



PRESENTATION

Practical Implications of Implementing Emergency Department Crowding Interventions: Summary of a Moderated Panel

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Abstract

Emergency department (ED) crowding continues to be a major public health problem in the United States and around the world. In June 2011, the *Academic Emergency Medicine* consensus conference focused on exploring interventions to alleviate ED crowding and to generate a series of research agendas on the topic. As part of the conference, a panel of leaders in the emergency care community shared their perspectives on emergency care, crowding, and some of the fundamental issues facing emergency care today. The panel participants included Drs. Bruce Siegel, Sandra Schneider, Peter Viccellio, and Randy Pilgrim. The panel was moderated by Dr. Jesse Pines. Dr. Siegel's comments focused on his work on Urgent Matters, which conducted two multihospital collaboratives related to improving ED crowding and disseminating results. Dr. Schneider focused on the future of ED crowding measures, the importance of improving our understanding of ED boarding and its implications, and the need for the specialty of emergency medicine (EM) to move beyond the discussion of unnecessary visits. Dr. Viccellio's comments focused on several areas, including the need for a clear message about unnecessary ED visits by the emergency care community and potential solutions to improve ED crowding. Finally, Dr. Pilgrim focused on the effect of effective leadership and management in crowding interventions and provided several examples of how these considerations directly affected the success or failure of well-constructed ED crowding interventions. This article describes each panelist's comments in detail.

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Emergency department (ED) crowding continues to be a major public health problem in the United States and around the world.¹ There is evidence that ED crowding is worsening, with increases in the numbers of ED visits, hospital closures over the past 20 years, and lengthening of waiting times, even for the critically ill.²⁻⁴ The human toll of ED crowding has been well documented with literature demonstrating

relationships between higher levels of crowding and poorer quality of care and outcomes.⁵

In June 2011, the *Academic Emergency Medicine* consensus conference was held in Boston, Massachusetts, and focused on exploring interventions to alleviate ED crowding, to generate a series of research agendas on the topic. The conference was funded by the Agency for Health Care Research and Quality (AHRQ) and the

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Robert Wood Johnson Foundation (RWJF). As part of the conference, there was a 1-hour panel of leaders in the emergency care community who shared their perspectives on emergency care, crowding, and some of the fundamental issues facing emergency care today.

The panel was moderated by Jesse M. Pines, MD, who was one of the conference co-chairs. Dr. Pines is the Director of the Center for Health Care Quality at George Washington University and an Associate Professor in the Departments of Emergency Medicine and Health Policy. Conference panelists included Randy Pilgrim, MD, Sandra Schneider, MD, Bruce Siegel, MD, and Peter Viccellio, MD. This article provides a summary of the content from the panel.

COMMENTS BY BRUCE SIEGEL, MD

Dr. Bruce Siegel is currently the Chief Executive Officer for the National Association of Public Hospitals and Health Systems in Washington, DC. Prior to that, Dr. Siegel had served as Research Professor and Principal Investigator for the Urgent Matters program at George Washington University, which is a project that has been continuously funded by the RWJF since 2002 to conduct research and disseminate best practices related to ED crowding and quality improvement.⁶ Urgent Matters has conducted two multihospital collaborations that aimed to implement interventions to improve throughput in the ED. The results of these initiatives are reported in RWJF materials as well as in the peer-reviewed literature.^{7,8}

The initial impetus for the Urgent Matters project was a focus on the role of the ED in the health care safety net. In 2000 and 2001, ED crowding became prominent in the media. Researchers and policymakers started to see ED crowding as an indicator of serious health care access issues in major parts of the country, particularly in the inner city. A 2002 issue of *Academic Emergency Medicine* presented a series of papers suggesting that ED crowding may be the “canary in the coal mine” for the safety net.⁹⁻¹¹

Early on, Urgent Matters also included a focus on quality measurement and improvement as tools to address long waiting times and other obstacles to timely emergency care. The concept of quality measurement as the first step in quality improvement was also just becoming more accepted as a general approach in hospitals. The logic was that focusing on throughput and output (and not simply input and demand) would allow hospitals to make meaningful improvements in flow despite continued external community pressures (e.g., many people turning to EDs due to a lack of alternatives). Several of the hospitals that participated in the Urgent Matters program made measurable improvements in flow. However, this work was hindered by two obstacles: a lack of standardized measures and a relatively thin evidence base on the comparative effectiveness of interventions. The problem has advanced considerably since the initial work of Urgent Matters, with the endorsement of throughput measures for the ED, which will be included in plans for pay-for-reporting by the Centers for Medicare and Medicaid Services. However, the issue of knowing

which interventions are most effective is still an open question.

