



The Zentensivist Manifesto

Defining the Art of Critical Care

Matthew T. Siuba¹, Christopher L. Carroll², Joshua D. Farkas³, Segun Olusanya⁴, Kylie Baker^{5,6}, and Ognjen Gajic⁷

¹Department of Critical Care Medicine, Respiratory Institute, Cleveland Clinic, Cleveland, Ohio; ²Connecticut Children's Medical Center, Hartford, Connecticut; ³Department of Pulmonary and Critical Care Medicine, University of Vermont, Burlington, Vermont; ⁴Barts Heart Centre, Barts Health NHS Trust, W Smithfield, London, United Kingdom; ⁵Ipswich Emergency Department, Ipswich General Hospital, Ipswich, Queensland, Australia; ⁶University of Queensland, Ipswich, Queensland, Australia; and ⁷Division of Pulmonary and Critical Care, Mayo Clinic, Rochester, Minnesota

ORCID ID: 0000-0002-4321-4944 (M.T.S.)

ABSTRACT

Evidence-based medicine asks us to integrate the best available evidence with clinical experience and patient values. In the modern intensive care unit, the primary focus is on complex technology and electronic health records, often away from the bedside. Excess interventionism is the norm. The term “intensivist” itself implies an *intensive* management strategy, which can lead us away from a patient-centered practice and toward iatrogenic harm. Under the hashtag #zentensivist, an international, multiprofessional group of clinicians has begun to discuss via Twitter how to apply key principles of history taking, physical examination, physiology, pharmacology, and clinical research in a competent, compassionate, and minimalist fashion. The term “zentensivist” intentionally combines concepts seemingly at odds—Zen philosophy and intensive care—to describe a holistic approach to the art of caring for the critically ill. We describe the key tenets of zentensivist practice and how we may inspire these actions in those we lead and educate.

Keywords:

critical care; minimalist; evidence-based medicine

PREFACE

This commentary describes a minimalist, essentialist (1) approach to the practice of critical care medicine. As a reaction against the interventionism that the term “intensivist” conjures, the parodied term “zentensivist” was created (2). Zen philosophy encapsulates many of these values, described by one teacher as

“stripped-down, determined, [and] practice-oriented” (3). The usage of Zen philosophy is not intended as appropriation or espousing any particular religious or spiritual beliefs.

INTRODUCTION

Evidence-based medicine calls for integrating the best available evidence,

(Received in original form February 10, 2020; accepted in final form June 9, 2020)

Correspondence and requests for reprints should be addressed to Matthew T. Siuba, D.O., Department of Critical Care Medicine, Respiratory Institute, Cleveland Clinic, 9500 Euclid Avenue, L2-300, Cleveland, OH 44195. E-mail: siubam@ccf.org.

ATS Scholar Vol 1, Iss 3, pp 225–232, 2020

Copyright © 2020 by the American Thoracic Society

DOI: 10.34197/ats-scholar.2020-0019PS

intentionally combines concepts seemingly at odds—Zen philosophy and intensive care—to describe a holistic approach to the art of caring for the critically ill. In this review, we outline some of the principles developed during these discussions on Twitter and use this framework to describe the key aspects of applying critical care expertise according to patient needs, values, and preferences.

ABIDING ABNORMALITY

Respecting abnormal physiology as an adaptive response is an essential zentensivist practice. Aberegg and O'Brien have cautioned against the “normalization heuristic” (11) that is pervasive in medicine, whereby all patient parameters are driven toward “normal” values. The putative benefit of normality is diminished the further a patient is from homeostasis, as demonstrated by decades of blood transfusion trials in critical care (12, 13).

As a medical community, we understand physiologic adaptations to acute and chronic diseases superficially at best and are unlikely to outsmart the evolutionary forces underlying these adaptations. Whether it be fever (14), hyperglycemia (15), or chronic electrolyte disturbances, the available evidence does not support an interventionist approach to restore “normality.” And in some cases, such as permissive hypercapnia in the acute respiratory distress syndrome, the “abnormality” is plausibly protective (16). Distinguishing adaptive (should be left alone) from maladaptive (needing correction) response to critical illness and injury is challenging, and a conservative approach is prudent to avoid iatrogenic harm.

