The National Emergency Care Enterprise: Advancing Care Through Collaboration: Workshop Summary

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Ben Wheatley, Rapporteur; Board on Health Care Services; Institute of Medicine

NATIONAL EMERGENCY CARE ENTERPRISE

ADVANCING CARE THROUGH COLLABORATION

Workshop Summary

Ben Wheatley, *Rapporteur*

Board on Health Care Services

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"Knowing is not enough; we must apply.
Willing is not enough; we must do."
—Goethe

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This report has been reviewed in draft form by individuals chosen for their diverse perspectives and technical expertise, in accordance with procedures approved by the National Research Council's Report Review Committee. The purpose of this independent review is to provide candid and critical comments that will assist the institution in making its published report as sound as possible and to ensure that the report meets institutional standards for objectivity, evidence, and responsiveness to the study charge. The review comments and draft manuscript remain confidential to protect the integrity of the process. We wish to thank the following individuals for their review of this report:

ROBERT R. BASS, Executive Director, Maryland Institute for Emergency Medical Services Systems
GARY FLEISHER, Egan Family Foundation Professor; Pediatrician-in-Chief; Chair of Department of Medicine, Children's Hospital of Boston
LEWIS GOLDFRANK, Director of Emergency Medicine, New York University School of Medicine
RICARDO MARTINEZ, Executive President of Medical Affairs, The Schumacher Group

Although the reviewers listed above have provided many constructive comments and suggestions, they were not asked to endorse the final draft of the report before its release. The review of this report was overseen by **MEGAN McHUGH,** Health Research and Educational Trust. Appointed

by the Institute of Medicine, she was responsible for making certain that an independent examination of this report was carried out in accordance with institutional procedures and that all review comments were carefully considered. Responsibility for the final content of this report rests entirely with the author and the institution.

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Overview

In 2006, the Institute of Medicine (IOM) released a series of three reports on the Future of Emergency Care in the United States Health System. These reports contained recommendations that called on the federal government and private stakeholders to initiate changes aimed at improving the emergency care system. Three years later, in May 2009, the IOM convened a workshop to examine the progress to date in achieving these objectives, and to help assess priorities for future action.

One of the central recommendations of the IOM reports was that the federal government should more effectively coordinate the many emergency care-related activities that are now dispersed among various federal departments and agencies. Federal coordination of *prehospital* emergency care was already advancing through the Federal Interagency Committee on Emergency Medical Services (FICEMS). Following the release of the IOM reports, the Department of Health and Human Services (HHS) created the Emergency Care Coordination Center (ECCC) within the Office of the Assistant Secretary for Preparedness and Response (ASPR) to coordinate federal activities relating to hospital-based emergency care.

Together, ECCC and FICEMS have established the "National Emergency Care Enterprise," a collaborative construct that covers the entire spectrum of emergency care, including prehospital, in-hospital, intensive care, surgery, and posthospital placement. The formal embodiment of this collaboration is the Council of Emergency Medical Care, which promotes information exchange and joint problem solving across the various federal agencies.

The May 2009 workshop was convened to bring stakeholders and policy makers together to discuss which among the many challenges facing

emergency care are most amenable to coordinated federal action. Its objectives were threefold:

1. Foster information exchange among federal officials involved in advancing emergency care and key stakeholder groups from around the country.
2. Identify policy areas that are of great and immediate concern to stakeholders and federal policy makers.
3. Hold discussions with federal partners regarding the policy and programmatic areas that should be the focus of coordinated federal action.

In attendance were policy makers from the various federal agencies involved in emergency care, state and local officials, and stakeholders from the health care provider community. These included thought leaders from a wide range of relevant disciplines, including nursing, emergency medical services (EMS), specialist physicians and surgeons, public health officers, and hospital and health system administrators.

The 2-day workshop was structured to emphasize interactive discussion among panelists and participants. Rather than giving long lectures, each panelist provided a 5-minute opening statement, accompanied by a single PowerPoint slide that summarized his or her key points. Following these presentations, the session chair opened the floor for discussion. This process ensured that attendees were actively engaged throughout the 2-day workshop. It also stimulated a number of rich interactive exchanges. These are captured in the chapters that follow.

Chapter 1 of this report contains the opening introduction by workshop chair Dr. Arthur Kellermann, followed by a keynote address by Dr. Jeff Runge. These are followed by presentations from three federal officials—Michael Handrigan (HHS/ASPR), Drew Dawson (Department of Transportation/National Highway Traffic Safety Administration), and Dan Kavanaugh (HHS/Health Resources and Services Administration), who detailed the federal progress in achieving the IOM recommendations set forth in 2006. A more detailed account of each agency's activities, addressing each report recommendation in detail, is contained in Appendix C.

Chapter 2 captures a facilitated interactive exchange among the members of the audience. These participants brought their personal insights and expertise to the table. The interactions that followed covered a wide range of topic areas related to emergency care. The focus of this discussion was the impact of federal policies on emergency care providers at the community level.

Chapters 3–6 detail the four panel sessions. Each was focused on a critical topic in emergency care. These included quality and patient safety, emergency care research, health professions training, and emergency care eco-

nomics. Finally, Chapter 7 summarizes the final interactive discussion among the workshop participants and the federal partners, exploring the topic areas that the federal government should focus on most immediately.

The workshop was sponsored by the ECCC, the newly formed federal lead agency within HHS, with additional support provided by the American College of Emergency Physicians and the Society for Academic Emergency Medicine.

A NOTE ON DEFINITIONS

The terms "emergency medical services (EMS)" and "emergency care" are sometimes ambiguous. In this summary, EMS is used to denote prehospital EMS only, although some participants quoted in the text use it to mean the broader emergency care system.

Several speakers (notably the trauma surgeons) used the term "emergency care," but specified that they were not referring only to emergency medicine, the specialty, but more broadly, as in trauma and emergency care. As described in the 2006 series of IOM reports, "emergency care" also includes care of patients immediately after they leave the emergency department, including trauma surgery and postoperative critical care. Participants sometimes referenced this as "the big emergency care."

Also, the terms "emergency room (ER)" and "emergency department (ED)" are often used by different people to reference the same thing. The IOM uses the term ED, but many speakers at the workshop (especially the hospital administrators) preferred the term ER, and that is reflected in the text.

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Federal Progress Reports: Advancing Emergency and Trauma Care

WORKSHOP OVERVIEW

Arthur Kellermann, the workshop chair and an original member of the Institute of Medicine (IOM) Committee on the Future of Emergency Care in the United States Health Care System, started the day's discussions with a brief description of the five most central recommendations from the IOM reports. The first of these, he said, was that the health care system should end the practices of boarding and emergency medical services (EMS) diversion. Second, emergency care should be regionalized. (This was to be the subject of a subsequent IOM workshop in September 2009.) Third, a lead federal agency should be designated with responsibility for advancing emergency care. He said a single entity is needed to coordinate and create synergies, eliminate confusion, and promote a more efficient allocation of federal resources. Fourth, pediatric emergency care should be strengthened (as was detailed in one of the three committee reports). Fifth, the organization and funding of emergency care research should be improved.

In the past 3 years, Kellermann observed, the three reports had a tremendous impact on the public and on policy makers. He cited several developments to back up this claim. The goal of this workshop, he said, is to provide an opportunity to revisit the committee's recommendations, assess the progress that has been made in achieving the committee's overall vision, and consider where the federal partners might focus their efforts going forward.

KEYNOTE ADDRESS

The workshop's keynote speaker was Dr. Jeff Runge, former assistant secretary for health affairs at the Department of Homeland Security (DHS), former administrator of the National Highway Traffic Safety Administration (NHTSA), and now president of Biologue, Inc. Dr. Runge commented that he had high hopes for the three IOM reports on emergency care when they were released in 2006, but he acknowledged that the fundamental changes called for in the reports take time to achieve. He criticized the original committee for proposing so many recommendations, and noted that fully implementing them will require substantial cultural change.

To get a sense of who was in the audience, Runge asked the participants to raise their hands and identify themselves as practitioners of emergency care or policy makers. More than half responded that they were practitioners. He also asked the audience members to indicate if they had ever been a patient in an emergency department, or had a family member who was a patient. The vast majority of hands went up.

Runge then asked the audience to assess how we, as a community, are doing in advancing the cultural change envisioned by the IOM reports. He identified a series of topic areas that grouped together the IOM recommendations and asked the audience to assign a letter grade (A, B, C, or F) to each area based on a show of hands. The topic areas included the following:

- Operational efficiency (e.g., reducing boarding and ambulance diversion)
- Information technology
- The burden of uncompensated care
- Emergency care workforce (e.g., availability of on-call specialists)
- Research in emergency care
- Emergency care for children (e.g., defining pediatric competencies)
- Pediatric safety
- Emergency care funding
- Payment for medical care without transport
- Air medical services
- National standards for training and credentialing (e.g., accept national certification as a prerequisite of state licensure; common scopes of practice across states)
- Disaster preparedness

In virtually every case the majority of hands indicated a low letter grade, typically a C or an F.

In discussing an overall grade, Runge pointed out that a number of key indicators have not shown any improvement in the past 3 years. For example, he said that EMS diversion has not ended or even improved. There

are still over half a million ambulance diversions per year. The "boarding" of admitted patients in emergency department (ED) treatment spaces has not been appreciably reduced. Fewer specialists than ever are willing to take an emergency call. Furthermore, the numerous problems associated with the Emergency Medical Treatment and Active Labor Act (EMTALA)—the federal law mandating that hospital emergency departments care for all in need without regard for their ability to pay—have not changed.

Runge remarked that in many cases, IOM reports instigate change by catalyzing a reaction that has already begun to take place. The problem in the case of the emergency care reports, he said, was that there was very little chemical reaction going on at the time of their release, and it is very difficult to catalyze something without reagents.

What is needed, Runge said, is a more well-defined plan for change—one that includes not just assignments, but also timelines, dedicated funding, and perhaps most importantly, leadership. Someone must be in charge of making change happen. The IOM reports provide the outlines of a plan, Runge argued, but they do not fulfill these requirements.

Runge shared a story about the White House Homeland Security Council's efforts to create a national strategy for pandemic influenza during the Bush Administration. He said that the Council, along with representatives of the relevant departments and agencies, developed a large implementation plan with hundreds of tasks assigned to the federal agencies, states, and many others. This produced a plan that was thicker than a New York City phone book. At that point, a planning expert from the military was brought in to review the effort. She pointed out that North Atlantic Treaty Organization's (NATO's) strategic plan to defend Europe was only about 25–30 pages long. Therefore, Runge asserted, you don't need a lengthy plan to prepare for a challenge—just a simple, workable, prioritized plan that is based on sound methodology.

Runge challenged the audience to identify the person whose "day job" it is to promote the needed cultural change in emergency care. Good plans are based on a commander's intent, and for that a commander is needed. The plan then needs to identify the players and the capabilities required to execute the mission. It must identify the required actions and assign roles and responsibilities for executing those actions, along with time lines. Finally, each role and responsibility needs to have a budget attached to it. Ongoing, everyday funding is required, Runge said. "You can't grant your way out of this problem."

Runge said he examined all the recommendations contained in the IOM reports and listed who had been tasked with responsibility. He found that the hospital-based emergency care report contained 19 different objectives with 35 tasks. The EMS report contained 17 unique objectives and 33 tasks. The pediatric report contained 12 different objectives and 31 tasks. Overall,

the three reports contained 99 different tasks assigned to many different actors, including the Department of Health and Human Services (HHS), Department of Transportation (DOT), DHS, Department of Defense, Congress, the states, hospitals, EMS agencies, the Joint Commission, professional associations, educational institutions, industry, and many others.

These tasks and objectives can be divided into various categories, such as reimbursement, curriculum design, standards, performance indicators, state legislation, changes in medical and EMS practice, hospital operations, and competitive cooperation among disparate and usually fighting groups. He commented that each one of these topics is massive and could be considered someone's life work, even if they worked full time to accomplish it. Thus these tasks need to be prioritized. He recommended a triage process to identify those recommendations that will yield the greatest bang for the buck. He conceded, however, that this will require consensus among stakeholders, which can be difficult to achieve.

The most acute needs in emergency care, he said, include leadership at the highest levels of the executive branch. The President needs to know and acknowledge that the emergency care system warrants attention. In addition, he said, the issue needs champions in both houses of Congress and on both sides of the aisle. In addition, economists must be engaged, because no change will occur without cost/benefit analyses.

Ultimately, Runge said, cultural change will come about when all the people who have been a patient in an emergency department, or who have accompanied friends and family members there, demand that the system be strengthened.

Runge closed by noting another obstacle to progress: the current culture among emergency care personnel to "suck it up" and get the job done, no matter what. When the ED's hallways fill up and patient loads increase to unmanageable levels, when prehospital personnel are forced to respond to one call after the other, emergency care personnel tend to work harder and somehow get the job done. But by doing so, he noted, they enable the rest of the health care system to ignore the problem. Now, he said, "It's time to cry uncle."

FEDERAL PROGRESS REPORTS

Following the keynote address, three federal officials—Michael Handrigan (HHS/Office of the Assistant Secretary for Preparedness and Response [ASPR]), Drew Dawson (DOT/NHTSA), and Dan Kavanaugh (HHS/Health Resources and Services Administration [HRSA])—provided updates on efforts to improve emergency care within their departments and agencies. These presentations corresponded with the three IOM reports. Handrigan provided an update on progress toward achieving the recommen-

dations of the hospital-based emergency care report, Dawson detailed activities pertaining to the recommendations in the EMS report, and Kavanaugh described progress toward achieving the pediatric report's recommendations. The federal activities reported by the speakers are detailed in Appendix C.

Handrigan, acting director of the new Emergency Care Coordination Center (ECCC) within ASPR, led off the discussion. He said that the process of reevaluating the recommendations from the 2006 IOM reports would help the federal partners in focusing their agenda and policies. He expressed hope that the workshop would facilitate the crafting of a realistic and achievable plan.

Handrigan cited several positive developments that addressed recommendations set forth by the IOM in 2006. He noted, for example, that the creation of the ECCC, which received its charter in January 2009, is a direct federal answer to the IOM's call for a federal lead agency (Recommendation 3.6). The establishment of the Council on Emergency Medical Care (CEMC), which he chairs, brings together partners from all levels of government and a range of subject-matter and policy experts to coordinate the federal agenda on emergency care. One function of this group is also to examine performance indicators, a goal set forth by the IOM in Recommendation 3.3.

In other areas, Handrigan said, little has been achieved to date. For example, Recommendation 2.1 stated that Congress should establish dedicated funding, separate from Medicaid Disproportionate Share payments, to reimburse hospitals that provide significant amounts of uncompensated emergency and trauma care. Although there has been some legislation that pertains to a very small number of states, Handrigan said, "I would propose that this recommendation has gone unanswered today." (See Appendix C for additional updates.)

