

Intensivists for the Intensive Care Unit-Do They Make a Difference?

T W K Lew,**FAMS, M Med (Anaes), EDIC*, K H Lee,***FAMS, MRCP, EDIC*, K S Ng,****FAMS, M Med (Anaes), FCCM*

Not Just The Science But An Art

Does Critical Care Medicine exist and what defines its area of practice? Different countries have embarked on their own journeys of discovery, and have arrived at different paradigms -open versus closed models, specialty-based intensive care units (ICUs) versus general ICUs, internist versus pulmonologist or anaesthetist, and so forth. The correct answer probably lies somewhere in all these “solutions”. However, there is an essence to Critical Care Medicine that should be virtually palpable as one walks into the ICU that defines what may be called the “art” of Critical Care Medicine. Critical Care encompasses many areas of medicine, and is at the cutting edge of many of the technological advances in medicine, along with the modern information technology environment.’ This “science” of Critical Care Medicine is the major thrust of many articles in this issue of *Annals*. However, amongst the whizz and bang of the electronic gizmos lies a human patient lying critically ill in bed, cared for by his or her personal nurse along with a physician in charge. How do we individualise care and provide for that particular patient, away from the statistics and physiological science we hold so dear?

First and foremost is to listen. Be **cognisant** of the fears and concerns of the patient and his family. Surprisingly, the SUPPORT study in USA² demonstrated a large proportion of physicians disregarding the stated wishes of the family and the patient, including “do-not-resuscitate” orders. We have to show that we care, and are prepared to listen. Secondly, we have to be sure of our abilities to prognosticate. Critical Care Medicine requires quick and decisive action to save lives and to make a difference to subsequent outcomes (multi-organ failure). The action has to be knowledgeable and measured. Thus, the “science” aspect is taken for granted. However, knowing how much to try and for how long to keep trying, is a daily event. Assessment is continuous and the decision is dynamic. Apart from being the patient’s advocate and personal physician, the intensivist has to juggle his other roles as “gate-keeper” and resource manager. His ability to reconcile these roles satisfactorily for all parties concern requires a great degree of resolve, tact and soul-searching. Thirdly, the cost and resource consumption that is inherent in Critical Care has to be **understood**.³ Much more work is required to study the cost-effectiveness of various interventions. Data are required for policy decisions. Ultimately, being at the bedside and spending time with the patient and the various caregivers provide the best feedback of one’s ability to integrate the difficult “art” of Critical Care Medicine.

The Intensivist as Manager-More Than Just Outcome

The application of critical care expertise refers to both clinical and managerial skills. A good part of the practice of Critical Care Medicine deals with triage and assigning expensive, limited resources to patients who will benefit from critical care. The critical care community has come to **recognise** the importance of managerial skills. A Critical Care Management Course has been formulated in North America and managerial issues are part of many Critical Care Medicine Training programmes.^{4,5} What has been the impact of an intensivist-directed ICU? In this issue, Tai et al⁶ showed that management of a medical ICU by a dedicated team headed by an intensivist, resulted in reduced length of ICU stay. The number of patients involved were too small to demonstrate a significant difference in the mortality rate. Publications that show a difference in mortality in the ICU^{7,8} report on larger cohorts (439 to 5470 patients). Furthermore, Tai’s ICU did not have dedicated coverage after office hours. Brown and Sullivan⁷ reported on the effect on ICU mortality of a full-time critical care specialist (intensivist) in the ICU of a Canadian university hospital. For the observation period, they had primary critical care specialist (intensivist) coverage in the night and every other

* Consultant and Co-Director
Neurosurgical Intensive Care Unit, Department of Anaesthesia
Tan Tock Seng Hospital

** Consultant and Senior Lecturer
Department of Medicine
National University Hospital

*** Consultant
Department of Anaesthesia
Changi General Hospital

Address for Correspondence: Dr Thomas Lew Wing Kit, Department of Anaesthesia, Tan Tock Seng Hospital, Moulmein Road, Singapore 308433.
e-mail: thomas_lew@notes.tish.gov.sg

weekend. Work rounds and teaching rounds were held daily; protocols were developed and weekly lectures on critical care were instituted. Referral and admission patterns, staffing by nurses and ancillary personnel were unchanged from the control period. ICU mortality was reduced from 27.8% to 13.4% ($P < 0.01$) and overall hospital mortality was reduced from 35.5% to 24.5% ($P < 0.01$).