PRAGMATIC PRACTICE

Zentensivists do not adhere to a single, unchanging “textbook” construct of human physiology and disease, unaffected by

external influence. They disbelieve, on principle, any statement with the formula “all patients with [condition X] must undergo [intervention Y].” In the words of William Osler, “the good physician treats the disease, the great physician treats the patient who has the disease” (17).

Unfortunately, medical training programs tend to reward those who excel at memorization of complex subjects within a rigid, sterile framework. Rare conditions receive special attention. Few training systems promote base rate statistical thinking in a clinical context. In medical practice, those who do “more” and order esoteric tests may receive positive reinforcement from this system. In contrast, Keijzers and colleagues have called for “deliberate clinical inertia,” whereby “doing nothing” is considered a positive response (18). Accordingly, the zentensivist stands back and watches the interaction of external factors with human physiology, indexing the outcome with common sense.

CALMING PRESENCE

The chaotic, high-intensity environments where critical care takes place can generate distress for patients and clinicians alike. A zentensivist consistently exudes calm as an active intervention. Fostering this type of atmosphere can promote healing even during times of crisis (19). Whether it be a cardiac arrest resuscitation or an emotional family conference, the zentensivist demeanor brings a soothing presence to the situation.

A zentensivist manner opens the door to bonding with patients and other caregivers, thereby restoring humanity to the ICU (20). It is manifested by honesty, humility, and patient advocacy, effectively allowing the patient and family to be heard. When possible, lighter moments of joy and laughter are fostered. Serenity encourages

clarity of thought in the face of clinical deterioration, during complex procedures, and in end-of-life scenarios.

RISK TOLERANCE

In the ICU, uncertainty introduces desire and pressure to intervene. Consider the common practice of performing exhaustive work-ups; evaluation of every patient for myocardial infarction and pulmonary embolism undermines principles of pretest probability and clinical reasoning. Overdiagnosis of conditions such as ventilator-associated pneumonia leads to unnecessary antibiotics (21), increasing downstream testing and other interventions. Many disease processes are assessed and treated in the interest of “erring on the side of caution” without considering the ramifications of false positives and adverse effects. Indeed, excessive caution can cause harm.

Zentensivists practice parsimony in the use of resources, avoiding “routine” labs and imaging (22) and ordering tests only when there is a clinical question that can be answered by that test. Medications are pared down to a minimum, especially considering that no pharmacologic interventions have meaningfully improved outcomes in multicenter critical care trials (17). Risk tolerance is a defining feature of zentensivism, as risk is a natural part of life. With that in mind, our educational efforts need to normalize uncertainty (23). Given the limited evidence for many interventions in critical care, and the potential for iatrogenic harm, zentensivists are often intentionally passive.

TREADING LIGHTLY, BUT SWIFTLY

Minimally invasive critical care requires a balance of deliberate inaction paired with rapid yet measured activity in time-critical

situations. Overly invasive care has a tendency to beget more invasive care. Zentensivists favor the intervention with less harm and similar effect size, such as a well-placed peripheral line over a sterile central line. Invasiveness for the sake of “convenience” or “just in case” is minimized. Removing or avoiding devices, catheters, and sedation (24) is aggressively pursued whenever possible.

Rapid, targeted action is exemplified in situations such as prompt identification of septic shock and administration of antibiotics (25), expedient source control of infection or bleeding, and other time-sensitive “golden hour” interventions. Vasopressors, perhaps administered peripherally (26), and judicious use of fluids may prevent subsequent organ failures that would require more invasive critical care, such as mechanical ventilation or renal replacement therapy (27).