Dawson, director of the Office of Emergency Medical Services at NHTSA, noted that the National Emergency Care Enterprise consists of a hospital-based component (the primary focus of the ECCC) and a prehospital component, which is the primary focus of NHTSA and the Federal Interagency Committee on Emergency Medical Services (FICEMS). FICEMS is mandated by the DOT reauthorization statute. It provides a focal point for the coordination of EMS activities in the federal government. FICEMS was created by Congress and is jointly convened by the Secretaries of DOT, HHS, and DHS. NHTSA provides primary administrative support.

Some of FICEMS' priorities include submission of an annual report to Congress, EMS data standardization and collection, EMS disaster preparedness assessment and needs, EMS research funding review, and supporting improvements in medical oversight. NHTSA has produced two annual reports to FICEMS on the progress federal agencies have made in

implementing the 2006 IOM report, as well as identifying opportunities for future collaboration.

Dawson highlighted two activities that substantially relate to the emergency care enterprise and address IOM report recommendations. First, he said, the National EMS Advisory Council (NEMSAC) now provides an opportunity for nonfederal players to come together across a broad spectrum of emergency medical services and provide input to the DOT and FICEMS. Second, the National Emergency Medical Services Information System (NEMSIS) is central to addressing many of the recommendations contained in the IOM report. NEMSIS includes a national uniform XML standard dataset and a national EMS database that currently contains approximately 6 million patient records from across the United States. Currently, 16 states submit records to this database. Development of NEMSIS dataset version 3.0 is under way. It will ensure its integration with electronic health records meeting HL7 standards.

Finally, Dawson reported that excellent progress has been made on the IOM recommendation concerning the development of evidence-based protocols for the treatment, triage, and transport of out-of-hospital patients. He said that NHTSA, along with FICEMS and NEMSAC, have committed to establishing an evidence-based guideline development process to translate new discoveries into EMS practice. A consensus-building meeting was held in September 2008 to solicit input from the national EMS community and to provide national and international perspectives on the guideline development process. Rather than produce a static set of protocols, the conference has proposed a mechanism for ongoing review of evidence and its translation into practice.

A one-page Draft National Model for EMS Evidence-Based Guidelines Development outlines how this process might work. Data and research will enter the process, along with current guidelines. This evidence will be appraised and graded recommendations will be developed based on the strength of the evidence. Eventually, practice standards may be adjusted through a variety of mechanisms. The Emergency Medical Services for Children (EMS-C) program has already pilot-tested a portion of this model, focusing on prehospital management of pediatric seizures. Updates on other recommendations contained in the IOM EMS report are contained in Appendix C.

Kavanaugh, senior program manager for the EMS-C program at the Maternal and Child Health Bureau of HRSA, described a number of recent activities related to improved pediatric research. He noted that last year, the National Institutes of Health released Program Announcement Review 08-261, which centers on research on emergency medical services for children. It invites the submission of applications focusing on research in the following areas: prevention research to reduce the need for emergency care;

clinical research to ensure children receive high-quality and appropriate medical, nursing, and mental health care in an emergency; health systems research from prehospital care to the emergency department to in-patient care and the return to the community; models to improve service and cost efficiency in pediatric emergency care; and studies to improve the quality of the research conducted.

Kavanaugh also noted that HRSA's EMS-C program funds the Pediatric Emergency Care Applied Research Network (PECARN). He said that since the release of the IOM report, EMS-C's support for PECARN has increased by about 30 percent. HRSA primarily funds PECARN's infrastructure. It also provides some funding for pilot studies. The Network must secure the direct costs it needs to conduct major projects from research agencies.

The EMS-C program also supports the National EMS-C Data Analysis Resource Center. This center helps EMS-C grantees and state EMS offices develop their capabilities to collect, analyze, and use EMS data to improve the delivery of emergency and trauma care.

To examine a detailed summary of federal progress toward achieving the 2006 IOM report recommendations, see Appendix C.

AUDIENCE DISCUSSION

Following the federal partner presentations, audience members had an opportunity to pose questions and to make additional comments. Ricardo Martinez, an emergency physician and former NHTSA Administrator, said he learned a valuable lesson while working in the federal government: the need to have a champion backing your cause. Then he asked, "Where are the champions for emergency care in Congress?" He noted that the House turns over every 2 years. On the Senate side, he said, one Senator can make something happen or completely stop it. He said one strategy should be to identify people to rally around in Congress.

Art Kellermann was asked to identify some of the champions now in Congress. He complimented the work of several members, including Senator Daniel Inouye (D-HI), who has been a champion for EMS-C for many years; Rep. Henry Waxman (D-CA), who held hearings during his brief tenure on the Oversight Committee; Senators Richard Burr (R-NC) and Edward Kennedy (D-MA) for shepherding the Pandemic and All Hazards Preparedness Act through Congress; and others such as Reps. Pete Sessions (R-TX) and Bart Gordon (D-TN), who have worked to advance legislation through the House of Representatives. Although there are champions for emergency care in Congress, the issues we are discussing today clearly need more attention and focus, he said.

Sandy Schneider from the University of Rochester and a member of the board of the American College of Emergency Physicians (ACEP) said that

one of the central recommendations from the IOM reports was to end the practice of boarding in hospitals. Yet, she said, she did not detect a lot of movement in this area from the federal agencies. She said that at this point, hospitals do not seem interested in doing anything about the problem. She challenged the panel to identify the best strategy, in terms of a federal response, to end boarding.

Handrigan noted that the Government Accountability Office (GAO) had issued a previous report on ED crowding in 2003 and is about to release a new one. Handrigan said the new report will conclude that crowding was bad then and is worse now. He thought this would be a prime opportunity to push the agenda to the forefront and ask for answers from federal partners. (Editorial note: the report has since been released. It is entitled *Hospital Emergency Departments: Crowding Continues to Occur, and Some Patients Wait Longer Than Recommended Time Frames, GAO-09-347*, 2009).

Dawson said this issue has become a high priority for the Technical Working Group of FICEMS and for FICEMS as a whole. He said it had also been discussed at the Council on Emergency Medical Care (CEMC), and that it is probably an area where they can work together.

Susan Nedza of the American Medical Association, and formerly the CMS medical director for the Midwest Region, said that research priorities seem to focus on inputs at the first level of care, but issues pertaining to interfacility transfers should probably receive more attention. Cases where one facility has stabilized a patient but cannot arrange needed transfer to another facility raise questions about whether some networks have adequate capacity for regionalization.

Charlotte Yeh responded that Carolyn Clancy, director of the Agency for Healthcare Research and Quality, has assembled a task force to look at the issue of interfacility transfers and specifically the need for additional research in that area.

Handrigan added that "research agendas are not hard to find; everybody has one." He said the principal mission for the ECCC is to look at all the federal agencies that are engaging in research activities, figure out where the overlaps and gaps are, and help the agencies devise a more coordinated research direction, if not an agenda. He said that the ECCC, CEMC, and FICEMS are tackling this issue together.

Alex Valadka, a neurosurgeon from Texas, agreed that interfacility transfers are a huge issue. From his point of view, many patients are transferred unnecessarily. He argued that better telecommunications, teleradiology, and communication with outlying facilities could avoid situations in which tertiary care hospitals fill up with people who don't need to be there, blocking access to care for more severe cases.

Tom Scalea, physician-in-chief from the Shock Trauma Center in Baltimore, Maryland, said that some of the areas where we have made the

least progress since 2006 relate to tasks assigned to professional societies. Presumably, he said, that is because these recommendations do not advance the specialties' particular agendas. He asked what political muscle exists or should exist to cajole the professional societies into playing ball and helping these recommendations move forward.

Dawson replied that the NHTSA has always gone about its business by actively involving professional associations in the decision-making process, so they feel they are part and parcel of the process. He said, "We [NHTSA] treat topics not as regulatory issues, but as issues we are working on together."

Kavanaugh said the EMS-C program has partnerships with stakeholders' groups reflecting the broad spectrum of emergency care. Many professional organizations have representatives who are invaluable in terms of providing input to the program to ensure that it is responsive to the needs of the field. These organizations have always had a role in setting the direction of the EMS-C program, he said.

Developing public–private partnerships is important, Handrigan said. The federal government cannot tell professional societies what to do, and the professional societies cannot tell the federal government where to spend money. But there are instances where both sides can work together. One example, he said, occurred 2 weeks ago when the threat of a flu pandemic first emerged. The ECCC reached out to ACEP and together they quickly developed a project to provide guidance to the clinical community about how to manage a sustained surge of flu patients. He noted that public–private partnerships can help bring professional societies to the table in a productive way to work with federal partners.

REFERENCE

GAO (Government Accountability Office). 2009. *Hospital Emergency Departments: Crowding Continues to Occur, and Some Patients Wait Longer Than Recommended Time Frames. GAO-09-347*. Washington, DC: Government Printing Office.

2

How Federal Policy Affects Emergency Care at the Community Level

The workshop's second full session began with a presentation from Linda McCaig of the National Center for Health Statistics (NCHS). She briefly presented emergency department (ED)-level estimates from the 2007 National Hospital Ambulatory Medical Care Survey. This survey provides nationally representative estimates on ED visits and EDs on an annual basis. In 2007, the NCHS added questions to the hospital survey based on the 2006 Institute of Medicine (IOM) report, in order to assess changes in ED crowding, she said.

One survey question asks whether hospitals have an inpatient bed czar. Fifty-one percent of all EDs said they do (71 percent of all large EDs and 34 percent of small EDs). The survey also asked whether the ED had an observation or clinical decision unit. Overall, 36 percent did, including 54 percent of the large EDs and only about one third of the small and medium-sized EDs. The survey also examined a list of items that had been named in the IOM report about optimizing ED efficiency, McCaig said. The survey found that 66 percent of all EDs have bedside registration, 40 percent have computer-assisted triage, and 35 percent have zone nursing.

With respect to boarding, 63 percent of all EDs acknowledged that admitted ED patients often wait more than 2 hours for an in-patient bed. The figure was 87 percent among large EDs and 39 percent for small EDs. This is notable because big EDs provide a large majority of total ED visits in the United States.

Finally, the survey attempted to track rates of ambulance diversion. It asked, "What is the total number of hours that your ED was on diversion during the past year?" The first year this question was added, nearly all

hospitals answered it. This is how the NCHS produced its estimate that U.S. hospitals diverted more than 500,000 ambulances in 2003. Since then, McCaig said, high nonresponse rates for this particular survey item have precluded the NCHS from updating its estimate. As a result, the NCHS cannot determine whether diversions are increasing or decreasing in frequency.

GENERAL AUDIENCE DISCUSSION

Following the opening presentation, Mary Jagim, client engagement manager for Intelligent InSites and 2006 IOM committee member, facilitated a general discussion of how federal policy affects emergency care at the community level. This was the first opportunity for the audience to engage each other. Jagim asked audience members to consider the role that the federal trauma program, administered for many years by the Health Resources and Services Administration (HRSA), played in establishing and maintaining state and local trauma programs.

Robert Bass, executive director of Maryland's state emergency medical services (EMS) agency, said the HRSA program had an impact in a couple different ways. First, it helped states that had not been able to get trauma systems up and running. It provided a small amount of funding, but this was sufficient for states to hire someone to run the program, begin to collect data, and provide a forum for trauma-related activities. Second, in those states that had functioning trauma systems, the federal program helped them to mature. These states were able to develop statewide bypass protocols, conduct additional data analysis, and perform other functions. However, Bass noted that since the HRSA program was eliminated 3 years ago, progress has stopped.

Nels Sanddal, of the Critical Illness and Trauma Foundation and a technical consultant to the American College of Surgeons (ACS) Trauma System Planning and Evaluation Committee, said that even though only about $40,000 a year was going out to certain states to assist with trauma system planning and development, many states had been able to hire a part-time, or in some cases, a full-time staff member with that money. Trauma surgeon Jerry Jurkovich, with the American Association for Surgery and Trauma, added that this was the person whose job it was to see the trauma system-building effort through to the end. Sanddal said the absence of those HRSA funds, and more importantly the loss of structured leadership at the state level, has hurt trauma efforts substantially. Finally, Sanddal noted that the termination of HRSA's program meant the loss of two technical assistance centers devoted to trauma system planning and development nationwide.

John Fildes, chief of the Division of Trauma & Critical Care at the University of Nevada School of Medicine and chair of the Committee on

Trauma (COT), said that when the HRSA program was shut down, it created a complete vacuum of coordinated national leadership. In an effort to fill the gap, the ACS increased efforts and became what he described as "a surrogate for any sort of national coordination of injury care." He said that ACS-COT fielded questions from state agencies, counties, cities, individual hospitals, and even individual practitioners, nurses, and prehospital personnel. The ACS instituted verification programming, professional standard setting, quality projects, and the development of quality-based metrics using trauma registry, similar to what the United Network for Organ Sharing does for transplants.

However, Fildes acknowledged there are limits to what a professional organization can do. First, he pointed out that their work on this has been "funded on the backs of dues-paying members." Plus, stakeholder groups have limited authority. "We just don't have the clout, and we can't get everyone to sing from the same playbook," Fildes said. If the ACS were to develop a template or blueprint for a trauma system model, "Who is going to say that from state-to-state or county-to-county or city-to-city, that this is the template or blueprint that must be applied?" Moreover, who would fund the incentive payments necessary to encourage other systems to apply it?

Sanddal noted that the model trauma planning and evaluation document was produced as one of the last acts of the federal HRSA program. But without a champion to promote it, the kind of engaged dialogue that is needed with public health colleagues hasn't taken place. Susan Nedza of the American Medical Association said that one of the more unfortunate things that has happened, even beyond the loss of funding, is that there has been a loss of leadership needed to integrate EMS and public health at the federal level.

Bass, from Maryland, noted the responsibilities taken on by the National Association of State EMS Officials (NASEMSO) following the elimination of the federal HRSA program. "It came to us, this vacuum out there," Bass said. In response, NASEMSO now hosts the Council of State Trauma Coordinators.

THE ROLE OF GOVERNMENTS AND LOCAL PROVIDERS

Dia Gainor, state EMS director from Idaho, said that the U.S. Constitution specifies that unless the federal government is specifically tasked with a responsibility, then that responsibility is left to the states. This has resulted in tremendous disparities across the country. On the other hand, she noted that the federal government does not always place the right requirements on states. For example, we need to "stop the ridiculousness of focusing on planning for 'The Big One'," Gainor said. In her role as state regulator of EMS systems, she has to plan for events that may require care of up

to 500 patients, when in reality, the current system there cannot handle 50 patients, she said.