It is apparent from both reports that it is not the mere expertise of the intensivist that brings about the desired impact. Changes to many other aspects of ICU care and management arise under the leadership provided by the intensivist. Tai et al had the benefit of active participation of patient care by respiratory therapists during the observation period. This likely resulted in better respiratory care, reduced need for mechanical ventilation and shorter stay in the ICU. Brown and Sullivan⁷ reported that daily teaching rounds for house staff and instructional sessions with nurses improved ICU organisation and communication among caregivers. Increased involvement by allied healthcare workers resulting from protocols and guidelines was accomplished. It is through these factors that the impact of the intensivist was felt. His training and experience in the science and art of Critical Care Medicine equip him to lead the ICU team, to bring about changes to improve unit management and patient care.

Mortality should not be the only indicator of positive impact of the Intensivist and a dedicated team in the ICU. It is more important that there is efficient use of ICU resources⁹ as reflected by

- control of admissions by screening out those who are “too sick” or “too well” to benefit,
- efficient treatment through optimal utilisation of resources and staff,
- recognition of situations where continued critical care is futile; where the more humane and appropriate approach is to allow death to take place with minimal pain and suffering.

Such functions can only be effectively fulfilled by a “working” medical director. Adler¹⁰ made a distinction between “paper” and “working” medical directors. The “paper” director may chair the ICU committee but take little part in the day-to-day operation of the unit. The “working” director, on the other hand, spends a good portion of his time in the unit performing both clinical and managerial functions. He is in the midst of the war zone, feeling the pulse of the unit and is present to enforce policies and resolve conflicts. He must be trained and equipped to handle this challenging job. Mallick et al¹⁰ showed that greater involvement by medical directors in the day-to-day management of the ICU significantly reduced the average occupancy rate in ICUs and also the probability of patients misallocated to the ICU.

Many healthcare systems have not adopted the position of having a designated medical director and 24-hour physician coverage for the ICU.¹¹ Two possible reasons for this are that available data do not convince policy makers and hospital administrators that such a policy is a worthwhile investment, and that it is just not cost-efficient for small ICUs (<6 beds) to have its own full-time intensivist. Many of the indices that may show a positive impact of employing full-time intensivists in the ICU are however not measured in many healthcare systems, making fiscal decisions on manpower in the ICU based on cost-effectiveness to the entire healthcare system difficult.

Leadership to Resolve Ethical Dilemmas

The practice of ICU medicine is fraught with pitfalls. Critical care may present a last hope for cure, but is frequently the harbinger of the final repose. Faced with patients turning for the worse, nurses, physicians and relatives alike are fatigued, frazzled and unforgiving. Such sentiments are fertile ground for controversy, and conflict. A sound ethical basis is needed for all medical practitioners, be it in critical care or elsewhere. The prerequisites for an effective “working” intensivist have been presented in earlier sections. When armed with a modicum of credibility, the intensivist must assume an active role in resolving ethical controversies in this domain.

There are few contentions when patients improve with treatment, and are discharged from the ICU, even when such treatment merely restores physiological normality and does not alter the overall quality or prognosis of the patients’ underlying disease states. Thus we are often left with the dilemma of patients who do not recover, such as the fully supported patient, dying a slow death in the ICU.¹² Is there a role for physicians to manage death in the ICU? Is this tantamount to passive euthanasia? These are questions that often trigger emotional and conflicting answers.

What is clear is an awareness that outcome prediction, whether practiced using modern statistical science, or as an art based on the experienced physician’s gestalt, continues to influence decisions on how much further to treat a patient, even in the ICU.¹³ Statistics and experience have, of course, been proven wrong, and ICU doctors must always err on the side of the aggressive pursuit of cure, lest the science and art of prediction fall along the slippery path of self-fulfilling prophecies. However, just as in general medical practice, it is not a mandate in the ICU for all patients to be resuscitated “unto death”. Indeed a significant proportion of patients do not expire naturally in the ICU, they are “let die” with the full consent of the next-of-kins, when all that should be done has been done, and further treatment is neither curative nor palliative.¹⁴ Treatment must be provided if it is of benefit, not merely because it is available.

Beneficence must be viewed from the patient's point of view. When unavailable and not previously stated, as is often the case in the ICU, surrogates and physicians have a moral duty to act in the patients' interest, not theirs. Withholding or withdrawal of therapy under such circumstances does not constitute passive euthanasia, but acts to restrain or remove the cloak of artificial life-support that subverts natural law. Passive euthanasia is abetting to kill and should never be practiced in the ICU. It is clear that withholding or withdrawing of therapy does not always result in death.¹⁵ Survivors continue to be appropriately treated, and with dignity and respect for life.¹⁶

