

PROCEEDINGS

Errors Conference: Executive Summary

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THE ARTICLES published here outline a daunting task, one that might take a generation, even given adequate funding and support. So that we are not paralyzed by the enormity of the job, priorities are selected and outlined here. Some additional topics and controversies are also highlighted here. Selected goals are proposed and general summary points are offered.

One difficulty that came up repeatedly during the conference, and shows in the work product, is the difficulty in distinguishing between errors and adverse events. Sometimes actions become "errors" only in retrospect. An action might appear entirely reasonable, but when an adverse outcome ensues, it is later identified as an error. For example, is all medical care that is proximally related to a death subject to criticism? After all, everyone will eventually die, and most deaths will occur in some proximity to medical care. To get beyond nonproductive debates would be to concentrate on improving patient safety by reducing adverse outcomes, and then worry later about to what extent they are due to error. This is elaborated upon in this issue of *AEM*.

The work group on defining and measuring error has outlined an ambitious scope. In the short term, it would be reasonable to set the following goals:

1. Accept the Institute of Medicine report¹ definition for case finding and identification. This promotes consistency, but does not preclude the parallel use of another definition if circumstances warrant.

2. Each institution should develop an investigative function, empowered to make system-wide im-

provements. It is recognized that this will take some time to develop fully. Additional expertise is required to perform these investigations effectively. This expertise may not be present in most institutions, and confidentiality concerns may make it difficult to use expertise from outside organizations. Despite these barriers, it is imperative to begin.

3. A major study should be undertaken to characterize errors and adverse events in the emergency department (ED) as well as to identify potential surrogate markers. Grant support for this undertaking should be sought.

The systems contribution work group reflects the participants' passionate beliefs that technical and support systems must be adequate in order to reliably reduce error. This speaks to a broader definition of "system." Continued analysis would reveal many more environmental influences. It is clear that systems factors have a strong impact on errors and adverse events. What is not clear is how these factors interact, both conceptually and in practice. We should also add an important caveat. Even at low patient volumes, with adequate resources, the incidence of error appears high. Even with twice the resources, errors would not likely diminish. Some achievable goals are noted:

1. Staffing levels. Adams has pointed out that historically "the ED is the only infinitely expandable part of the hospital" (Adams JG, personal communication, 2000). An initial priority should be the establishment of safe staffing levels for normal operations. While such standards will inevitably be exceeded on occasion, the presence of a standard allows institutions to know when boundaries are exceeded.

2. Standards for work hours are also reasonable. Medicine is alone among major industries in not having established maximum working hours and minimum rest times between work periods for normal operations.

3. Simplification and standardization of processes have been shown to reduce errors and improve quality, and could be implemented without having to wait for research results. For example, simplified dosing regimens for thrombolytics have been

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shown to lower complication rates,² but have not yet become standard.

The educational agenda work group offers a broad outline of educational needs, but as yet we do not specifically know what or how patient safety should be taught. It seems that didactic lectures and readings will not be sufficient to bring about the behavioral and cultural changes that are needed. Case-based methods, essentially the relation of meaningful stories, should be one of the primary educational methods. The role of simulation appears promising but will require considerable development, both of the technology and of an infrastructure, before it can be expected to have much impact. Short-term needs goals should include:

1. Development of a specific instructional curriculum aimed at emergency medicine (EM) residents. The SAEM Task Force on Patient Safety has begun this work and has identified as an immediate need the collection of case studies of errors and preventable adverse events to be used as instructional material.
2. Identification of a small set of core readings or didactic material used to supplement the learning cases is needed. This will help clarify the essential underlying principles of human performance and error reduction.
3. Education in the safety sciences aimed at building a community of emergency care teachers and researchers in patient safety should be attainable in the short term.

The research work group used an interesting analogy to public health and infectious disease to frame its work, while acknowledging the importance of individual case analysis. A public health model has the advantage of familiarity for emergency physicians, but has not been commonly used in safety research. It is not clear which research paradigm will be successful, or whether a single paradigm will be sufficient. The facilitators wisely point out that many research traditions should be evaluated. The issue of surveillance mechanisms is likely to be particularly problematic until confidentiality and non-discoverability are resolved. However, in the short term, several goals are reasonably attainable:

1. Examination of the effect of specific interventions on focused outcomes. For example, the effect of reducing provider distractions through technology, or information systems for direct order entry of medications, could be examined within a few years with appropriate support.
2. Similarly, a focused approach to the trade-off between reducing shift length and decreasing the number of hand-offs would seem amenable to a focused study.
3. An educational effort to develop qualitative

skills in research and case analysis from the “safety sciences” could produce a cadre of EM researchers to carry forward the more ambitious agenda within two to five years.

4. A comprehensive review of existing safety literature from other domains should be immediately undertaken. Many proven concepts could be adaptable for the emergency setting.