Keynote speaker Jeff Runge said one reason we are always preparing for The Big One is because of where the federal lead agency for emergency care has been placed on the government's organizational chart. He observed that the IOM recommendation for the federal government to establish a lead agency was originally assigned to Congress, but the Emergency Care Coordination Center (ECCC) actually came into existence through an executive branch order: Homeland Security Presidential Directive-21. This lead agency "has a toehold in the federal government, but there is no indentation in the rock for the fingers right now," Runge said. The agency is currently located in the Office of the Assistant Secretary for Preparedness and Response, "separated well away from the Secretary or anybody else who has a legislative agenda." He urged Congress to push this lead agency higher up the department's organizational chart.

Runge noted that the original vision of the IOM was that this lead agency would be responsible for coordinating all emergency care funding. "This was probably a bridge too far," he said. The only person in government who has that level of responsibility right now is the director of national intelligence (DNI). In the current federal structure, he said, the Secretary of Homeland Security cannot say how the U.S. Department of Health and Human Services spends its disaster funds.

Although the final shape of this federal emergency care structure is unclear, legislative efforts continue to move forward. Adrienne Roberts, senior manager for legislative affairs at the American Association of Neurological Surgeons, noted that a number of legislative activities are under way at the congressional level. These include overall health system reform efforts, as well as legislation from Sens. Patty Murray (D-WA) and Jack Reed (D-RI) that would provide authorization language for ECCC regarding emergency care regionalization. That program is included in President Obama's FY 2010 budget.

Aside from these federal activities, several participants emphasized the importance of state and local responsibilities. Sanddal said many of the problems confronting emergency care systems need to be fixed at a regional level with state leadership. Nedza added, "This really is about communities, especially when you talk about regionalization." Ron Anderson, president and chief executive officer at Parkland Health & Hospital System in Dallas, said, "Frankly, when you talk about the national trauma anything, I am a little suspect, because most of this is local. It really depends upon the hospital and the hospital's willingness to be a communitarian and meet that community's needs."

Anderson does not believe his hospital has been influenced much by developments at the federal level, although he does acknowledge experi-

encing a "lack of coordination and a lack of regionalization, particularly in times of disaster." He pointed out that "We pulled together for Katrina and Hurricane Ike. We took care of 30,000 evacuees. . . . In challenging times, everybody pulls together and does it, but there really isn't the kind of coordinated planning that we need across state borders, across governmental borders, with Mexico, and that sort of thing." Many problems experienced at the level of day-to-day emergency care are local responsibilities, he said. For example, Anderson highlighted staffing issues. He said that many Dallas hospitals, such as boutique, physician-owned hospitals, have abrogated their public responsibility by recruiting physicians with a promise that they will never have to provide on-call services. This means fewer physicians are now available in the local area to take trauma and emergency calls. In addition, some of these hospital emergency departments have made themselves less accessible by moving to the suburbs. He said, "You can't find their ER anymore. It's like a speakeasy."

Alex Valadka, a neurosurgeon from Texas, said that many of these issues, such as boarding, EMS diversion, difficulty with interhospital transfers, and limited access to specialists, are really the hospitals' problems. The concepts of regionalizing care, coordination of call, and sharing resources will be driven by hospitals, he said.

Ricardo Martinez, former administrator of the National Highway Traffic Safety Administration and now executive vice president of The Schumacher Group, has worked with more than 100 hospitals in rural areas and bigger cities. He said he knows of surgeons who go off call when there is a patient in the ER who has abdominal pain, but no insurance. They immediately go back on call once the patient is transferred elsewhere. He knows surgeons who are giving up their privileges to be able to handle chest tubes. That way, after an ED physician puts a chest tube in, the patient must be transferred to a different facility (see also Chapter 5 regarding specialization). Martinez said these limitations in on-call availability result in overtransfers, a practice Anderson bluntly described as "patient dumping."

Martinez has begun an effort to develop more constructive relationships among some of the tertiary referral centers and the rural facilities in their network. They have held dinners to get people to talk to each other. In these meetings, he observed, "There is a lot of anger and a lot of miscommunication and (even) a lot of lying, which leads to discussion. When you have the discussion, you start finding out that what we are trying to create is dialogue." Martinez's organization is now looking at establishing a connected network in which telemedicine technology will enable more patients to be cared for locally with information transmitted from tertiary hospitals.

Anderson was among the people involved in writing the original Emergency Medical Treatment and Active Labor Act (EMTALA) regulations. The Act was intended to protect patients against dumping, but, he said, "It's

a double-edged sword now." Once people learned how to create institutions that are exempt from EMTALA provisions, they can dump legally. In response to Jagim's question about the role of the federal government in this situation, Anderson replied that one of the worst things his hospital has to deal with is a local problem—hospitals not taking calls in their specialty. He said we need to deal with the issue of whether hospitals should be allowed to opt out and not truly be a 24/7 operation. Allowing the marketplace to decide will result in decisions we won't like. Instead, he said, "This [emergency care] ought to be treated like a utility."

Jurkovich argued that crowded emergency departments should be viewed as local problems. "If your ER is crowded because you have too many private cardiac surgery patients who are taking up the beds, that is not a national problem, that is a local problem," he said. He described a local solution to the problem of intoxicated patients, who were regularly dumped on safety net facilities. Rather than allowing matters to reach the point where the safety net hospital might refuse to accept these patients, the local private hospitals pooled their resources to fund a "detox unit," staffed by a nurse practitioner or a physician assistant. Intoxicated patients spend up to 8 hours there, and if they remain sick, they are taken to the emergency room. Jurkovich said the funding for the unit was contributed by all hospitals in the city, not just the safety net hospital. They all agreed to it because they did not want to take these patients themselves, he said.

Anderson said, "I think we ought to do everything we can to provide an alternative to the emergency room, because that is where we get bogged down. When I have got all these people waiting in the emergency room, crowding the place up, the really sick patients get misplaced, and occasionally we make a mis-triage."

However, Angela Gardener of the American College of Emergency Physicians said, "One of our biggest problems is the prevailing belief in this town [Washington] that if we just got people out of the ER, our problems would be solved. I am here to tell you, that isn't the case." She said some influential members of Congress believe that half of the care in the emergency departments belongs in primary care settings. But Gardener said that, according to the Centers for Disease Control and Prevention, the figure is only 12 percent. However, Anderson said he recalled research he had done back in the mid-1990s that found that, at that time, 43 percent of ED visits nationwide could be managed or prevented with better access to primary care.

INTERNATIONAL APPROACHES TO ED CROWDING

Runge noted that while the industrial managers and architects say that "form follows function," the reality is that "form follows finance." Jesse

Pines from the University of Pennsylvania agreed, adding that the problems of boarding and on-call coverage are due to the current payment system, which favors elective patients over emergency patients (see Chapter 6). This contributes to a situation in which we spend nearly $8,000 per person per year on health care, yet experience shortages of resources, Pines said. Many other countries, including Australia, England, and New Zealand, have decided that ED patients will spend a limited amount of time in the emergency department, he observed. Hospital administrators in England have actually lost their jobs over failing to meet this standard. He called on the U.S. government to implement stringent requirements for how long patients will be allowed to spend in the ED.

Dr. Jon Mark Hirshon of the University of Maryland noted that England and Canada simply do not accept boarding. Hospitals in England operate under a funding mechanism that specifies that the patient must be out of the ED within 4 hours. He said that the Centers for Medicare & Medicaid Services could drive improvements by requiring hospitals to keep track of how long people wait in the ED and by decreasing reimbursements in cases when the wait times are too long.

Jagim said the community ministry of health in British Columbia, Canada, has implemented a pay-for-performance system for EDs. They use the Canadian triage acuity scale, which assigns a target length of stay to patients based on their acuity. For example, if a 2-hour stay is targeted, hospitals will receive $100 if the care is completed within this amount of time. One hospital in British Columbia that has been particularly effective in this pay-for-performance system took half the revenue from these payments and invested it in programs to enhance their throughput capabilities. They used the other half to provide care in the community and help prevent patients from needing to come to the ED in the first place.

Handrigan observed that pay-for-performance in the United States typically provides only a marginal increase in payment. He questioned how substantial payments would need to be to produce significant investments, either in in-house resources or community programs.

Sandra Schneider, emergency physician from the University of Rochester, said different countries have used different incentives. England has put a fair amount of money into the effort. Ireland, however, simply relied on public reporting of hospital performance. Within about a year, Schneider remarked, all hospitals there had come up to the new standard. Australia has also put some money put into its system, she said, but public reporting in the newspaper drove the improvements. If the United States tried to implement a time limit as these other countries have done, some emergency physicians believe they will never be able to meet it because of the time needed to work up patients and discharge them from the ED. However, Schneider believes that if such a rule were implemented in the United States, it would align

emergency physicians with the hospitals, allowing them to fix systems that are now broken and meet the same time constraints other countries have.

Anderson of Parkland in Dallas noted that hospitals with residency programs will soon be required to start releasing people in 4 hours, or 8 hours if they are admitted upstairs. He said these criteria will be imposed by residency review committees. Most hospitals do not meet those criteria today, but these training groups will act as regulators and instruct hospitals on what they have to do, regardless of the public payors.

TRAUMA SYSTEM SUPPORT

Many states have struggled with obtaining financial support for their trauma systems. Tom Scalea, from the University of Maryland Medical Center, noted that Maryland has had an organized trauma system for almost 40 years and one secret to its success has been the ability to establish linkages between the emergency and trauma care systems. The state has a trauma network of nine centers and they have close relationships with all of the EMS agencies, the Maryland Fire and Rescue Institute, and all of the prehospital provider networks. Together, these constitute an enormously powerful lobby. Every time they have gone to the state for additional funding because the system is at risk, the people of Maryland have responded, he said. For example, this year after a emergency rescue helicopter crashed, these groups launched an effective lobbying campaign and the state decided to allocate an additional $50 million for new helicopters.

Idaho offers a stark contrast, Gainor said. She said that Idaho is in the abysmal situation of having legislative language that specifically prohibits the state from developing a trauma system. Without intervention from the federal government, Gainor said, this situation will continue.

Georgia has also faced difficulties raising revenue for its trauma system. Workshop chair Arthur Kellermann said this was partly because of the paradox of professionalism, or what Runge described in Chapter 1 as the "suck it up" phenomenon. Kellermann recalled a meeting several years ago in which a member of Congress advised a roomful of emergency physicians that "You are your own worst enemies, because you keep pulling it off. You do whatever you need to do to take care of the patient in front of you." This year, for the second year in a row, despite overwhelming public support, overwhelming votes in both chambers, and the putative support of the state's leadership, Georgia's General Assembly failed to pass a bill to fund a trauma care network in the state, Kellermann said. "Basically, they dared the hospitals and the existing system to fall apart, which it will not do, because we will suck it up the best we can."

The Congressman Kellermann quoted had praised the political will of a handful of orthopedic surgeons in Las Vegas. When they refused to take

call, the hospital shut down its trauma center, precipitating a statewide crisis that forced the legislature to deal with the problem.

Nevada trauma surgeon John Fildes responded that when this incident happened, the state's trauma system was falling apart. The medical community was holding it together with duct tape and baling wire. But Nevada surgeons and physicians are not shy, he said, and they decided they would not be enablers. "As a discipline, we have been codependent and enabling, and we have allowed people to push us around, thereby permitting bad care to be given to our patients," Fildes said.

Roger Lewis of Harbor–UCLA Medical Center noted the close association between trauma care and general emergency care in the public's perception. He said that a voter-backed initiative in California to increase the local sales tax to support the trauma system had passed, bolstering that part of the system. However, the people who are really suffering don't have serious traumatic injuries, Lewis observed. They have medical diseases, minor injuries, social problems, and other undefined illnesses. Those are the people who have to wait and suffer, he said. The association between general emergency care and the trauma system has been both a blessing and a curse. It is a blessing in the sense that many hospitals stay afloat because they are recognized as major providers of trauma care. On the other hand, he said, after California's sales tax increase was approved, his emergency department was still crowded. A number of his patients were heard to say, "I thought we fixed this." Their assumption was that if the trauma center was supported, the hospital emergency department would also flow well. That has clearly not been the case.

Finally, Jagim asked where the federal government could direct its money to make the biggest impact in terms of trauma and EMS systems. Trauma surgeon Jurkovich said there is a need to examine emergency and trauma care systems to determine what works, what does not work, and which models are most effective, then use the money to propagate effective models. He said that that would be a very helpful use for a modest amount of federal dollars.

Valadka of Texas said he and neurosurgery colleagues in Seattle had conducted an unofficial survey of people in other major cities to determine what had worked in their local areas to improve emergency care. What they found was that every place was truly unique and the solutions were all over the map. So he recommends focusing on developing solutions that work locally. Nevertheless, he said, that is exactly why we need roundtables where everyone talks to each other. That way, people can identify ways to work together and go forward.

3

Quality and Patient Safety

Chapters 3–6 capture the discussions from four panel sessions. Each focuses on a central theme in emergency care. The first of these sessions, on quality and patient safety, was chaired by Dr. Michael Rapp, director of the quality measurement and health assessment group at the Centers for Medicare & Medicaid Services (CMS). Rapp said that quality measurement is a tool the federal government has applied broadly to assess health care. It is also the basis for strategies involving pay for performance, including CMS's plan to pay more for higher quality dialysis services within the next 2 years. In addition, CMS has used quality measures to implement a five-star rating system for nursing homes. Rapp encouraged the audience to consider how this may be used to address additional quality challenges.

IMPROVING ED CROWDING AND PATIENT FLOW

Ron Anderson, president and chief executive officer (CEO) of Parkland Health & Hospital System in Dallas, began the panel discussion by describing a comprehensive effort Parkland had undertaken to address emergency department (ED) crowding and patient flow. He observed that instigating a cultural change at the hospital had been the most important ingredient for success. Other floors of the hospital had had an "out of sight, out of mind" mindset regarding ED crowding, so Parkland implemented a multidisciplinary solution that instituted shared ownership of ED outcomes. This involved revised performance indicators and quality management as well as direct financial incentives.

The hospital gave its ED faculty the right to admit patients upstairs,

and to "push people upstairs if necessary." They also created a red and yellow alert system to expedite discharges. In addition, Parkland established 11 community clinics to provide medical homes for patients and encourage them to seek primary care in places other than the ED. This has resulted in decreased ED use and has saved hundreds of thousands of dollars in neonatal intensive care unit costs as a result of increased prenatal care, Anderson said. However, the clinics themselves still lose $2 million per year per clinic.

To further reduce workload within the ED, the hospital incentivized radiology, pathology, consultative services, "and everybody else" to stop working up patients there. This had become common practice because it is easier to obtain diagnostic tests in the ED than in other parts of the hospital. Parkland also adopted a "pod system" from Detroit Receiving Hospital to increase productivity. Faculty M.D. supervisory time was increased from 68 to 96 hours/day.