Finally, the economics of ICU care does figure in the ethical considerations of ICU doctors. A Unit cannot be considered ethically sound if its doctors are unable to make available bed-space and resources and must deny timely and appropriate care to deserving patients to prevent avoidable morbidity and mortality. This entails drawing up structural guidelines on admission and discharge and adhering to them.¹⁷ In Britain, there are limited ICU resources and while severity-adjusted outcomes indicate that the standard of intensive care there is high, there is acceptance that implicit rationing of care exists, and should be audited.¹⁸ Institutional doctors in Singapore, with approximately 500% more ICU: hospital beds ratio than the UK, are in a far better position logistically, but must not wait until the last ICU bed in the hospital is contested before reviewing the benefit of ICU therapy on existing patients. There is subtle but compelling evidence elsewhere that inappropriate utilisation of ICU resources deprive others more likely to benefit.^{19,20}

In conclusion, doctors must continually earn their rights to leadership in the ICU. The ethical dimensions of such leadership should necessarily include the will to address the hard issues of the day-appropriate resource utilisation, and the end-of-life.

REFERENCES

1. Lee K H. Intensivists in Singapore: *raison d'être* in the modern era of critical care medicine. *Singapore Med J* 1995; 36:467-9.
2. The SUPPORT Principal Investigators. A controlled trial to improve care for seriously ill hospitalised patients. The study to understand prognoses and preferences for outcomes and risks of treatments (SUPPORT). *JAMA* 1995; 274:1634-6.
3. Birnbaum M, Walleck C A. Rationing health care. Impact on critical care. *Crit Care Clin* 1993; 9:585-602.
4. Vincent J L, Baltopoulos G, Bihari D, Blanch L, Burchardi H, Carrington da Costa R B, et al. Guidelines for training in intensive care medicine. *Intensive Care Med* 1994; 20:80-1.
5. Task Force on Guidelines of the Society of Critical Care Medicine. Recommendations for program content for fellowship training in critical care medicine. *Crit Care Med* 1987; 15:971-87.
6. Tai D Y H, Goh S K, Eng P C T, Wang Y T. Impact on quality of patient care and procedure use in the medical intensive care unit (MICU) following reorganisation. *Ann Acad Med Singapore* 1998; 27:309-13.
7. Brown J J, Sullivan G. Effect on ICU mortality of a full time critical care specialist. *Chest* 1989; 96:127-9.
8. Raffkin H, Wisniewski S, Hoyt J. Multidisciplinary 24-hour critical care services improve outcome in diverse risk categories of patients. *Crit Care Med* 1995; 23:A59.
9. Mallick R, Strosberg M, Lambrinos J, Groeger J S. The intensive care unit director as manager. Impact on performance. *Med Care* 1995; 33:611-24.
10. Adler D C. Hospital management of critical care. In: Parillo J E, Ayres S M, editors. *Issues in Critical Care Medicine*. Baltimore: Williams & Wilkins, 1984:265.
11. Vincent J L, Suter I, Bihari D, Bruining H. Organization of intensive care units in Europe: lessons from the EPIC study. *Intensive Care Med* 1997; 23:1181-4.
12. Lew T W K, Darby J M, Marion D. *Candida* mediastinitis and septic shock following occult esophageal perforation in a patient with posttraumatic quadriplegia. *J Trauma* 1995; 39:805-8.
13. Knaus W A, Draper E A, Wagner P I, Zimmerman J E. An evaluation of outcomes from intensive care in major medical centres. *Am Int Med* 1986; 103:410-8.
14. Lew T W K, Grenvik A N A. Brain death, persistent vegetative state, donor management and cessation of therapy. In: Albin, editor. *Textbook of Neuroanaesthesia*. New York: McGraw Hill, 1996:1361-81.
15. Sprung C L, Eidelman L A. Worldwide similarities and differences in the foregoing of life-sustaining treatments. *Intensive Care Med* 1996; 22:1003-5.
16. Grenvik A. "Terminal weaning": Discontinuance of life-support therapy in the terminally ill patient. *Crit Care Med* 1983; 11:394-5.
17. Lanken P N. Ethics of allocating intensive care unit resources. *New Horizons* 1997; 5:38-50.
18. Bion J. Cost containment: The United Kingdom. *New Horizons* 1994; 2:341-5.
19. Rapoport J, Teres D, Barnett R, Jacobs I, Shustack A, Lemeshow S. A comparison of intensive care utilization in Alberta and western Massachusetts. *Crit Care Med* 1995; 23:1336-46.
20. Marshall M F, Schwenger K J, Orsina M, Fletcher J C, Durbin C G Jr. Influence of political power, medical provincialism, and economic incentives on the rationing of surgical intensive care unit beds. *Crit Care Med* 1992; 20:3387-94.