GENERAL SUMMARY POINTS

1. The exact rate of preventable adverse events in medicine in general, and in the ED in particular, is not known. It is possibly orders of magnitude higher than that in other complex and hazardous industries.
2. Emergency department workspaces are poorly designed, do not promote contact between patients and caregivers, and sometimes impede workflow and communication. The optimal model is not currently known.
3. Distractions of caregivers are frequent and should be minimized. However, there is a trade-off between minimizing interruptions and maintaining situational awareness. The optimal balance is unknown.
4. Greater attention should be paid to chronobiologic factors to minimize fatigue and stress. Short-term efforts could define safe working standards such as minimum number of hours away from work before another shift, maximum number of hours in a shift, maximum number of hours in a week, and minimum turnaround after night shift.
5. The ED is often a site of interpersonal conflicts that consume time, energy, and emotion. These conflicts can occur with staff, colleagues, consultants, patients, and families. Multidisciplinary institution-wide effort to improve conflict resolution techniques is needed.
6. Emergency department capacity is frequently exceeded and represents a crisis in many regions of the United States. Safe capacity and staffing levels need to be developed and disseminated to prevent a “race to the bottom,” producing unsafe staffing ratios.
7. Information systems can reduce error but have not been an unqualified success when introduced in other industries. Unintended consequences are common, and so information technology should be introduced slowly and in the context of an organized safety monitoring and improvement system.
8. Individual practitioners may be approaching or have exceeded the speed–accuracy trade-off under increasing production pressures. Efforts to improve throughput should emphasize process efficiency, not individual speed.
9. The “safety sciences” (cognitive psychology, human factors engineering, sociology, and organiza-

tion science) have much to offer in improving patient safety and should be better understood by educators, practitioners, and leaders of EDs.

10. Effective teamwork among caregivers can decrease certain types of errors.

11. Transfers and hand-offs of patients among caregivers should be minimized.

12. Ancillary services such as laboratory, radiology, and consultants directly impact the quality and efficiency of the work flow of the ED. It is mistaken to presume that these services are performed in relative isolation, that individually optimizing them will optimize ED care, or that relatively minor inefficiencies in these areas cannot produce relatively large inefficiencies in the ED.

13. Strong leadership, sustained advocacy, and constancy of purpose are required from the ED leadership and from the highest levels of health care organizations if we are to realize a sustained and meaningful reduction in adverse events.

14. Expertise in emergency care is relatively new and should not be taken for granted. Residency training for physicians, and ED training and experience for nurses are important to sustained

safety efforts. In particular, the use of floating nurses or untrained personnel to staff the ED seems likely to increase errors.

There are perhaps many more high-priority suggestions that can be put forth. It is imperative that efforts to reduce error in the ED be undertaken, and promoted by hospital, departmental, and national leaders. We look forward to rapidly expanding efforts to reduce error, and to produce increasingly high-quality research and sustained, vocal advocacy on the part of emergency caregivers. Efforts to reduce medical error are a professional responsibility and must remain at the forefront of our specialty's agenda.

Key words. errors; emergency department; adverse events; public health.

References

1. Kohn LT, Corrigan JM, Donaldson MS (eds). To Err Is Human: Building a Safer Health System. Report of the Institute of Medicine. Washington, DC: National Academy Press, 1999.
2. Richards CF, Cannon CP. Reducing medical errors: potential benefits of bolus thrombolytic agents. *Acad Emerg Med*. 2000; 7:1285-9.



Call for Nominations

Deadline: January 1, 2001

Nominations are sought for the Hal Jayne Academic Excellence Award and the Leadership Award. These awards will be presented during the SAEM Annual Business Meeting on May 8 in Atlanta. Nominations for honorary membership for those who have made exceptional contributions to emergency medicine are also sought. The Nominating Committee wishes to consider as many exceptional candidates as possible. Nominations may be submitted by the candidate or any SAEM member. Nominations should include a copy of the candidate's CV and a cover letter describing his/her qualifications. Nominations can be sent to saem@saem.org or 901 N. Washington Ave., Lansing, MI 48906 or via fax at 517-485-0801. The awards and criteria are described below:

Academic Excellence Award

The Hal Jayne Academic Excellence Award is presented to a member of SAEM who has made outstanding contributions to emergency medicine through research, education, and scholarly accomplishments. Candidates will be evaluated on their accomplishments in emergency medicine, including:

1. Teaching
 - A. Didactic/Bedside
 - B. Development of new techniques of instruction or instructional materials
 - C. Scholarly works
 - D. Presentations
 - E. Recognition or awards by students, residents, or peers
2. Research and Scholarly Accomplishments
 - A. Original research in peer-reviewed journals

- B. Other research publications (e.g., review articles, book chapters, editorials)
- C. Research support generated through grants and contracts
- D. Peer-reviewed research presentations
- E. Honors and awards

Leadership Award

The Leadership Award is presented to a member of SAEM who has demonstrated exceptional leadership in academic emergency medicine. Candidates will be evaluated on their leadership contributions including:

1. Emergency medicine organizations and publications.
2. Emergency medicine academic productivity.
3. Growth of academic emergency medicine.