The hospital's goal is to reduce dwell times for patients going home to 4 hours, and 8 hours for those who are admitted. However, Anderson said they would need additional capacity, probably 200 more beds, in order to achieve the latter objective.

Anderson characterized Parkland's reform effort as systematic and multidimensional. It did not just involve the ED staff, because "[ED crowding] has got to be owned by everybody." The key is to have the right expectations, set them from the top, and then hold people accountable, including top executives. These tools have allowed them to change what they believed was a very good ED into an even better ED.

REGIONALIZATION AND QUALITY HEALTH CARE

Susan Nedza, vice president of clinical quality and patient safety at the American Medical Association (AMA), said the purpose of regionalization is to improve the quality, safety, and efficiency of care provided in communities. However, this approach has its trade-offs. Regionalization is typically framed in terms of specific disease states, such as stroke. However, focusing only on stroke patients—or on trauma patients—means that other types of patients, such as the elderly woman with undifferentiated disease sitting in the ED waiting room, will not receive the same level of attention. Nedza said we need to think more broadly in terms of community health priorities because these are sometimes different than acute health priorities.

Nedza observed that acute care providers typically focus on individual patients when making decisions about resource allocation. But she said there are also broader considerations that involve the health of the whole community. For example, ambulance bypass protocols that direct heart patients to select hospitals may improve quality for individual patients (for those patients who reach the hospital), but have a negative impact on the

surrounding hospitals, which may see a drop in admissions and revenue. As volume drops in these facilities, patients in the future may not have access to adequate infrastructure to meet their needs.

As measurement organizations have created—and CMS has adopted—performance indicators to measure door-to-needle times in select tertiary care hospitals, community hospitals with limited resources have less incentive to handle patients who walk in with an acute myocardial infarction and other measured conditions.

Nedza observed that patients are sometimes transferred because there is no on-call M.D. to help them at the transferring hospital. During her tenure as a regional chief medical officer for CMS, she encountered instances when on-call services were tenuous. In downstate Illinois, for example, she visited an area where two neurologists, both nearing retirement age, were covering an extended geographic area. At one facility in Northern Wisconsin, one invasive cardiologist working on a visa was serving a multicounty area. In addition, the physician workforce is making career choices to become more subspecialized. Ultimately, this will decrease the availability of needed specialties in many communities (see Chapter 5). To improve access, issues of physician supply and demand must be recognized and addressed, she said, adding that these must be reflected in quality measures and incentives.

TRAUMA SYSTEM EVALUATIONS

John Fildes, chair of the American College of Surgeons (ACS) Committee on Trauma, discussed the U.S. trauma system. He said trauma systems follow a disease-specific model that includes everything from public education and prevention to access to emergency and resuscitative care, operative care, critical care, in-patient care, and on through either long-term care or rehabilitation, then return to home, work, and family. The trauma model, he said, has been a successful example of regionalized care. It has become a model for treatment of other diseases, such as stroke and acute myocardial infarction. Fildes said that the vast majority of Americans believe that if they are severely injured, they will be taken to a designated Level One trauma center within 20 minutes of their home. However, only 80 percent of the United States is within an hour of a trauma system. The ACS Committee on Trauma has helped to foster the development of trauma systems across the country. Although there are examples of exceptional systems, great disparities among states remain with respect to the laws on the books, what kind of staffing is present, and what kind of authority is in place. Strong leadership at the state level is essential, he asserted.

Fildes reported that an ACS-designated trauma systems committee is starting to map the country by visiting states and conducting trauma systems evaluations. Evaluation teams assess whether facilities have the resources

they need to provide adequate care, and whether patients receive the care they should. If they do not, facilities do not get verified, which means they are not allowed to be part of the trauma system. Fildes said trauma systems do not have to undergo evaluation every 3 or 4 years, like most other care processes do. In some states, verification is a one-time event. In recent years a sophisticated metrics-based approach to monitoring care has been under development. Fildes helped to create the system that allows the National EMS Information System (NEMSIS) and the national trauma data standard to interact. Commercial products using wireless technology can now transmit emergency medical services (EMS) data to trauma centers, allowing trauma center staff to begin populating an acute care record before the patient arrives. The system also allows EMS providers to learn their patient's outcome.

The data are aggregated at the national level using a 50-element dataset, Fildes said. This system has collected millions of patient records for those treated in U.S. trauma centers. The dataset captures injuries, services received, and cost of care. This information has been used to support the trauma quality improvement project, which provides risk-adjusted comparisons of patient outcomes at individual centers and within various cities, counties, states, and the country as a whole.

STANDARDIZING QUALITY IN EMS

Dia Gainor, bureau chief of EMS for the state of Idaho and past president of the National Association of State Emergency Medical Services Officials, said there is no universal culture of quality in EMS. She acknowledged there have been various projects and initiatives in this area, most notably the NEMSIS project which "catapults us into a new way of thinking about capturing and using data." But, she said, the fact is that "when we move from one state to the next, or from one local EMS agency to the next, there is really no standard of quality that you can find that is pervasive throughout the system." Adopting private-sector techniques to improve quality and productivity, such as those used in the manufacturing sector, would be helpful, Gainor said. She said that these strategies should be adopted on a wholesale basis by EMS, and perhaps by emergency care as a whole. Federal initiatives to assist states and localities have been important, helpful, well timed, and modestly funded in some cases, Gainor noted. But they rarely address the highest priority topic in any given state. Moreover, the various federal activities are not always in sync with each other. As a result, the federal partners provide a somewhat tattered patchwork to the states.

Gainor said the first priority should be the safety of those providing care or transportation. The safety of the patient is a close second. "I think that we have largely failed, especially in the prehospital sector, to put the safety of EMS personnel first and foremost," she remarked.

States have a significant and established role in the direct regulation of prehospital and, often, interfacility transport, Gainor continued, going back nearly 40 years in some cases. However, we have not moved ourselves away from quality checks that involve mere checklists of equipment and a head count of licensed personnel. EMS needs to adopt methods to ensure that quality is inherent in every practice that is undertaken by every individual EMS provider and agency, she said.

EMERGENCY CARE AS A HEALTH SYSTEM BAROMETER

Charlotte Yeh, chief medical officer of AARP Services Inc. and former regional administrator for CMS, believes that emergency care is a barometer for the overall effectiveness of the health care system. "We are the window into whether the health care system is working or not," Yeh said. She asserted that whether one is focused on pharmacological adherence, care coordination, care management, caregiver support, trauma, fall prevention, or any other topic in health care, the emergency department has the data within it to indicate how well the health care system is performing. Consequently, the ED should be seen not just as the safety net for the health care system, but its vital signs.

Yeh emphasized that seniors make up a sizable proportion of the patients seen in emergency departments. For this reason, Yeh emphasized, they are impacted more than any other population group by boarding and overcrowding. Nationally, 46 percent of all emergency department admissions are covered by Medicare admissions. In Massachusetts, the figure is 56 percent.

In Massachusetts, Yeh said, if you look at the top 25 diagnosis-related groups in terms of margin, they are all elective admissions that involve procedures such as knee replacements, hip replacements, and cardiac interventions. They do not enter the hospital through the ED. This is why, she believes, hospitals have no financial incentive to resolve ED overcrowding because direct admissions compete for beds and pay a higher profit margin (see Chapter 6). She cited a study that showed that when hospitals go on diversion, their net revenue increases. Yeh reported that, since January, Massachusetts has completely banned ambulance diversion statewide. The consensus is that the policy is working. Hospitals have stood up to the challenge and realized ED crowding is a problem for the entire hospital, not just the ED.

Yeh's presentation also highlighted the impact that mental health patients have on hospital emergency departments. In addition to seniors, mental health patients are "the other silent story," she said. In her experience with Massachusetts hospitals, although only 5 percent of ED patients have primarily mental health problems, they represent 30 percent of occupancy in the emergency department. The biggest reason is that few hospitals have

sufficient in-patient beds for mental health patients and the few regional centers are full. So if a patient is too risky to discharge, but no bed is available, he or she may be held in the ED for days at a time. As a result, mental health patients' length of stay in the ED is about twice the mean of any other diagnoses. This is especially relevant for hospitals now that mental health parity is being implemented.

WHAT IS QUALITY?

Dr. Ramon Johnson, an emergency physician practicing in Southern California, said that after 25 years of practicing emergency medicine, he's still not exactly sure what quality is. But, he said, "You know it when you see it." He likes to measure quality by what he calls the Aunt Bessy Test: What would be best for Aunt Bessy? For example, it's probably better not to make her sit in the ED for hours on end, waiting for an in-patient bed.

Johnson said that, when measuring quality, we tend to focus on measures such as whether antibiotics were prescribed within 4 hours to patients with pneumonia. That focus, he said, drives emergency care providers to order chest X-rays and start antibiotics on everybody who comes to the triage desk. This has driven up the cost of care for patients—even for those who didn't need it, he said. In some cases we will find the diagnosis of pneumonia in patients who never had pneumonia, just because we are trying to meet a quality benchmark. Enacting a statewide ban on boarding more than 4 hours in the ED would be the best way to improve quality, Johnson said.

FINDING QUALITY BY CONNECTING THE LINKS OF THE CHAIN

The AMA's Nedza described a cultural issue surrounding quality measurement that must be overcome: Medical providers often do not want to be measured on what happens to a patient after the patient has left their control. Efforts to design quality measures for emergency medicine have at times been hampered by well-founded concerns about not being the one who is responsible for what happens to patients after they leave the ED, she said. However, emergency medicine is practiced by teams, and measurement needs to be team- or community-based. "The connectivity for quality has to be outside of our department," she said. Taking an example from her own career, she noted, "I thought quality care for an AAA [abdominal aortic aneurysm] was to get into the operating room." But later she found out that the majority of patients who had an AAA rupture outside the retroperitoneum did not survive to discharge or did not return to health or independence. This raised the difficult issue of how to define quality across

an episode of care and how to hold everyone responsible for outcomes. She concluded that we need better ways to link up what happens to patients after the emergent care has been provided in order to know what constitutes quality care.

Nedza quoted Arthur Kellermann from the previous session, who said (jokingly), one thing a physician never wants to be asked is, "Do you remember that patient you saw yesterday?" She argued that we have to own the care we provide in the emergency department and link it to what happens the next day. But this is not typically what happens. "I taught residents for years," she said. "I can tell you, very few times did I ever take them by the hand and say, let's go upstairs and find out what happened to that patient we took care of yesterday."

Roger Lewis of Harbor–UCLA Medical Center observed that "many of the quality measures that we have been exposed to, or been beaten over the head with, have been based on single diseases." However, these types of measures invite gaming of the system. For example, "in some triage areas, it has been suggested to hand everybody a tab of an antibiotic, and then if they turn out to have pneumonia, you look good." The only way to avoid this problem, Lewis said, is to come up with quality measures that apply across broad classes of patients and disease settings. We need to look for multivariate, broad measures of what Aunt Bessy experiences, regardless of her disease, he said.

LEGISLATING QUALITY

Michael Rapp said that Johnson's suggestion of going to Capitol Hill and lobbying legislators to outlaw boarding is not the only alternative. The executive branch also has the means to promote this objective. For example, CMS could establish a performance measure to track whether or not hospitals board, or the extent to which boarding exceeds 4 hours. CMS already has a pay-for-reporting program for hospitals. If they do not report the quality measures CMS requires, their annual payment update is reduced by 2 percent. As a result, virtually all hospitals provide these reports. If a boarding measure were constructed and endorsed by health care stakeholders through the National Quality Forum, CMS could implement the benchmarks.

AARP's Yeh agreed that outright bans are not the only regulatory solution. Others include aligning financial incentives and public reporting. In addition, she said, it is important to recognize that implementing strict rules will not succeed unless technical assistance is provided to facilities. One reason the ambulance diversion ban has worked in Massachusetts, she said, is because of all the work that accompanied it, including trial runs, discussion groups, and dissemination of best practices. In Massachusetts, Yeh said,

there has been a constant feedback loop that has allowed people to share stories and capture best practices. The hospital CEOs have been at the table. This has transformed how they look at their EDs. When the diversion ban went into effect, she said, "people were ready, they were prepared."

BUNDLING PAYMENTS TO IMPROVE PROVIDER LINKAGES

The panel also discussed the potential for CMS to provide bundled payments in order to align financial incentives and promote better care. Some have proposed that Medicare provide bundle payments to hospitals, which could then manage the payments to care providers. Some have argued that payments could be structured in a way that aligns incentives toward better patient outcomes. The objective would be to promote a less fragmented team approach among hospitals, physicians, and postacute providers and improve problem areas, such as hospital throughput.

Anderson agreed that to improve patient outcomes, "We have to all be aligned to the same incentives." Currently, financial outcomes for emergency medicine physicians and trauma surgeons are not matched up with those of the hospital, because they do not receive Medicaid disproportionate share payments or upper payment limit reimbursements. He acknowledged that the hospitals need to take better care of their doctors financially. However, a bundled payment arrangement can be problematic for a number of reasons. For example, it runs up against the current payment system, in which greater utilization means greater payment. Also, he said, it can be difficult for the hospital to align interests with physicians if the latter have purchased an equity position in a competitor hospital across the street, or own their own ambulatory surgery center. "That is a little bit difficult to bundle," he said. In addition, bundled payment systems require big investments in information systems.

Yeh cautioned that payouts from the payment bundle should be risk adjusted, not just by the patient's clinical conditions and comorbidities, but also by socioeconomic factors, literacy, and language. Homeless patients require a higher level of resources than other patients. If we create a uniform bundling based on simple measures such as clinical condition, Yen pointed out, it may worsen disparities of care.

PATCHWORK REGULATORY SYSTEMS

David Thompson, an emergency physician from Syracuse, New York, observed that many states seem to have "system creation" as a part of their regulatory function. He said we seem to be coming up with a patchwork of systems where the states have their own regulatory quality initiatives, the federal government has its initiatives, and in the end, there is no system at all.

Nedza described her experience with the trauma system in Illinois, where many community service areas cross jurisdictional boundaries. They decided to look at the preexisting referral patterns, rather than dictating them to the various centers. This produced informal models of regionalization that transcended traditional federal–state barriers.

Yeh reminded the audience that health care is local. That is why not everybody operates under one system. Nationalizing the system would not allow local perspectives and local solutions, and she said there must be a balance between national consistency and local flexibility. Where systems exist, she said, we should identify the criteria where local input should be permissible versus areas that require national standardization.

Gainor pointed out the fragmentation can exist within a single state. Idaho has a state office that regulates the EMS system, a bureau of facility standards that licenses hospitals, and its state Medicaid program. She was not able to think of any occasion on which all three agencies met to talk about emergency care overall or how to improve the regulatory environment. Nor, she said, have they ever been asked to do so by federal partners.