AVOIDING AND ALLEVIATING SUFFERING

The zentensivist framework appropriately concentrates care on the alleviation of suffering, whether the treatment plan has curative intent or not. Though there may be modest improvements in ICU outcomes over time, mortality rates will always be considerable. Proximity to death is the nature of our field. Clinician discomfort with this concept can affect how we make decisions regarding limitations of care, including provision of life support (28). Zentensivists practice “early goal-directed palliation” in cases in which ICU-level care is more likely to result in death or significant impairment (22). We also focus on prompt identification of patient goals of care, preferences, and values (29) so that we may avoid those fates that some may consider worse than death (30).

ESSENTIALISM

The modern ICU pairs a deluge of data with extraneous noise, both literal (31) (e.g, alarm fatigue or bloated electronic health records) and figurative (outcome measures set by governing bodies). These factors can

distract from the core set of interventions that have the largest impact on patient well-being. Clinicians must have the mental space to attend to lung-protective ventilation and the ABCDEF (Assess, Prevent, and Manage Pain, Both Spontaneous Awakening

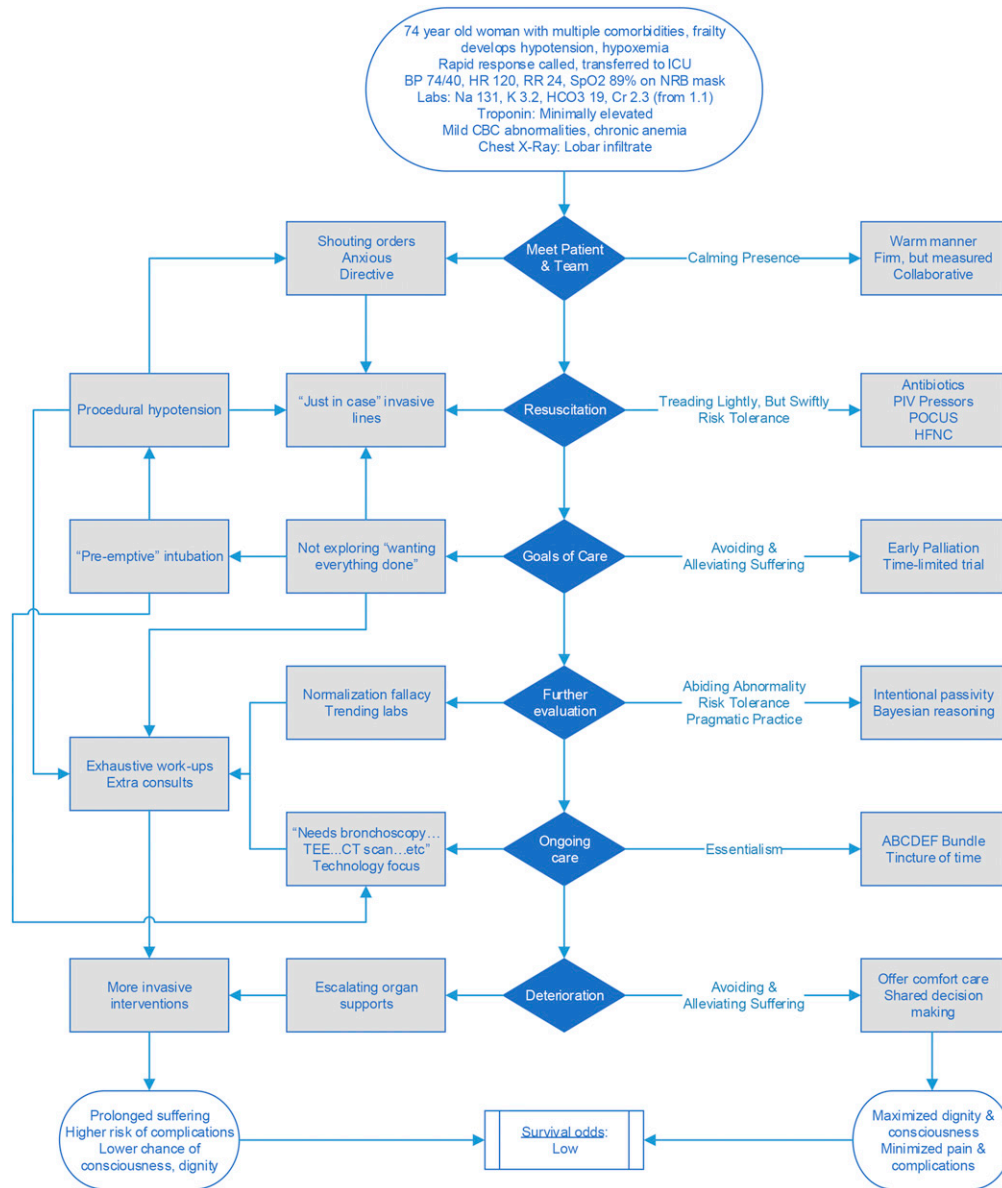


Figure 2. Example case showing differences in management when following zentivist principles (right side of diagram) compared with usual care (left side). Though the likelihood of survival may not differ significantly between the two paths, the invasiveness, humanity, and level of patient comfort may differ greatly. ABCDEF = Assess, Prevent, and Manage Pain, Both Spontaneous Awakening Trials (SAT) and Spontaneous Breathing Trials (SBT), Choice of Analgesia and Sedation, Delirium: Assess, Prevent, and Manage, Early Mobility and Exercise, and Family Engagement and Empowerment; BP = blood pressure; CBC = complete blood count; Cr = creatinine; CT = computed tomography; HFNC = high-flow nasal cannula; HR = heart rate; ICU = intensive care unit; NRB = non-rebreather mask; PIV = peripheral intravenous line; POCUS = point-of-care ultrasound exam; RR = respiratory rate; SpO2 = oxygen saturation by pulse oximetry; TEE = transesophageal echocardiography.