Dr. Siegel pointed to the importance of understanding the effectiveness of crowding interventions by pointing out that the move to universal coverage in Massachusetts has actually increased the number of ED visits.¹² Over the coming years, through the Accountable Care Act, this experiment will be replicated on a national scale across communities where there is even less capacity to manage the care of the newly insured. The expectation is that millions will turn to EDs as the only access point for both primary and specialty care. The demand for ED services and the delays from crowding are likely to surge. Dr. Siegel finished his comments by reinforcing the need for real, documented, and rigorously tested solutions to improving ED throughput and reducing crowding.

COMMENTS BY SANDRA M. SCHNEIDER, MD

Dr. Sandra Schneider is the immediate past President of the American College of Emergency Physicians (ACEP) and is also a Professor in the Department of Emergency Medicine at the University of Rochester where she served as chair from 1993 to 2007. Dr. Schneider’s talk focused on the future of measurement in ED crowding on the national level. In the near future, as early as 2012 and 2013, Centers for Medicare and Medicaid Services will require hospitals to report on three measures: time from entry to the ED to discharge from the ED for treating and releasing patients, time from entry to the ED to leaving the ED for admitted patients, and time from decision to admit to leaving the ED for admitted patients.¹³ Median times will be reported. Although there are no current plans for these reports to determine reimbursement, these data will be reported to the hospitals and eventually to the public through hospital-compare.gov. Some of these measurements do allow for potential “game playing.” Specifically, measures that have intermediate time stamps, such as the decision to admit, can be subject to influence by hospitals that do not want their boarding numbers to appear too prolonged. However, the hope is that the public reporting of such times will apply pressure to improve performance on these throughput measures. She brought up the example of the pressure that has been exerted on EDs related to other performance measures, such as antibiotics within 4 hours for pneumonia.¹⁴

Dr. Schneider then expanded her comments to discuss ED boarding. From her perspective as the President of ACEP at the time of the conference, she has observed that while the emergency medicine (EM) community understands the relationship between boarding and patient safety, knowledge of this association outside of EM is lacking. Many still believe that crowding is related to “unnecessary visits” and that the ED is being flooded by the uninsured. It is important that future research distinguish between boarding and crowding and emphasize boarding when that is the primary factor causing the crowding. In addition, gaps exist in understanding the effects of boarding on our practice. She mentioned that an area that needs more exploration is the effects of boarding on lost revenue

and increased cost to the physicians and hospitals. Although it is known that there is an increase in adverse events when the ED is “crowded,” there is little evidence of the effect on the patients who are boarded (boarders without doctors). There is also a gap in our knowledge about why errors increase. Emerging evidence linking stress to patients waiting to be seen needs to be investigated.

Her comments moved to solutions and the fact there is little evidence supporting safe, effective alternatives. She also stressed the need to understand the effects of broad policy solutions, such as the UK 4-hour rule and explicit targets in other countries.¹⁵ Finally, the audience for research must expand. She urged taking the patient safety message to such venues as the American Society of Hospital Risk Managers, the National Patient Safety Foundation, the American Hospital Association, the American Association of Retired Persons, and others. Since no other specialty seems to have “unnecessary visits,” she opined that EM as a specialty may be doing ourselves a great disservice by suggesting our patients should not bring their business to our doors. What EM has is “uncompensated visits,” not “unnecessary” ones.

COMMENTS BY PETER VICCELLIO, MD

Dr. Peter Viccellio is Professor and Vice Chair of Emergency Medicine at SUNY-Stonybrook in New York. Dr. Viccellio began his comments with the issue of unnecessary visits. He commented that the emergency care community does not have a clear message about unnecessary visits—some use the words “unnecessary” when referring to what goes on in the ED, while others, like Dr. Schneider, think that applying necessity to health care is counterproductive because it does not consider the value of the visit to the individual. Instead of focusing on unnecessary visits, he thought that it would be more fruitful to communicate the evidence about high-users of EDs—who tend to be sicker patients—into the public consciousness.¹⁶ He suggested that further research needs to be done on the value and costs of emergency care, including the potential savings from admissions.

Next, Dr. Viccellio addressed ED crowding. He noted that the consequences of ED crowding are grave, including increasing mortality.¹⁷ When it comes to the measurement of quality and safety in the ED, crowding needs to be given much greater importance than it is currently. Certainly when the measures of ED flow are pushed out through hospitalcompare.gov, hospitals will need to focus more on solving their crowding issues. However, currently there are solutions to improve crowding. When hospitals do not address crowding, it is therefore not about the lack of a fix, but the failure to implement solutions.