Thompson said the problem is even more complicated because of cross-state interactions. He asked Gainor how Idaho interacts with the analogous agencies in Washington or Montana, pointing out that patients move through all of these areas. He asked if the states are going to regulate, how we can integrate all of these functions. He agreed with Yeh that there is a need for some federal mandates, but that local variation and experimentation is also needed. Gainor noted that there are a number of ways to ensure interstate integration and cooperation. For example, EMS systems have used interstate compacts, so that licensure of an ambulance service is recognized at the state line, and there is no additional red tape upon repatriation.

RECOMMENDATIONS TO FEDERAL PARTNERS

In the United Kingdom, Kellermann observed, the National Health Service considers an overcrowded emergency department an institutional failure, and management suffers the consequences. In the United States, an overcrowded ED is considered a failure of the ED staff and patients suffer the consequences.

CMS's Rapp noted that, for every hospital in the United Kingdom, the National Health Service posts on a website the percentage of the time the hospital meets the 4-hour waiting standard. Rapp then asked the panelists to provide their recommendations to the U.S. federal partners on what they should do to improve the quality and patient safety of emergency care in the United States.

Nedza said that, on a practical level, we need to standardize and harmonize measures, measurements, and measurement priorities. The federal

government should provide national frameworks, perhaps standards, and also funding where appropriate, but local solutions and sustainable regional models are needed. A key issue, she said, is that measurement should follow the patient. It should not be based on who provides your insurance coverage, or which federal program is receiving the data.

Yeh provided three recommendations to the federal government to improve quality and patient safety in emergency care. First, she said that focusing on Medicare patients will provide significant opportunities for cost savings and quality improvement. Second, she recommended that research be conducted to examine whether "carve-outs" for mental health have actually increased the cost of medical care. Third, she recommended that a national ban on ambulance diversion be considered. Instituting this ban, she said, would make everybody work together—prehospital personnel, ED personnel, in-patient staff, and hospital administration. "The most striking thing was we had to work together if we were going to fix this," Yeh said. It created a collaborative environment and fostered a cross-disciplinary, consensus approach.

Gainor advocated a federal platform for interagency planning and implementation. The agency or group that performs this function, such as the Federal Interagency Committee on Emergency Medical Services, must be appropriately resourced to become a true lead agency. The buck should stop there.

Gainor noted that a number of models demonstrate federally promoted, state-led, and locally implemented solutions, often involving industry. For example, the U.S. Department of Transportation (and agencies such as the Federal Aviation Administration and the Federal Railroad Administration) has helped to ensure that the stop signs in rural Idaho look exactly the same as those in Boston. EMS needs to establish a nationwide culture of consistency and quality.

Fildes said top-down leadership is needed from the federal government to address the terrible disparity among and between cities, counties, and states in their trauma systems. Systems currently range from exceptionally well-developed to absolutely nothing. "When I drive from New York to Los Angeles, 80 percent of the time I am not in a coverage area." What is needed is a national trauma system to provide federal oversight to ensure that the level across all 50 states is consistent and essentially the same.

Parkland's Anderson said that right now, providing trauma care is a bad business decision. He said we need to take away the financial disincentives for providing it. The federal government can help level the playing field and reward those who actually make emergency and trauma care work. In these systems, readiness costs are substantial, whether or not there are patients who require care. So trauma and emergency care are not like other commodities; they should be treated more like a public health utility model,

Anderson said. He noted that most utilities are planned. People sit down and they plan across county lines, across state lines, and across jurisdictions. More planning is necessary to ensure the public's health. Some states, including Texas, have done a great job in developing their trauma systems, but even in Texas, 80 percent of the land mass doesn't have trauma system coverage. "We literally call these dead zones," he said. Instead, there should be funding for regional planning through states. "We also have to realize that some places will never have trauma hospitals," he said. "We need to plan for transporting people in from rural areas, and ensure the availability of telemedicine to stabilize patients until they can reach definitive care."

Anderson believes we must confront the fact that subspecialists keep migrating away from emergency and trauma care. "Many trauma surgeons are aging out," he asserted. "And other specialists want to go into subspecialty care so they can better control their likelihood of being sued, their likelihood of being paid, and their fee schedule. This is true for orthopedic surgeons and neurosurgeons and others who support the trauma system." Changes in how physicians are trained may be necessary.

Finally, Sandra Schneider, vice president of the American College of Emergency Physicians, noted that, in a survey of a thousand emergency physicians, emergency department crowding ranked as their top patient safety issue. Crowding has been associated with delays in care, increased morbidity, and increased mortality. "There is consensus among emergency physicians that this is their number one issue. Anything that can be done to improve this will be better for our patients," Schneider said.

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Enhancing Emergency Care Research

RESEARCH CAPABILITY AND PRODUCTIVITY

Roger Lewis, professor of Emergency Medicine at Harbor–UCLA Medical Center, began the panel on enhancing emergency care research, which he defined broadly to include medical and nonmedical providers, emergency surgery and all of the associated acute care specialties, and basic science research. "We need to work hard to increase the cohort of well-trained, scientifically rigorous investigators. This involves factors such as research training (including the establishment of interdisciplinary and multidisciplinary collaborations), the need for protected time in an organization, and career tracks that support this work. It also requires access to research infrastructure such as laboratories and core facilities, and access to patient populations, often through research networks," Lewis argued.

Furthermore, investigators need the data linkages and informatics required to support emergency care research. This includes appropriate standardized data collection tools, and perhaps access to shared medical records. The emergency department patient is usually cared for in multiple settings, including prehospital, in-hospital, and postacute rehabilitation. We need to be able to link those processes of care and outcomes so that we can start to answer the questions about what actually affects the long-term outcomes, Lewis said. Part of the equation is to have sufficient research funding aligned with important and promising directions in emergency care inquiry. Often the most promising research directions do not fall along the traditional organ-based lines within the National Institutes of Health (NIH), but are based on presenting syndromes and complaints. We need to help the NIH Institutes and other funders work together across their traditional boundaries to focus investiga-

tions on optimizing the management of patients before their disease is clearly identified.

In Lewis's opinion, there are three regulatory barriers that can hinder emergency care research. "First, under current rules there are many circumstances in which informed consent cannot be appropriately obtained," he said. "Appropriate consent strategies that will allow investigation of better treatments for those patients are needed. Second, the federalwide assurance program is a significant barrier to prehospital research because it limits participation of community hospitals and smaller EMS [emergency medical services] agencies. We need them for reliable outcomes data. Third, HIPAA [Health Insurance Portability and Accountability Act] regulations are clearly a barrier to much of the health services and outcomes research we need to truly determine the effectiveness of emergency care interventions."

BARRIERS TO EMERGENCY CARE RESEARCH

Jerry Jurkovich, chief of trauma and surgical critical care at Harborview Medical Center and president of the American Association for the Surgery of Trauma, said there is a crisis in U.S. emergency care, as was well documented in the 2006 Institute of Medicine (IOM) reports. Some solutions will be found in better research on how to provide emergency care. There are barriers to advancing this research, however, and these fall under the headings of time, treasure, and topics (Jurkovich was quick to add that it is not due to a lack of talent). With respect to research topics, as mentioned above, emergency and trauma care don't fit neatly within the disciplinary lines established by the NIH, Agency for Healthcare Research and Quality (AHRQ), and Centers for Disease Control and Prevention (CDC). Some new thinking is needed about how to address this issue. Time and treasure also pose substantial barriers. Jurkovich said time for surgical investigation is hard to come by. Schools and deans depend on surgical income and they lose money when surgeons take time out to do research. Although trauma is the leading cause of death among people aged 1–44, little federal funding goes to research in this area.

NIH salary caps are about 50 percent less than the average academic surgeon makes, which is already 25 percent less than the practicing surgeon makes. The salary cap for federal funds is currently $196,000. "Coincidentally, the average salary for a full-time academician in medicine is $196,000," Jurkovich said. "I don't mean to imply—I mean to state directly—that the federal funds are tied to medicine, not to surgery." He said medicine, pediatrics, and pathology all fall within or under the salary cap, but no other disciplines do, not obstetrics and gynecology, not surgery, not emergency medicine, not radiology. The average salary for a mid-level academic general surgeon is about $298,000. So departments must make up the difference.

The number of physicians going into academic careers in these specialties is significantly hampered. No more than 5 percent of surgeons across all disciplines go into academic practice (whereas fully 25 percent of graduating emergency medicine residents enter academic practice). It is simply too much of a financial sacrifice for them to do it, Jurkovich said.

OPPORTUNITIES FOR EMERGENCY CARE RESEARCH FUNDING

Walter Koroshetz from the National Institute of Neurologic Disorders and Stroke (NINDS) said disease-based research is clearly the way to access NIH resources. Nearly all of the illnesses that affect and kill people in the emergency room are diseases that fall under the auspices of one or more NIH Institutes. Emergency physicians can access those resources effectively if they organize and develop research expertise. In fact, Koroshetz said, emergency medicine has an "amazing opportunity given that patients with all different sorts of illnesses are coming to one convergence point." If the field could develop a generic, efficient system to identify and enroll patients and conduct research, "You would be able to really leverage multiple different NIH Institutes with the same infrastructure to answer a myriad of scientific questions."

In addition to discovery research, the NIH and AHRQ are investing in comparative effectiveness research. There is an expectation that the country is going to move more and more in that direction in order to inform medical decision making. For the reasons mentioned above, emergency medicine is in a strong position to compete for these research funds. "If the research infrastructure is present, emergency medicine has access to patients, and a unique ability to test algorithms of medical decision making, compare treatments, and evaluate the utility of diagnostic testing," Koroshetz said. "All of these might be studied in a much more cohesive and organized fashion in the emergency department setting."

"However, getting funded is only half the battle," he said. "The other is executing the research." The NIH is currently saddled with clinical trials that do not recruit well. As a result, NIH investigators are often forced to go overseas to recruit study subjects. Expenses double or triple because of the time involved in getting a trial executed. A system that is really efficient at enrolling patients will have the power to obtain grant funding.

Over the past 2 years, the NIH has made a concerted effort to look at the opportunities and challenges to doing research in the emergency setting. In 2007, the NIH established a task force to respond to the 2006 IOM reports. It sent out a request for information and received scholarly responses from the emergency medicine community. Those informed a series of workshops: one on neurological and mental health issues, one on surgical issues, and a third on trauma. At the end of these, workshop reports

will go to the relevant individual Institutes and a composite report will be submitted to the Office of the Director. Koroshetz said at this point that he is "actually pretty enthusiastic that research in the emergency setting is going to get stronger and stronger."

UNFULFILLED RESEARCH AGENDAS

Richard Hunt, director of the CDC Division of Injury Response, noted that many research agendas have gone unfulfilled. In 2006 a multidisciplinary committee produced the CDC's first acute injury care research agenda. The CDC received 38 applications in response to the Request for Proposals, many more than they had expected. However, the CDC only had the money to fund four of them, he said. This has been a source of frustration for the agencies as well as for many outside the federal government.

A number of well-executed research agendas across government have not been fulfilled, Hunt said. These agendas have been worked out in thoughtful ways, with a lot of time, energy, and input invested into them, but frankly, he said, we haven't come close to meeting them. It is not just injury or EMS issues that are not being met. Other areas in emergency care, including strokes, myocardial infarctions, and other priorities, are not being addressed. "There will always be more research agendas," he said, "but if we could fulfill the ones we already have, it would be extraordinary."

A central concern in the past has been lack of interagency collaboration at the federal level. But, recently, Hunt said, he has felt gratified by the collaboration that is developing among federal agencies. In particular he pointed to an early collaboration among the National Highway Traffic Safety Administration, Health Resources and Services Administration, and the CDC regarding triage of the injured patient. Interagency collaboration is being advanced through the Federal Interagency Committee on Emergency Medical Services and the Emergency Care Coordination Center. Although collaboration has not produced magical changes overnight, it has produced important leaps forward. Improving agency coordination will take time, but there is a clear commitment to make it happen.

Finally, he said, in the current climate, Congress wants to know what the cost/benefit ratio is for each research-related item. "We have tackled the issue of costs head on, particularly with traumatic brain injury (TBI), where we showed millions of dollars of savings and significant number of lives saved if we institute the TBI guidelines," he said. With respect to lives saved, creation of the CDC trauma triage guidelines were supported by the results of a paper by McKenzie and colleagues, showing that if the severely injured are treated at a Level One trauma center, there is a 25 percent decrease in their mortality. "But," Hunt said, "you need to connect that with costs in order to move these initiatives uphill in Washington."

AHRQ'S ROLE IN EMERGENCY CARE RESEARCH

AHRQ Economist Ryan Mutter said the mission of AHRQ is to improve the quality, safety, efficiency, and effectiveness of health care for all Americans. AHRQ-supported grants and contracts focus on topics such as payment mechanisms, organizational factors, and the effectiveness of interventions and treatments. "AHRQ is keenly aware that there are over 120 million emergency department encounters a year," Mutter noted, "and that the ED [emergency department] is a window into the health care system." AHRQ has supported research on the triage algorithm for EDs, ED crowding (causes and consequences), and ED pharmacists as a safety measure in emergency medicine. AHRQ has also sought to develop tools to improve the efficiency of patient flow through the ED.

AHRQ data development and analysis includes the support of the Health Care Costs and Utilization Project (HCUP). HCUP is a federal–state–industry project to improve policy making and practice. It is a very useful tool for tracking ED frequent flyers, for example. Many of AHRQ's quality measures have been endorsed by the National Quality Forum. One is the Prevention Quality Indicators, which provide estimates of potentially preventable admissions to the hospital. AHRQ has begun to modify that model so that it will measure encounters with the emergency department that might have been avoided.

AUDIENCE DISCUSSION

Ron Anderson, chief executive officer (CEO) of Parkland Hospital in Dallas, asked how studies can tie together patient encounters from multiple sites so that they go beyond what happens in the ED. He noted that many people receive care in the emergency department for a short period of time, "and then they go upstairs and you lose them, so to speak, to somebody else's care, or they go back into the community." The latter can be especially problematic for follow-up. ED personnel would like some way to close the loop. He acknowledged that one problem is the nonconsent issue, which the media can pick up on and label as unethical research. He said they do not seem to acknowledge that current standards of practice also may not be the best thing for people.

Lewis of Los Angeles said it is ironic that it is considered ethical to keep providing treatments that have not been proven to work. Important research questions could be addressed with some abbreviated consent processes, and this would allow for the acquisition of outcome information. But he said this will require research into the acceptability of those strategies across diverse communities. We need to be more energetic in pursuing collaborations with ethics colleagues and other community linkages to figure out what is acceptable in the community.

Trauma surgeon Jurkovich said rather than trying to squeeze emergency medicine questions into the construct we have available for other research, which is based on specific diseases, we should develop a construct for funding research that will answer trauma and emergency care questions. We should find an agency cooperative agreement, and provide a funding mechanism for it.