Trials [SAT] and Spontaneous Breathing Trials [SBT], Choice of Analgesia and Sedation, Delirium: Assess, Prevent, and Manage, Early Mobility and Exercise, and Family Engagement and Empowerment) bundle (32), practices that have large and measurable impact on outcomes important to us and, more importantly, patients. Zentensivists recognize and promote these interventions and avoid those that act as distractions. We emphasize care that limits the harm our patients are exposed to, focusing on liberating them from our environment.

THE WAY FORWARD: AN AGENDA FOR EDUCATION AND RESEARCH IN THE ART OF CRITICAL CARE

How can we create more clinicians and care units with the pragmatic, patient-centered focus described above? Many of the principles discussed require expert clinical reasoning skills, risk tolerance, and understanding of the potential short- and long-term effects of our interventions as well as base rate statistics. Though education on many of these topics may be increasing in undergraduate medical and allied health professional education, it is past time to model them at the bedside. Examples of ideal zentensivist behaviors versus more aggressive “usual care” are shown in the example case in Figure 2. We have the potential to undo reflexive interventionism on the part of those we educate (33), which can be enhanced by normalizing both uncertainty and thoughtful inaction by way of meta-cognition (18, 23).

Social media allows clinicians to share and learn the practice patterns of others,

creating informal educational and mentoring relationships that can expose them to new ways of thinking about old problems. These conversations allow us to reflect on our own practices and biases and ask, what is the minimally burdensome appropriate care I can provide to help patients recover? How aggressively can I liberate them from our interventions?

Many critical care trials focus on adding or intensifying interventions, especially medications or procedures. Deadoptio may be a better design and would also be more inclusive of resource limited settings and low- and middle-income countries. Pragmatic trials that are conducted efficiently will provide evidence of how care might be implemented outside of a research environment. They are also opportunities to explore our current practices in a way that focuses on subtraction of the unnecessary.

