide nosocomial end-of-life care. Mortality rate alone does not reflect the overall quality of care, as some deaths are perhaps expected as a result of maximizing comfort rather than curative care after thoughtful discussions with patients and families.

Furthermore, in this article, Kerlin et al\textsuperscript{1} observed a counterintuitive finding that the absence of nighttime physicians (of any kind) is associated with lower mortality. The authors attempted to explain this finding that the staffing models may be associated with differences in end-of-life care. This was supported by another finding that the ICUs without nighttime physician staffing were also less likely to have new limitations on life support established at night.

Another important role of the intensivist that often gets overlooked is managing ICU triage. Hence, the inclusion criteria of this study may lead to selection bias, as it included only subjects admitted to ICUs but not all subjects who were screened and triaged to different levels of care. If patients of lower acuity were triaged away from the ICU, the ICU mortality would likely be increased in the remaining sicker ICU patient population.

In our opinion, the use of mortality outcome may not be an appropriate sole indicator of quality of care for all critically ill patients. Thus, it is premature to conclude that the presence of nighttime intensivists is not of clinical benefit in ICUs, as stated by Kerlin et al.\textsuperscript{1} Future studies should address the quality of care by assessing clinical outcomes and compliance to therapeutic bundles of specific diseases, such as sepsis and ARDS.

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**Response**

**To the Editor:**

We appreciate the comments of Drs Sriratanaviriyakul and Albertson and Dr Rho and colleagues in response to our study of nighttime intensivist staffing.\textsuperscript{1} We agree wholeheartedly with Drs Sriratanaviriyakul and Albertson that mortality has significant limitations as an outcome in this and all studies of ICUs, as we discussed briefly in our recent article.\textsuperscript{1} Further, as we note in our review of critical care randomized trials, mortality is widely accepted as the primary outcome in research on critically ill patients, but it has a number of methodologic and conceptual limitations.\textsuperscript{2,3} Indeed, our study may be the first to systematically address this limitation by directly examining patterns of limitations on life support. However, we acknowledge that this effort was exploratory in nature and does not address all the weaknesses of mortality as a critical care outcome measure. We agree that further work is needed to more fully unpack mortality as an outcome and to identify other relevant outcomes in ICU research.

We also agree with Dr Rho and colleagues about the importance of understanding the impact of nighttime intensivist staffing on education, as we have noted previously in *CHEST*.\textsuperscript{4} However, as we described in that more thorough treatment of this important issue, we do not believe the educational outcomes to be studied are yet apparent. The majority of ICUs in this country, and
indeed the world, are not staffed by medical trainees; thus, the key educational issue is the ultimate preparedness of future ICU staff physicians to function independently. However, the studies of educational outcomes thus far have focused primarily on perceptions of education and autonomy, which may or may not actually correlate with competency. Therefore, as nighttime staffing patterns in ICUs continue to evolve, with implications on our future workforce, we too hope that this area of research will continue to be pursued.

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