Mutter said in order to facilitate the research, some questions need be answered with administrative data. HCUP is a potential tool for this because of the kind of data it provides. Take the case of someone who falls and ends up in the ED, is stabilized and sent home, then has an ambulatory surgery experience, gets infected, and ends up being admitted to the hospital. With HCUP, you can track that person and you know the amount of time between those encounters. That is a way to address some of those questions.

Tom Scalea, the session chair and physician-in-chief at the University of Maryland Medical Center Shock Trauma Center, asked whether it is possible to take all of those data and put them into a digestible form. Now you have to link to multiple databases to answer specific questions. Hunt agreed and said he has asked the same question many times. "When I've talked to the people who do the data and ask really probing questions, I find almost a sense of paralysis, that maybe this is not really doable. But we have to figure this out," Hunt asserted. He noted that the National EMS Information System (NEMSIS) made sure the national trauma databank and NEMSIS would have uniform datasets.

PRIVATE RESEARCH DOLLARS

Alex Valadka, a neurosurgeon from the University of Texas Medical Center, said he was surprised that no panelists talked about private funding for research. He said these private foundations and industry are a rich source of support. There are problems now with conflict of interest and disclosure, but he said that in many ways, especially in terms of more technologically driven applications, industry is going to be what drives much of this research. Also, he said some hospitals may be willing to start smaller quality improvement projects. Even the large insurers should be interested in research that would examine whether money can be spent more efficiently in EDs.

Lewis said that industry sources of research have a tendency to be so closely tied to specific goals and objectives that they rarely address the most pressing questions. In one academic society with which he was closely involved, there was a period of time in which many of the board members became enamored with industry sponsorship as a potential source of research funding. "But," Lewis said, "it became a distraction from the important research training and investigator development that is needed in

our specialty." As a general strategy for improving the research capability across the emergency care specialties, private research funding is unlikely to be very fulfilling.

Koroshetz said he would leave the door open for diagnostic companies. If one is interested in biomarkers to diagnose X, Y, and Z, the emergency setting is probably the only place he could go to do that kind of research.

BOLSTERING THE RESEARCH WORKFORCE

Dr. Jon Mark Hirshon, of the University of Maryland, underscored that there are disease- and organ-specific silos among funders, and emergency care research appears to be almost an afterthought. As an emergency medicine researcher, he asked how he can convince junior physicians to become physician researchers. "I have to convince the residents, who can go out and make twice as much clinically as they do as academicians, that if I want to take them, I have to give them a quarter of their salary for the first year or two, and then convince them to do a K grant, which will pay them $75,000. And with that funding, they are supposed to devote 75 percent of their time to research."

Koroshetz replied that a generic problem in the country is that the higher the remuneration a specialty commands, the harder it seems to be to engage its members in research. One might have thought the opposite might be true. The more remunerative specialties should offer the least financial risk of pursuing a research career as a physician–scientist. In fact, many medical students and residents believe that the more remunerative the specialty is, the easier it should be to "make a living" with part-time clinical practice. In fact, however, when someone chooses the high remunerative specialties, they are less likely to persist in a research career. "NIH money is the taxpayers' investment in developing new treatments," he said. "The research salary covered by NIH grants is not based on the medical specialty." In fact, most NIH researchers have Ph.D.s and their salary limits are generic. The current situation is a big problem as high-quality research is almost absent in some of the most expensive procedure-based specialities. The success rate in grant application by M.D.s versus Ph.D.s is exactly the same. The difference is if an M.D. is not funded, he or she is less likely to reapply. "Persistence is generally the key to the game," Koroshetz said.

Lewis said there are points early in one's academic training where one is open to all kinds of possibilities, including the possibility of never making the amount of money one can make in clinical practice. That is a good time for students to make decisions about career paths. He observed that the research fellows he has observed who have been most successful secured their research training before they ever considered a career in private practice.

Jurkovich said that for some specialties, work requirements should allow for work weeks that are longer than 40 hours. Instead of mandating that work time will be a 75 percent total commitment, the requirement should be 75 percent of a 40-hour work week, leaving the remaining hours in the week for other activities. That would give surgeons additional time to do their clinical work. The second way is to abandon the time commitment altogether and focus just on results. If you get good results, you get refunded; if not, you don't. The third way, he said, is loan forgiveness for college expenses and providing research funding, not just money. That, he said, has been very effective in medicine, not so much in producing long-term researchers, but at least in getting more people excited about the concept of research.

ENROLLMENT IN CLINICAL TRIALS THROUGH EDS

Sandra Schneider, emergency physician from the University of Rochester, said that emergency medicine clearly would be able to help boost enrollment in clinical trials. EDs see 120 million patients, and even if you take out the ones that come back multiple times, you are still talking about 100 million people. She said we also have effective ways of screening and effective enrollment programs in many hospitals right now. The trouble, she said, is that most researchers approach EDs after their grant has been funded. Their approach is to put a sign on the wall saying, "If you see a patient with myesthesia gravis (for example), give us a call." Emergency physicians are excluded from the process. Schneider asked how EDs can get funding to create infrastructures, whether they are patient enrollment programs or screening the 100 million patients who are unique to ED services each year.

Koroshetz responded that this is a "chicken and egg problem." Once you build a research infrastructure, then you have the leverage. But how do you build it first? Without anything to offer, what are your options? He agreed that if researchers from other specialties join with emergency physicians in a cohesive, collaborative manner, then everybody will be at the table and the project is more likely to succeed. "Our Institute [NINDS] has made a major investment in the Neurology Emergency Treatment [NET] Network," Koroshetz explained. "The NET is led by emergency medicine physicians, working alongside neurologists and neurosurgeons. We are very hopeful that it will be a successful research effort. The key will be the ability to engage the emergency medicine community and successfully enroll subjects into the first two initial trials, one on traumatic brain injury, and the other on status epilepticus."

TRANSLATING RESEARCH TO EVERYDAY PRACTICE

Dr. Ramon Johnson of the American College of Emergency Physicians asked how one can convince a practicing physician in a community hospital to take something that has been researched at the academic institution, and change his or her practice with the patient in an era when physicians are driven more by a lack of liability protection.

Lewis said that the NINDS stroke trial was a good example of a trial that is scientifically sound, but it failed in the second phase of translation. He defined the first part of translation, T1, as moving from the laboratory to the first bedside use. T2 is movement from a controlled clinical trial (in which efficacy is demonstrated) into routine clinical practice. The NINDS stroke trial was impressive, but uptake of the therapy for ischemic strokes has not been as enthusiastic as the Institute would have liked. One concern is whether the trial reflected community practice settings in terms of the immediate availability of a CT scan, the arrival time of patients, and the availability of a neuroradiologist to overread the patient's scan. There is a discrepancy between the study conditions and conditions in the community hospitals. This is probably true of all T2 translations.

Researchers who intend to influence the practice of community practitioners through large efficacy trials should first find out what the community practice practitioners have in terms of resources, control, privileges, and so on, Lewis said. If researchers expect that something will translate well into community practice just because it was shown to be efficacious in a Phase III trial, they may be disappointed.

Koroshetz agreed that the T1 was way out ahead of the T2 in this case. But he said that what has happened over the past 10 years is that that trial has completely revolutionized the care of the stroke patient. What that trial did was force the building of systems to treat patients with TPA, so that now most places have that system. "In Massachusetts," Koroshetz said, "every hospital had to declare whether they have a stroke care system in place. If they said no, the department of health diverted ambulances from that hospital to a stroke hospital. That is the kind of teeth that it takes to improve a health care system. But it never would have happened without that trial."

SUGGESTIONS FOR ADVANCING EMERGENCY CARE RESEARCH

Workshop chair Arthur Kellermann asked the panelists and federal funders in the room, "What recommendations would you have to most directly and immediately advance science and emergency care research in the United States?"

Lewis said the first thing he would emphasize would be research training, and the development of funding streams for research training that target

emergency care researchers. In addition, he would want to see addressed the practical and regulatory challenges involved in providing the data linkages that are needed to investigate patient-centered outcomes.

Jurkovich said he would explore creative solutions for addressing the difficulty in maintaining higher compensated clinicians for conducting research. These might include debt forgiveness, raising the NIH salary cap, or dropping the time commitment requirement for K08 and R01 awards. Second, he said, there should be a focused, cross-agency effort directed at trying to fund systems research in emergency care, looking into which practices, policies, procedures, and constructs work best for providing emergency care in different environments.

Koroshetz said if you are controlling 48 percent of admissions to the hospital, that is an amazingly powerful position from which to do research. All you need to do is organize. "With an efficient research infrastructure in emergency medicine, you are going to have people at your doorstep, wanting to work with you," he said.

Hunt reiterated his earlier statements. "We have to prove that we are going to reduce costs and save lives through research. "Begin with the end in mind, considering the goals of those who will be providing the resources. The proximate step to that is translating and defining systems practice. It is not just bad clinical care at a bedside that can kill patients. Bad systems can kill patients, too," he said.

Mutter emphasized payment systems and market mechanisms. He said that translating effective strategies into practice is significantly impacted by the financing system. We need to explore new research ideas on how payment can impact adoption. We also need to investigate further strategies such as pay for performance, with research focusing on questions such as how much payment is needed to make difference and what the unintended consequences might be. Also, Mutter said, we need research to explore and understand some of the perverse incentives of the current payment system.

INCREASING THE PERCEIVED VALUE OF EMERGENCY CARE RESEARCH

The session chair closed by asking the panelists what are we going to do to create an atmosphere where emergency research is valued by the chair, the dean, and the public?

Lewis said medical schools need to see increases in the quality and quantity of emergency care research as an important mission. Those that do should task their chairs with accomplishing that. The public values emergency care, but people need to see a closer tie between the quality of emergency care research and the actual quality of emergency care. We need

to be honest about the limitations of our evidence base without sacrificing public trust, Lewis asserted.

Koroshetz said he has found it easier to show value in the acute emergency conditions than in others that are more chronic, where the benefit of a treatment is less clear because it takes longer to appear. A person who was previously functioning at a high level and then suddenly is the victim of a potential catastrophic event lends itself to a very black/white outcome determination. The key is that you have to be able to link the acute intervention with the long-term outcome. If you confine data collection to a short-term, emergency medicine environment, then the research will not impact patients or medicine in general. Long-term follow-up of patient outcomes is what is critical to achieve.

Hunt focused on the research outcomes that demonstrate lives saved and costs reduced. But the public must realize that this research is responsible for that improvement. He quoted a corporate executive who had said if [his company] had a million dollars to put into research, they would rather see it appear on the front page of *USA Today* than on the pages of *New England Journal of Medicine*. Mutter agreed that the most important thing is for the taxpaying public to see the story.

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Health Professions Training

Jon Krohmer, acting assistant secretary and chief medical officer of the Office of Health Affairs in the Department of Homeland Security (DHS), chaired the panel on training. He described the panel as multidisciplinary, focusing on hospital and prehospital perspectives, including those of emergency physicians, emergency nurses, trauma surgeons and other specialists involved in providing on-call coverage, and emergency medical services (EMS) personnel. Krohmer framed the discussion by highlighting the workforce-related recommendations from the three Institute of Medicine (IOM) reports. These recommendations called for the following:

- Regionalization of critical specialty on-call services
- A commission to examine the impact of medical malpractice lawsuits
- Certification in critical care medicine to physicians who complete an accredited critical care fellowship training program
- An assessment of emergency and trauma workforce capacity, trends, and future needs by the Department of Health and Human Services (HHS), Department of Transportation (DOT), and DHS
- National standards for core competencies applicable to nurses, physicians, and other key emergency and trauma personnel
- Improved linkages between rural hospitals and academic health centers

A SHORTAGE OF EMERGENCY PHYSICIANS

Leon Haley, vice chair of clinical affairs in the Department of Emergency Medicine at Emory University and deputy senior vice president of medical affairs for the Grady Health System, said we will not be able to produce enough trained emergency medicine board-certified physicians to match the demand in the coming years. He said emergency department (ED) visits have increased 32 percent since 1990, from 90 million to 120 million, and the U.S. population continues to increase rapidly, especially in areas such as the South and Southwest. At the same time, the number of hospitals that provide emergency care has declined. There are now approximately 485 fewer EDs and approximately 198,000 fewer hospital beds than there were in 1990.

In 2002 approximately 25,000 physicians identified themselves as ED physicians, although not all practiced in the ED. Many additional physicians are employed in the ED who do not have that specialty training. Although there has been a 79 percent increase in the number of emergency medicine practitioners over the past 10 years and the resident workforce has increased 116 percent, overall supply will not be able to match the increasing demand in the coming years, especially in the areas that have experienced the most population growth.

Approximately 95,000 nurses are practicing in emergency care centers across the country, including about 4,000 advanced-practice nurses. Approximately 2,300 physician assistants (PAs) are providing care in EDs. It is critically important to note, Haley said, that there is no current certification for either of those groups for specialty training in emergency medicine. A few PA programs are designed to help train PAs in emergency medicine, but there is no defined certification, nor is there defined certification for nurse practitioners.

A SHORTAGE OF TRAUMA SURGEONS

J. Wayne Meredith, director of the Division of Surgical Sciences and a Richard T. Myers professor and chair of the Department of General Surgery at Wake Forest University, said the workforce in surgery is not only failing to grow, but is shrinking relative to the population. General surgery training programs in the United States turn out just under a thousand general surgery training chief residents every year. They have done that every year for the past 30 years. In addition, this year 80 percent of those graduates will go on to do some sort of fellowship training on top of their general surgery training (as compared to about 20–30 percent 25 years ago). So the number of people who are available to practice general surgery is dramatically diminishing, he said. “Hyperspecialization is creating too few people who can practice general surgery and more people who can only do highly

specialized things," Meredith said. "So community hospitals all across the country are struggling or closing because they do not have access to general surgeons."

The Accreditation Council for Graduate Medical Education has said we should train more medical students. "The problem," Meredith said, "is we do not have any more residency slots." There is a chokehold on the availability of residency slots in the country in virtually every specialty, and even primary care, he argued. The chokehold is based on the number of slots that are provided by Centers for Medicare & Medicaid Services funding, which remains capped at 1995 levels. "If our strategy is to have a neurosurgeon working in every emergency department in America, ultimately we will have to find a mechanism to regionalize patients, that is, to quickly identify those whose needs exceed the resources of the local community and determine the proper place to put them. This is not to centralize them and put them all in one place, but regionalize them and distribute them to where they need to be," Meredith asserted. "This should be part of our planning for Homeland Security and for health system reform."

A SHORTAGE OF EMERGENCY NURSES

Patricia Kunz Howard, operations manager for Emergency and Trauma Services at the University of Kentucky Chandler Medical Center and EMS training coordinator for Lexington Fire and Emergency Medical Services, reported that the nursing shortage is alive and well. Demand for nurses is continuing to rise by 2–3 percent every year, which is significant especially given the nursing faculty shortage.

