critical care canada FORUM

Editorial: ICU Resident Work Schedules Study

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Targets of Health Care Improvement

- Physicians, and the literature, emphasize the technical aspects of medical care
  - how to set ventilators, new drugs, etc.
  - but, in ICU medicine, and more generally, these have mainly produced only small-moderate incremental benefits

★ Equal or greater opportunities to improve the quality of care derive from improving the structures and processes by which we deliver it

- The organization of most ICUs is *not* the result of thoughtful planning driven by outcomes data, but rather reflects historical origins and subsequent growth by accretion

*The **Salient Fact** of Performance Improvement*

- Only 15% of errors and problems in complex organizations result from inadequate performance by individuals
- 85% of the opportunity for quality improvement relates to flaws in institutional systems and processes that hinder the ability of individuals to perform their jobs well
- So, we must alter the system itself (structures & processes) so that it becomes easy for people to do their job well, hard to forget things, make mistakes or otherwise perform poorly
- Every aspect of what we do and how we do it is a candidate for change -- every process, activity, function and structure

Deming, *Out of Crisis*. MIT Press, 1986; Juran, *Juran's Quality Handbook*. McGraw-Hill, 1998
Walton, *The Deming Management Method*, Perigee, 1986; Berwick, *Med Care* 27:763, 1989

Things That Can Be Changed

- The need for a function
- How a function is performed
- Which personnel perform a function
- Functional relationships between personnel
- How personnel communicate
- Existence, frequency, and nature of ICU rounds
- The role of equipment (e.g.computers)
- Interactions between personnel & equipment
- The administrative, medical, and functional structures of the ICU
- The administrative, medical, and functional structures of ICU personnel
- Rules governing responsibilities and practice privileges
- Training, skills, competence, knowledge & experience of personnel
- Scheduling of personnel, including shift, night & weekends
- Workload per worker
- Availability of supporting technology (e.g. computers, imaging)
- Choice of products used in the ICU
- Number of ICU beds
- Physical layout of the ICU
- Availability of intermediate care & ward beds
- Availability of outcomes data

Organizational Research

- Chris' study is a prime example of what we need for the future of this kind of research
  - *rigorously* investigate how to best structure ICUs and ICU care
  - identify the optimal way to do things in the ICU
- But most of the small literature on organizational aspects of ICU care are either analyses of observational data, or before vs. after studies
  - much easier than doing more rigorous studies, that are more likely to identify the truth
- It's a LOT of work to design and perform rigorous, high quality studies into aspects of organizational structure in health care

ICU Organizational Research: What's Needed

- Rigorous study designs
  - alternating schedules (on-off-on-off) instead of Pre/Post
- Multicenter designs -- in part because it's important to recognize that any organizational intervention may have different effects in:
  - different types of ICUs -- e.g. tertiary vs. community; medical vs. surgical; teaching vs. nonteaching
  - ICUs with differing baseline organizational structures -- e.g. staffed by PAs vs. not; ±ICU fellows on overnight call
- Assess multiple (sometimes numerous) outcomes
  - address effects on *all* the stakeholders: patients, families, staff physicians, nurses, house officers, the hospital, society

Final Thoughts

- Organizational research is “trickier” than studies on the technical aspects of care
- Organizational changes can be a double-edged sword
  - e.g. maybe 24-7 overnight intensivist coverage in ICUs will prove to improve patient outcomes -- but this may not serve the best interest of society if it increases physician burnout and leads to more of us leaving the field, and fewer entering it
  - this is why we must study the broad consequences of these changes
- Bottom Line:
  - we need MUCH more of this kind of research -- and much more funding for it
  - the field needs to move beyond simple study designs (e.g. before vs. after) and a simplistic view of relevant outcomes

We can't solve problems by using the same kind of thinking we used when we created them.

Albert Einstein