Solutions can be divided into three categories. The first is improving flow in the ED, which can be done through reorganizing processes, implementing Lean health care principles, and eliminating bottlenecks. The second is to reduce the artificial variation in the demand for inpatient beds that causes boarding by implementing surgical schedule smoothing. The third is to smooth admissions and discharges on the inpatient

services. Specifically, this can be done by planning in advance so a patient can be discharged at 10AM, rather than 5PM, freeing up the bed for the next patient.

He then shared his opinions on the most constructive ways for the emergency care community to address issues of crowding. The mission and values of emergency care are much better advanced by focusing on patient safety and promoting workable solutions, rather than complaining about system failures and pitting emergency providers against other health care professionals. He finished his comments by discussing the future of quality improvement in the ED. Many studies have reported positive findings, demonstrating that interventions are associated with flow or quality improvement. However, there is a significant and inherent publication bias toward positive results. It is also unknown how best to sustain quality improvement over the long term.

COMMENTS BY RANDY PILGRIM, MD

Dr. Randy Pilgrim is the Chief Executive Officer and Chief Medical Officer for the Schumacher Group, which employs emergency physicians at 175 hospitals throughout the United States. His work offers a broad perspective on the practical application of current research on crowding interventions and may suggest research opportunities. Dr. Pilgrim notes that research to date has often focused on two principle domains: 1) process and system interventions and 2) structural interventions. Examples of process interventions include immediate bedding, physician-driven triage, rapid medical exam systems, and full-capacity protocols. These interventions change processes to optimize ED efficiency and expand patient care capacity. Structural interventions may include adding new bed space, restructuring existing space, or adding a radiology suite in the ED. Usually, the interventions themselves are fairly straightforward, and the analysis attempts to characterize the effects of these interventions in various settings.

From a practical perspective, however, Dr. Pilgrim has observed that the role of effective leadership and management in crowding interventions is critical and is often overlooked as a relevant factor. Ineffective leadership or inadequate management can significantly reduce the efficacy of otherwise well-designed, well-suited interventions. In fact, it can sometimes undermine the intervention altogether. Conversely, excellent leadership and effective management can produce exceptional results, even with interventions that produced modest results in similar settings. Dr. Pilgrim indicated that there is a notable potential for research in this area, with significant practical implications.

Dr. Pilgrim shared several illustrative examples from various settings, showing both successful and unsuccessful interventions. His first example was a 25,000 annual volume community hospital. Following a physical expansion of the ED, there was a marked increase in ED volume, creating a new ED crowding problem. Subsequent routine interventions (including rapid medical evaluation and immediate bedding processes) resulted in reduction of key crowding indicators (waiting times, left without treatment percentages, and total

length of stay). The real story, however, was that these interventions were previously attempted unsuccessfully in this facility and other similar facilities. Here, the difference was the medical director's strong leadership and management skills, driving change through an extensive process of creating a shared vision that touched not only the ED physicians, but all ED employees. This was done through individual employee interviews with a concurrent examination of personal and professional goals for each employee and for the department, which united them with a new vision for patient care, before any intervention was attempted. Buy-in, engagement, and mutual definitions of success were the critical factors behind the successful implementation of quality improvement in this ED. This excellent groundwork is also credited with long-term maintenance of these results, even with subsequent additional patient volume.

His second example was a 60,000 annual volume facility with a Level II trauma center, a rich array of specialties, a robust hospitalist program, innovative technologies, and good support from the proprietary health system. There was a 10-year process of repeated, well-intentioned attempts at interventions for ED crowding, including consultant reviews, fast-track implementation, additional consultant reviews (recommending the same intervention as previously attempted), rapid medical examination, immediate bedding processes, Lean training, Lean process interventions, and others. All interventions demonstrated only initial success at best, despite significant, high-level, and expensive approaches. The processes and systems were well-designed, if not exemplary, but ineffective leadership resulted in suboptimal management and poor coordination across the entire institution. There was an inadequate mutual vision or agreed-upon definition of success and minimal employee engagement and buy-in with misalignment of objectives. This often created an environment that prevented effective implementation or sustained results. As with the prior example, many of these factors can be clearly described, characterized, and evaluated, along with many of the other factors included in a study design. Often, however, they are overlooked.

The third example was a 35,000 volume urban facility that implemented relatively typical interventions designed to affect ED crowding, including enhanced midlevel staffing and moving triage into the department itself. These interventions had been attempted in other facilities with variable success. In this case, there was a dramatic difference in effect and results due to the leadership and management skills applied throughout the intervention. For example, there was an interdepartmental crowding work group created to discuss and strategize ED patient flow well in advance of the intervention's go-live date. Both hospital and ED leadership were involved before, during, and after the interventions were implemented. The crowding reduction objectives were integrated with hospital-wide objectives for patient care (satisfaction, waiting times, and quality). In addition to reductions in left-without-treatment percentages and total length of stay, patient satisfaction increased, and boarding times decreased as well.