A recent *Journal of the American Medical Association* article showed that in the current economic downturn, many nurses who planned to retire have not left, and others have returned. Others have been working additional shifts to augment their finances, particularly when family members have been laid off. From a supply and demand standpoint, "the economy has helped us a little bit, but not to the degree that we had hoped," Howard said.

Retaining experienced emergency nurses is a huge challenge because many are choosing to leave rather than jeopardize the safety of their patients and put their license on the line by working in such overcrowded conditions. In many cases they are leaving to work in intensive care units (ICUs), where they will only have to take care of one or two patients at a time. With respect to training, the clearest problem is the lack of training in emergency nursing in the basic curriculum of nursing schools, Howard observed. This not only deprives undergraduate nursing students of the chance to experience emergency nursing at a time when they are making career plans, it deprives them of opportunity to acquire key skills that will make them better nurses in any setting. Also, it means that nurses who go into other fields

have little knowledge or insight into emergency nursing. In today's crowded emergency departments, providing appropriate orientation and training for new nurses can be difficult, she said. Plus, orientation for a new graduate is 6–12 months. This places an extreme financial burden on a facility because orientation costs about $80,000 per nurse, Howard noted.

Nurses are often pulled out of educational offerings because they are needed right away in the department. Howard said it is important to recognize that, as EDs have become more crowded and more challenged, nurses also have become more challenged and they need a different skill set. We have to make sure they have the time for education and training, she said.

REFORMING EMS EDUCATION

Dan Manz, the director of emergency medical services for the Vermont Department of Health, said that 40 years ago there was no organized EMS in this country. One of the things that boosted the profession to where it is today was the establishment of the national standard curricula to train EMS personnel by the National Highway Traffic Safety Administration. However, a new approach presented in the EMS Education Agenda for the Future (shown in Figure 5-1) represents a better model, Manz asserted.

Manz called the model elegant in its simplicity because it has only five components. The first is a national core content that defines the EMS domain. For example, he said, hemorrhage control is in, neurosurgery is out.

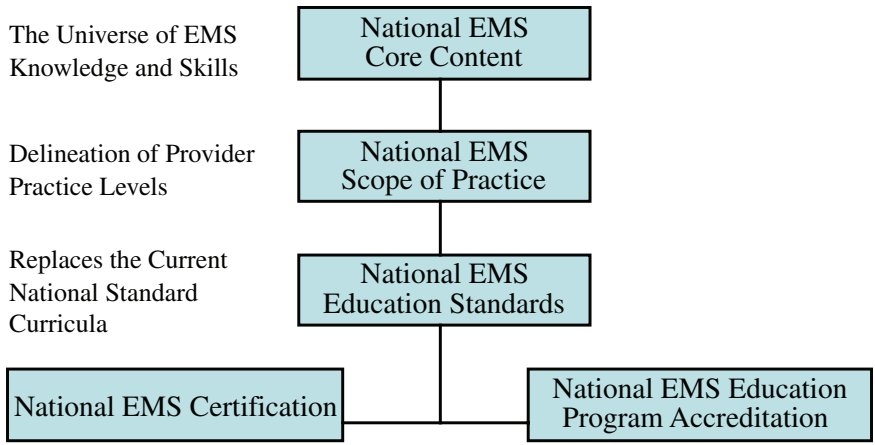

FIGURE 5-1 The EMS Education Agenda for the Future: A systems approach.
SOURCE: Manz (2009).

Second, the core content is divided into scopes of practice for four levels of EMS personnel. Third, the national EMS education standards describe the delivery and the depth and breadth of knowledge and skills that a person must have to become competent at a particular EMS level, and the programs that can deliver that education. Finally, personnel graduating from those accredited programs take a national certification exam to demonstrate their competency. This model would put EMS education parallel with other allied health professionals. The elements in it are recognized in the IOM reports and called for in Pew Commission studies. There is fairly broad consensus that this is probably a better model for how to prepare EMS professionals in this country. But moving from where we are today to where we would like to be tomorrow is proving to be a significant challenge, Manz said.

NEW ROLES FOR EMS PERSONNEL

Sue Prentiss, the EMS chief in New Hampshire's Division of Fire Standards and Training, said that EMS personnel are beginning to take on a number of nontraditional roles, such as developing public access defibrillation programs and being involved in injury prevention programs. In addition, many of them, typically paramedics, have been able to get jobs in hospitals or other health care facilities. They are working primarily in emergency departments, but also in interventional radiology, in lab settings, and as part of cardiorespiratory teams. They are taking part in conducting stress tests, backing up the respiratory care practitioners, and delivering various other treatments. In addition, they have found opportunities in freestanding facilities such as dialysis centers.

EMS providers have the immediate skills and experience to work not only in the traditional roles in the field, Prentiss noted, but also within other parts of health care system that are struggling to find people to fill slots. They are not seeking to compete for health care jobs, but should be seen as part of the supportive adjunctive community that can help fill some of the various employment vacancies in health care, which is starting to happen in New Hampshire and other parts of the country. "As EMS providers move into nontraditional settings, a means to credential them will be necessary," Prentiss said. "We will need to determine how a paramedic's experience and training can be applied with respect to other workforce training requirements."

AUDIENCE DISCUSSION

Sandra Schneider of the University of Rochester said "this has been a very terrifying panel. I actually am terrified. That is because at the very time that I am starting to think I might end up needing services, I understand

that there won't be anybody anywhere to take care of me." She added, "Emergency medicine is a team sport and we need our nurses." There is a critical shortage of emergency physicians, but it's even worse on the nursing side. The very people that are most needed, emergency surgeons, emergency physicians, emergency nurses, and EMS, are the ones who are most often treated poorly, she said. She told a story in which her aunt was hospitalized in another city and suffered an in-hospital respiratory arrest. The aunt was taken to the ED because the ICU did not have enough staff to maintain a 2:1 nursing ratio. The ED nurse told Schneider said he was taking care of three ventilated patients, three other floor patients, and four other emergency patients, but he would do his best for her aunt. This was all so one ICU nurse wouldn't have to take care of three patients, she said. Her aunt did survive, but Schneider asked, "What is it going to take to keep this workforce safe and encourage people to come? Is it changes in state law? Because right now, we are doing everything we can to discourage them."

Meredith said we have to recognize that this cannot be done as a home-grown, locally designed potpourri system. Otherwise we'll get the committee that builds a camel when it is trying to build a horse.

Howard said the regulatory and accrediting bodies need to come up with guidelines that maintain parity across the system. The Joint Commission's current mandate is that the ED has to reach the in-patient standards of care. We can't meet that standard when we are dealing with what was just described. "There has to be something that says if the emergency department has to have three ICU patients for every nurse, then so does the ICU," Howard said. "There has to be parity across the continuum. That will take accreditation agencies and regulatory bodies to accomplish."

ADDRESSING WORKFORCE SHORTAGES

Nick Jouriles of the American College of Emergency Physicians (ACEP) said that emergency medicine is the specialty that is available and accessible at all hours, 24/7, in all 50 states. Approximately 25,000 physicians identify themselves as emergency physicians, Jouriles said, but we need more than 30,000. Additional training is also needed to meet workforce demands.

Haley agreed there is no doubt we need to expand. Although we have been doing a remarkable job of trying to catch up, "we are still behind the curve." Even as we try to expand our residency programs, he said, "there is a limit to the number of training sites that we can come up with," given how emergency medicine training is structured. "We will reach a point where we probably won't produce enough emergency physicians to staff every ED in the country with a board-certified emergency physician on a 24/7 basis." Instead, he said, "we'll need to think about how to provide support with PAs, nurse practitioners, and other trainees."

Jouriles agreed there is a limit to how many people can be trained, but said "we are not there yet." This country needs to maximize what we can do to train general surgeons, trauma surgeons, intensivists, emergency physicians, and emergency nurses. When we get to that point, then we should focus on the alternatives. He said we are nowhere near that point.

Meredith said most workforce planning designs pay no attention whatsoever to patients with emergency conditions. They are all designed around elective chronic diseases. He said we are going to face a huge gap in the next 10 years.

Haley said that in Georgia, with an expanding population of more than 9 million people, only two emergency medicine training programs serve the entire state. "We need to expand that, but we also need to be realistic about the numbers we are going to be able to reach," he explained.

DISASTER PREPAREDNESS

Mike Handrigan, acting director of the Emergency Care Coordination Center in the HHS Office of the Assistant Secretary for Preparedness and Response (ASPR), said one IOM recommendation was for the HHS, DOT, and DHS to conduct a joint assessment of the workforce. "We have heard that emergency physicians are behind and can't catch up; the surgical workforce can't reproduce itself to keep up with population growth; the nursing workforce is trying to stop the hemorrhage by stuffing an economic crisis in the wound; and the EMS workforce might be pulled off the streets and placed in the hospital," Handrigan said.

He noted that Homeland Security's mission centers mainly on catastrophic events. The folks who volunteer for the disaster medical assistance teams are drawn from the same groups described above. "So," he asked, "are we looking at a house of cards?" In a small, focused catastrophe, people can suck it up and do the job. But in a catastrophe that has no geographic boundary, such as a flu pandemic, he asked, how would we handle that?

Manz agreed, adding that the existing disaster response model is well engineered for a relatively local, or regional, catastrophic crisis. It presumes that you can run the machine a little harder at home for short periods of time and borrow resources from surrounding areas. That idea is not crazy, but it falls flat on its face when the whole country is in crisis at the same time, he said. Solving the workforce shortages is one of the things that could make this situation more viable. If we address the threatened specialties, then we will be better prepared as a nation to handle the really big one.

IMPROVING EMS EDUCATION

Dia Gainor, Idaho's EMS director, affirmed that last month her governor signed a law adopting the national EMS scope of practice model. But she argued that the education agenda had fallen short in terms of advancing bridge programs (e.g., RNs becoming paramedics, and vice versa). She asked Manz where he thought we had fallen the shortest in implementing the agenda, since it was supposed to have been completed by 2010.

"I think the Achilles tendon in this thing is going to be the educators," Manz replied, adding, "I have this sneaking fear that we have built a Ferrari in terms of the education standards . . . and we are about to put it in the hands of an adolescent who is used to riding a bicycle." The academic-based paramedic programs are the model that we should be aspiring to, but he has concerns about some of the lower levels, including first responder, emergency medical technician (EMT), and advanced EMT.

Meredith said he would not overlook the political opposition that educators might bring to this kind of change. Prentiss added that the state had talked to her about how to write objectives and lesson plans, but she won't know what their reaction will be until the day they actually flip the switch. The education agenda is the right move to make, but it is a large move. "For those at the academic level, it will be an easy transition," she said. But the reality is that many instructors are still working in the back of the fire station, or at a local high school, or at the back of the ambulance station. They are doing a great job, but some definitely have more experience than others. How we prepare them and bridge them to becoming registered nurses, for example, is pretty far off.

Jerry Johnson, immediate past president of the National Association of EMTs, agreed that "the rubber is really going to hit the road with implementation." The education standards and the scope of practice model were great work, but he noted that national certification is not achievable unless the states adopt the standards. So, he asked, how do we get the states to see the benefits of adopting it?

Manz said that getting the first 40 states to do it will not be a big deal. The trick will be getting the last 10. But the answer is that the first 40 will help get the last 10 because eventually those remaining states are going to find themselves standing on a shrinking island. For example, an EMT from a state that has not adopted the new model will try to transfer into the state that has and they will be told, sorry, you are not nationally certified. That's going to build huge pressure on the remaining states.

WORKFORCE INTEGRATION AND COLLABORATION

Ricardo Martinez of the Schumacher Group said that among the 150 hospital EDs he represents, the integration of EMS providers into the health

care system as nurse practitioners or physician assistants has either gone great or incredibly badly. He said we have to find a way to work together and become more integrated. We are not going to solve the physician or nursing shortages by doing things the way they have always been done. He asked the panel whether they thought it would be possible for emergency nurses and EMS personnel to develop a common model for use by mid-level and EMS providers in an emergency setting that might solve some of these problems. He asked what they saw as the biggest barriers to that type of integration.

Howard responded that there has been a lot of progression in that type of model. She said they receive a lot of queries regarding the practice of paramedics in EDs. "That really has evolved," she said, but there is still some hesitation because it can be seen as giving up turf. She has also seen great resistance from the EMS community about letting nurses do some of the things that paramedics do. "It really has got to be a dual collaboration and a two-way street," she said. This is not about turf, but rather about working together because none of us can do this alone. "That mindset needs to be developed at a national level."

Manz said he observes more and more EDs struggling to find qualified emergency nurses. "When there is that acute shortage staring you in the face, it brings people to the table to say wait a minute: Is there another way we can do this?" It begs the question: What is the appropriate integration of EMS personnel that will allow the scarce resource of qualified emergency nurses to focus on the most essential parts of their jobs?

One concept for promoting bridging is to develop a core knowledge that everyone should have (e.g., some anatomy and physiology, and some patient assessment skills), Manz explained. Once someone studies the core, then they can specialize and become a nurse, paramedic, respiratory therapist, or something else. Kurt Krumperman, of the University of Maryland–Baltimore County, said physicians have a similar type of core content in their training. "I think we need to really take a serious look at that," Krumperman said, but warned we are not going to be able to cross that bridge until EMS education requires an associate degree for paramedics. Otherwise, he said, "it's just not going to happen. But we haven't begun to hear [the] resistance [we will when] we try to make that a requirement."

PERFORMANCE IMPROVEMENT

Ron Anderson, chief executive officer of Parkland Hospital, said he has been involved with training paramedics since 1975. One of the things he has noticed, particularly in programs run by fire departments, is that they are somewhat afraid of learning from mistakes. The hospital has asked several

times whether they would like to use their quality assurance programs, which are protected by law. But the municipal government has a fear of being beaten up, and they are not in a no-fault situation.

Manz replied that reticence on the part of some EMS providers to be driven by evidence may partly be due to inexperience with it. Evidence-based medicine is a huge challenge in EMS because not a lot of evidence exists. We are in our infancy in terms of integrating evidence as it comes along into scope of practice models and the delivery of education, he said. But in terms of data, the National EMS Information System is essentially going to take EMS from the stone ages to state of the art. Hopefully having a better database in place will fuel research and lead to quality improvement initiatives that contribute to evidence-based practice.

Prentiss commented that this is a cultural issue. If you give people some of the tools and provide some positive examples of how performance improvement can work, over time they will start to come around and begin to bring what they're learning into practice. In addition, it involves making sure you have the legal infrastructure for protection outside of performance improvement, or that the state has the language within its EMS statute to provide that same type of protection. Krohmer agreed. "In many states there is not legislative protection for quality improvement activities in the out-of-hospital setting," he said. "Because of that, there is an extreme hesitance on the part of hospitals to share data on EMS patients to help us examine outcomes issues."