We must regain the balance that has been lost in critical care practice. We propose this balance is best achieved through embracing principles that focus our attention on high-impact interventions while minimizing suffering and maximizing humanity. We believe these tenets of zentensivism are essential to instill in future generations of critical care clinicians.

Acknowledgment

The authors thank Eleanor Sandon, B.A., for proofreading and critical review of this manuscript.

Author disclosures are available with the text of this article at www.atsjournals.org.

REFERENCES

1. McKeown G. *Essentialism: the disciplined pursuit of less*. 1st ed. New York, NY: Currency; 2014. p. 272.
2. @msiuba. Or the zen intensivist [posted 2019 Jun 21]. Available from: <https://twitter.com/msiuba/status/1142194850827243520>.

3. Fischer N. What is zen buddhism and how do you practice it? Lion's Roar. 2017 [accessed 2020 May 21]. Available from: <https://www.lionsroar.com/what-is-zen-buddhism-and-how-do-you-practice-it/>.
4. Sackett DL, Rosenberg WM, Gray JA, Haynes RB, Richardson WS. Evidence based medicine: what it is and what it isn't. *BMJ* 1996;312:71–72.
5. College of Intensive Care Medicine. What is an intensive care specialist? [accessed 2020 Jan 21]. Available from: <https://www.cicm.org.au/About/What-is-an-Intensive-Care-Specialist>.
6. Gopalratnam K, Forde IC, O'Connor JV, Kaufman DA. Less is more in the ICU: resuscitation, oxygenation and routine tests. *Semin Respir Crit Care Med* 2016;37:23–33.
7. Zampieri FG, Einav S. When will less monitoring and diagnostic testing benefit the patient more? *Intensive Care Med* 2019;45:1447–1450.
8. Prasad V, Cifu A. Medical reversal: why we must raise the bar before adopting new technologies. *Yale J Biol Med* 2011;84:471–478.
9. Stegenga J. Medical nihilism. Oxford, UK: Oxford University Press; 2018. p. 256.
10. Tonelli MR, Curtis JR, Guntupalli KK, Rubinfeld GD, Arroliga AC, Brochard L, *et al.*; ACCP/ATS/SCCM Working Group. An official multi-society statement: the role of clinical research results in the practice of critical care medicine. *Am J Respir Crit Care Med* 2012;185:1117–1124.
11. Aberegg SK, O'Brien JM Jr. The normalization heuristic: an untested hypothesis that may misguide medical decisions. *Med Hypotheses* 2009;72:745–748.
12. Hébert PC, Wells G, Blajchman MA, Marshall J, Martin C, Pagliarello G, *et al.* A multicenter, randomized, controlled clinical trial of transfusion requirements in critical care: transfusion requirements in Critical Care Investigators, Canadian Critical Care Trials Group. *N Engl J Med* 1999;340:409–417.
13. Holst LB, Haase N, Wetterslev J, Wernerman J, Guttormsen AB, Karlsson S, *et al.*; TRISS Trial Group; Scandinavian Critical Care Trials Group. Lower versus higher hemoglobin threshold for transfusion in septic shock. *N Engl J Med* 2014;371:1381–1391.
14. Young P, Saxena M, Bellomo R, Freebairn R, Hammond N, van Haren F, *et al.*; HEAT Investigators; Australian and New Zealand Intensive Care Society Clinical Trials Group. Acetaminophen for fever in critically ill patients with suspected infection. *N Engl J Med* 2015;373:2215–2224.
15. Finfer S, Chittock DR, Su SY, Blair D, Foster D, Dhingra V, *et al.*; NICE-SUGAR Study Investigators. Intensive versus conventional glucose control in critically ill patients. *N Engl J Med* 2009;360:1283–1297.
16. O'Croinin D, Ni Chonghaile M, Higgins B, Laffey JG. Bench-to-bedside review: permissive hypercapnia. *Crit Care* 2005;9:51–59.
17. Centor RM. To be a great physician, you must understand the whole story. *MedGenMed* 2007;9:59.
18. Keijzers G, Fatovich DM, Egerton-Warburton D, Cullen L, Scott IA, Glasziou P, *et al.* Deliberate clinical inertia: using meta-cognition to improve decision-making. *Emerg Med Australas* 2018;30:585–590.
19. Bazuin D, Cardon K. Creating healing intensive care unit environments: physical and psychological considerations in designing critical care areas. *Crit Care Nurs Q* 2011;34:259–267.
20. Wilson ME, Beesley S, Grow A, Rubin E, Hopkins RO, Hajizadeh N, *et al.* Humanizing the intensive care unit. *Crit Care* 2019;23:32.
21. Nussenblatt V, Avdic E, Berenholtz S, Daugherty E, Hadhazy E, Lipsett PA, *et al.* Ventilator-associated pneumonia: overdiagnosis and treatment are common in medical and surgical intensive care units. *Infect Control Hosp Epidemiol* 2014;35:278–284.