What Dr. Pilgrim has learned from these and other practical experiences is that there are additional opportunities to evaluate the probability of success, the effect, and the efficacy of crowding interventions. While "effective leadership and management" is sometimes regarded as an elusive and variable set of qualitative factors, Dr. Pilgrim believes that there is a discrete set of behaviors, skills, and team results that can be clearly characterized, that are repeatable, and that commonly serve as either catalysts for change, or if absent, may prevent change altogether. Failure to incorporate such factors may over- or underrepresent the effectiveness of certain interventions. Using knowledge and methods from other disciplines, the impact of effective leadership and management can be understood and meaningfully integrated with the structure, process, and system changes that are commonly the focus of crowding intervention studies. Furthermore, expanding research to include these and related disciplines will be essential in advising change in health care delivery systems. Without this, research on crowding interventions will be limited and may be poorly generalizable when it comes to proposing that one particular intervention is truly more effective than another.

References

1. Institute of Medicine. IOM Report: The Future of Emergency Care in the United States Health System. *Acad Emerg Med.* 2006; 13:1081–5.
2. Pitts SR, Niska RW, Xu J, Burt CW. National Hospital Ambulatory Medical Care Survey: 2006 emergency department summary. *Natl Health Stat Report.* 2008; 7:1–38.
3. Hsia RY, Kellermann AL, Shen YC. Factors associated with closures of emergency departments in the United States. *JAMA.* 2011; 305:1978–85.
4. Wilper AP, Woolhandler S, Lasser KE, et al. Waits to see an emergency department physician: U.S. trends and predictors, 1997–2004. *Health Aff (Millwood).* 2008; 27:w84–95.
5. Bernstein SL, Aronsky D, Duseja R, et al. The effect of emergency department crowding on clinically oriented outcomes. *Acad Emerg Med.* 2009; 16:1–10.
6. McClelland M, Lazar D, Sears V, Wilson M, Siegel B, Pines JM. The past, present, and future of Urgent Matters: lessons learned from a decade of emergency department flow improvement. *Acad Emerg Med.* 2011; 18:1392–1399.
7. McClelland M, Jones K, Siegel B, Pines JM. The benefit and burden of emergency department time-based quality measures. *Ann Emerg Med.* 2011 Aug 24. [Epub ahead of print].
8. Robert Wood Johnson Foundation. Urgent Matters. Available at: <http://www.urgentmatters.org/>. Accessed Sep 12, 2011.
9. Henry M. Overcrowding in America's emergency departments: inpatient wards replace emergency care. *Acad Emerg Med.* 2001; 8:188–9.
10. Viccellio P. Emergency department overcrowding: an action plan. *Acad Emerg Med.* 2001; 8:185–7.

11. Derlet R, Richards J, Kravitz R. Frequent overcrowding in U.S. emergency departments. *Acad Emerg Med.* 2001; 8:151–5.
 12. Smulowitz PB, Lipton R, Wharam JF, et al. Emergency department utilization after the implementation of Massachusetts health reform. *Ann Emerg Med.* 2011; 58:225–34.
 13. Center for Medicare and Medicaid Services, Media Affairs. Proposals for Improving Quality of Care During Inpatient Stays in Acute Care Hospitals in the Fiscal Year 2011 Notice of Proposed Rulemaking. Available at: http://www.cms.gov/acuteinpatientpps/downloads/FSQ09_IPLTCH11_NPRM041910.pdf. Accessed Sep 7, 2011.
 14. Pines JM, Hollander JE, Datner EM, Metlay JP. Pay for performance for antibiotic timing in pneumonia: caveat emptor. *Jt Comm J Qual Patient Saf.* 2006; 32:531–5.
 15. Weber EJ, Mason S, Carter A, Hew RL. Emptying the corridors of shame: organizational lessons from England's 4-hour emergency throughput target. *Ann Emerg Med.* 2011; 57:79–88.
 16. Pines JM, Asplin BR, Kaji AH, et al. Frequent users of emergency department services: gaps in knowledge and a proposed research agenda. *Acad Emerg Med.* 2011; 18:e64–9.
 17. Chalfin DB, Trzeciak S, Likourezos A, Baumann BM, Dellinger RP; DELAY-ED Study Group. Impact of delayed transfer of critically ill patients from the emergency department to the intensive care unit. *Crit Care Med.* 2007; 35:1477–83.
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