22. Choosing Wisely. Critical care societies collaborative: critical care [accessed 2020 Feb 8]. Available from: <http://www.choosingwisely.org/societies/critical-care-societies-collaborative-critical-care/>.
23. Simpkin AL, Schwartzstein RM. Tolerating uncertainty: the next medical revolution? *N Engl J Med* 2016;375:1713–1715.
24. Stephens RJ, Dettmer MR, Roberts BW, Ablordeppey E, Fowler SA, Kollef MH, *et al*. Practice patterns and outcomes associated with early sedation depth in mechanically ventilated patients: a systematic review and meta-analysis. *Crit Care Med* 2018;46:471–479.
25. Kumar A, Roberts D, Wood KE, Light B, Parrillo JE, Sharma S, *et al*. Duration of hypotension before initiation of effective antimicrobial therapy is the critical determinant of survival in human septic shock. *Crit Care Med* 2006;34:1589–1596.
26. Cardenas-Garcia J, Schaub KF, Belchikov YG, Narasimhan M, Koenig SJ, Mayo PH. Safety of peripheral intravenous administration of vasoactive medication. *J Hosp Med* 2015;10:581–585.
27. Douglas IS, Alapat PM, Corl KA, Exline MC, Forni LG, Holder AL, *et al*. Fluid response evaluation in sepsis hypotension and shock: a randomized clinical trial. *Chest* [online ahead of print] 27 Apr 2020; DOI: 10.1016/j.chest.2020.04.025.
28. Pickering BW, Gajic O, Ahmed A, Herasevich V, Keegan MT. Data utilization for medical decision making at the time of patient admission to ICU. *Crit Care Med* 2013;41:1502–1510.
29. Kon AA, Davidson JE, Morrison W, Danis M, White DB; American College of Critical Care Medicine; American Thoracic Society. Shared decision making in ICUs: an American College of Critical Care Medicine and American Thoracic Society policy statement. *Crit Care Med* 2016;44:188–201.
30. Rubin EB, Buehler AE, Halpern SD. States worse than death among hospitalized patients with serious illnesses. *JAMA Intern Med* 2016;176:1557–1559.
31. Darbyshire JL, Young JD. An investigation of sound levels on intensive care units with reference to the WHO guidelines. *Crit Care* 2013;17:R187.
32. Pun BT, Balas MC, Barnes-Daly MA, Thompson JL, Aldrich JM, Barr J, *et al*. Caring for critically ill patients with the ABCDEF bundle: results of the ICU liberation collaborative in over 15,000 adults. *Crit Care Med* 2019;47:3–14.
33. Dhaliwal G. Bringing high-value care to the inpatient teaching service. *JAMA Intern Med* 2014;174:1021–1022.
34. @msiuba. Need the help of #medtwitter! What words, phrases, or concepts come to mind when you hear the term #zentensivist, or #zentensive care unit? Reply with your answers – repeats are definitely ok (even encouraged)! Available from <https://twitter.com/msiuba/status/1207836661100482560?s=20>.