IMPROVING NURSE AND MEDICAL EDUCATION

Nick Jouriles of ACEP underlined the point that we do not teach injury to our nurses or physicians. He was once affiliated with a medical school where the students were taught for 4 hours about the molecular genetics of malaria and not a single minute on injury, despite the fact that no cases of malaria occurred in that locale in the past hundred years and injury is the leading cause of death in the 1–44 age group.

Jane Scott, of the National Heart, Lung, and Blood Institute at the National Institutes of Health, said the entire domain of emergency medicine has grown enormously in the past 40 years. Nursing complexity, medical complexity, EMS complexity, the technologies that are in use, she said, "You name it; it's become vastly more complicated." She remarked that "people are getting pushed to the hilt and are being put in positions that they shouldn't have to be in."

Scott asked whether people in nursing and medicine who are taking on leadership roles should take coursework to start developing their skills in management, strategic planning, and team building. Meredith replied that these types of courses are becoming more and more part of faculty develop-

ment programs and programs in nursing schools and medical schools across the country because there is recognition of these needs.

Emory University has a program of team-based training, with the medical and nursing students using a simulation lab to promote team-building skills, Haley said. The paramedic component has not yet been implemented. Management believes there is great opportunity in terms of training physicians and nurses together to think about resources from a strategic point of view. But so far they have fallen short in these efforts, Haley said.

REGIONALIZATION

Mike Handrigan, from ASPR's Emergency Care Coordination Center, said a solution that has been discussed is regionalizing care delivery. "If we create a more condensed and efficient care delivery system through regionalization, how will that affect the venues in which our residents are trained? We need to be conscious of that as we move forward," Handrigan noted.

Neurosurgeon Alex Valadka added, "I think regionalization implies that everything goes to one big hospital." A better term might be "regional coordination," in which you make full use of your network and the smaller stuff can stay at the smaller hospitals. Believe it or not, he said, we are starting to see people with the simple, linear, non-displaced skull fracture who are awake and alert and have a normal head CT, who are being sent to us because they have a skull fracture. I'm not sure why they are doing that, he said, but part of it may be lack of education on the part of the sending docs. So to some extent there may need to be some education about what does and does not need to be sent, he said.

ESTABLISHING A CRITICAL CARE CERTIFICATION

David Wright of Emory University asked who it was that would not allow emergency physicians to be certified in critical care. He said these people are holding us back. In reality this could be changed overnight. Valadka pointed out that neurosurgeons are experiencing a problem similar to that of emergency physicians. Although neurosurgeons' board certificates say they do critical care, that designation is not something that is recognized by Leapfrog. So although hospitals are saying that they don't have enough intensivists or neurointensivists, and neurosurgeons are willing to do the work, they have not been allowed to participate.

Haley said certification for critical care training is really a turf issue. Surgeons in the room probably have a different perspective, but there are critical care fellowship training programs that emergency physicians have completed, but they are still not allowed to be board certified in critical care.

Fildes, trauma surgeon from Las Vegas, said that emergency medicine's conflict is not with surgery. It is with the American Board of Medical Specialties (ABMS). "Surgeons get it. You guys treat critically ill patients every day. What you need is a very specialized curriculum and fellowship training program that focuses on topics like obstetrical emergencies, neonatal, children, cardiac, and renal," Fildes said. "You don't get any of that in the surgical critical care program."

"We understand that you need it, and our house is not the right place to get it," Fildes continued. "We would support you in approaching [ABMS]. Just be careful of one thing. It is a double-edged sword. You want to end boarding, but you want to set up critical care areas in your emergency centers. You have manpower shortages, but you are trying to get boards and other specialties that create bridges out of your profession. That disconnect will not be viewed favorably across the board. That is the only caution that I add to it."

Finally, session chair Krohmer asked the panelists to say, in one word if possible, what is the most critical workforce issue in your discipline that we need to address right now? Their responses were as follows:

- Haley: "ER docs, more of them."
- Meredith: "Residents and training slots."
- Howard: "Nurses."
- Manz: "Partnerships."
- Prentiss: "Funding."

REFERENCE

Manz, D. 2009. *The EMS Education Agenda for the Future*. PowerPoint slide presented at the National Emergency Care Enterprise Workshop, Washington, DC.

6

Emergency Care Economics

Guy Clifton, former chair of neurosurgery at the University of Texas–Houston and a national authority on health policy, chaired the panel session on emergency care economics. He opened the session by saying, "I've learned that if you want to know the priorities of any organization, business, or nation, just follow the money."

Back in 1976 while Clifton was training in neurosurgery, he remembers having discussions about how a neurosurgeon practicing in a community of 100,000 people will operate on only about six aneurysms per year. This is not enough to maintain an adequate skill level. However, if all the aneurysms in a larger area were performed in one location, the results would be better and total costs would be less. He said the previous panel's discussion on workforce made him wonder whether the economics of emergency medicine and trauma will compel us to move in this direction in order to do more with less; that is, to create efficiencies by centralizing certain hospital functions and perhaps closing an additional number of rural hospitals over the next decade. He said this will never been done through regulation, but it may be done through economics.

IMPACT OF THE ECONOMIC DOWNTURN ON EMERGENCY CARE

The first session panelist, Catherine Hoffman from the Kaiser Commission on Medicaid and the Uninsured, described how the current economic crisis has influenced emergency care. She said that emergency departments, with their always-open door, may be particularly vulnerable to the fallout

that is occurring from rising unemployment and the consequent growth in the number of uninsured and Medicaid and State Children's Health Insurance Program (SCHIP) patients.

Hoffman noted that the monthly unemployment rate grew from an average of 4.6 percent in 2007 to 8.9 percent in April 2009. She said analysts expect that this high unemployment rate is going to persist well into the period of economic recovery, which is expected to be sluggish (Holahan and Garrett, 2009). This degree of job loss creates a marked drop in employer-sponsored insurance. In addition, as family incomes drop, more patients will become eligible for Medicaid and SCHIP.

Evidence shows that the uninsured do not disproportionately use emergency departments (EDs) for care. But even if their ED use rate stays the same, more uninsured patients will be coming to the ED because there will simply be more of them. In contrast, Medicaid patients, many of whom have one or more chronic conditions, do disproportionately visit emergency departments. Studies indicate that adult Medicaid beneficiaries who are frequent emergency department users do not use the ED as a substitute for primary care. Rather, they are a less healthy group who needs more of other kinds of out-patient services as well.

Rising unemployment decreases state tax revenue and affects the state's ability to pay for programs, including Medicaid and SCHIP. For this reason, public health insurance programs could face large funding cuts this year. Moreover, because the federal government matches state dollars spent on Medicaid, every Medicaid dollar cut actually means a decrease in Medicaid spending that is twice as large. To ease the states' budget challenges, the federal stimulus package provided approximately $87 billion in increased Medicaid spending over 2 years through a temporary increase in the federal matching payment rates.

Even so, states are likely to work hard to control their Medicaid budgets. In the last recession, all 50 states adopted measures to reduce provider payments and prescription drug spending, which had an immediate effect on Medicaid spending. As a last resort, some states made changes in their enrollment procedures that they knew would decrease the number of beneficiaries. The practical effect was to push people off the state Medicaid rolls and into the ranks of the uninsured.

Provider payments from public plans remain low relative to other health care payors. In addition, utilization and cost controls that were put in place to limit state prescription drug expenditures are largely still in place. With these policy options already employed, states have less latitude to lower program costs, knowing that further reductions could deeply jeopardize access to care.

MEDICARE PAYMENTS

The next panelist, Marc Hartstein, deputy director of the Hospital and Ambulatory Policy Group at the Centers for Medicare & Medicaid Services (CMS), discussed financing issues from the viewpoint of Medicare. Specifically, he described the role Medicare plays in providing fee-for-service Medicare payments for emergency services. His group within Medicare sets rates for 10,000 ambulance providers (those that are associated with hospitals or hospital outpatient departments) and suppliers (which are independent ambulance companies). Total payments in 2008 were $5.4 billion, including both emergency and nonemergency transport.

Medicare's Hospital and Ambulatory Policy Group also paid $1.9 billion to 3,200 hospitals for outpatient emergency department visits in 2008. These visits also resulted in $2.1 billion in payments to physicians and nonphysician practitioners. These payments were for patients discharged from the ED and not admitted to the hospital. For admitted patients, CMS does not separate out the ED portion of the hospital charge.

Hartstein offered some observations about the previous panel's discussion of Medicare's subsidies for graduate medical education through direct and indirect medical education payments. He said the Hospital and Ambulatory Policy Group writes the policies and regulations that govern those programs. In 2009, CMS estimates Medicare will spend about $9.2 billion on indirect and direct medical education subsidies to teaching hospitals. The vast majority of that money is for indirect medical education, he said, about twice as much as what CMS spends on direct medical education. Indirect medical education is intended to compensate hospitals for the higher costs associated with providing inpatient care in facilities with residents in training. However, Hartstein said that residents' training time is counted even when they are not actually treating patients in the hospital (e.g., outpatient rotations) so some of the rationale behind current formulas for indirect medical education probably has been lost over the years.

THE HOSPITAL'S VIEW OF THE ED

Gary Little, medical director at the George Washington University Hospital, provided the hospital's perspective on the emergency department. He had served as a chair of an emergency department at another hospital and remembers trying to convince administrators how important the ED was to the hospital's bottom line. Now, he said, he is on the other side.

To illustrate the hospital's perspective, he recounted that Ray Kroc, the founder of McDonald's, was once asked about his line of business. Rather than saying he was in "the restaurant business" or "the franchise business," Kroc responded that he was in "the real estate business." Kroc's remark highlights a key consideration for any business, especially the hospital busi-

ness: financial viability is highly dependent on "location, location, location." From a hospital's perspective, its ED is a double-edged sword. Depending on the hospital's geographic location, the type of community the hospital serves, and the payor mix of its patient population, the balance of benefit or harm from operating an ED can shift one way or the other.

On the positive side, the ED is typically the largest entry point for access to the hospital and its services. The admissions that an ED brings in generate vital revenue to cover the hospital's bottom line. Moreover, serving as a safety net that is available 24/7, 365 days a year to provide emergency and trauma care and social services helps to solidify the relationship between the hospital and the community. The ED is often the hospital's primary conduit to the community.

On the negative side, as a round-the-clock service, the hospital must keep its ED geared up for whatever may arrive. That means paying to have equipment and personnel ready to go, even during hours of the night when they are frequently underutilized. Many hospitals must pay physicians to be on call and have to make up for losses they may encounter from delivering uncompensated care or undercompensated care. These commitments entail large fixed costs. If the ED's payor mix declines or a community's rate of uninsurance climbs, as is currently happening across the country, hospitals must cover the costs of uncompensated care. So, depending on where your hospital is located and the type of community it serves, the balance can tip negative—making the ED and the patients it admits money losers for the hospital.

FINANCING TRAUMA CARE

William Schwab, Pennsylvania trauma surgeon and member of the 2006 Institute of Medicine Committee on the Future of Emergency Care in the U.S. Health System, said he has served on many different committees throughout his 30-year career, including the one that drafted the first model trauma systems plan. Through that time, he said, one thing has remained the same: It's all about the finances. In his opening statement, he described two serious financial challenges facing providers in the state of Pennsylvania: trauma system funding and rising malpractice insurance rates.

Enabling legislation for the Pennsylvania trauma system was passed in the mid-1980s. It created an oversight board of diverse stakeholders to manage all aspects of the trauma system, maintain standards, and track and publish outcomes. There are now 27 Level One or Two trauma centers in the state. More than 80 percent of the state's population lives within 30 minutes of one of these trauma centers. Outcomes data indicate that Pennsylvania operates one of the top trauma systems in the nation.

However, financing this system is a constant challenge. An examination of 32,000 admissions to the 27 trauma centers for severe injury

(patients that stay longer than 2 days, require an emergency life- or limb-threatening operation, are admitted to an intensive care unit, or die) revealed that 40 percent of all care delivered by Pennsylvania trauma centers was either not reimbursed or under-reimbursed. This generates approximately $65 million a year in uncompensated care costs that the state's trauma centers must absorb, Schwab said. In the principal urban academic medical centers where fellowship training programs for specialties such as trauma surgery, emergency medicine, neurosurgery, orthopedics, and obstetrics/gynecology (OB/GYN) are located, there is a 65 percent nonpayment rate. Schwab believes the financial situation is so bad that Pennsylvania is approaching a crisis in 2010. At that point, he believes trauma centers and hospitals will no longer be able to cost-shift to maintain operations.

Second, Schwab said, malpractice liability costs in Pennsylvania are escalating rapidly. In his own practice of trauma surgeons—which delivers care to 10,000 trauma victims per year at three trauma centers in the state—malpractice insurance costs pose a heavy burden. In 2002, he said, malpractice insurance premiums cost $32,500 per surgeon, about 23 percent of the revenue the group generated. In 2006, with an identical payor mix, costs reached $82,700 per surgeon. This year, he said, costs will be $118,000 per surgeon—more than half the revenue his group generates. At this point, these costs are being totally subsidized by the sponsoring hospitals.

Schwab then made a key point: His group has never been sued. In 22 years, his group has managed approximately 40,000 cases and paid out five settlements, none for damages and none for greater than $350. However, the rates his group is charged do reflect the fact that they practice in inner city areas and have an outstanding risk profile. "The fact of the matter is," he said, "we are paying for everybody else."

Few young surgeons are entering the field because they see they cannot make a decent living without being a hospital employee, Schwab surmised. Treating the off-hour, very difficult, complex, high-risk cases is not necessarily the kind of practice that young doctors want if they are interested in maintaining a decent lifestyle.

Schwab noted that state Good Samaritan laws allow people on the street to render cardiopulmonary resuscitation, stop bleeding, or put a tourniquet on someone without a fear of a lawsuit, but these protections end at the front door of the emergency department. Schwab argued that national standards and tort reform are needed for all people providing emergency care (broadly defined to include neurosurgeons, OB/GYNs, toxicologists, and others, not just the specialty of emergency medicine). "If you render emergency care to try to help someone, you should be relieved of the threat of lawsuit. The care that is delivered should be monitored and should meet high standards, but," he continued, "this country has a workforce shortage—especially on the surgical side—that has become increasingly severe. Steps must be taken

to address this before it becomes a major crisis, especially when the baby boomers retire."

Finally, Schwab noted that billing codes often do not recognize the complex and difficult care that trauma surgeons provide. The disparity in the financial margins between an elective neurosurgical case or an elective transplant case versus the life- or limb-saving care trauma surgeons provide is "unbelievable," he said. Hospital administrators seeking greater profitability will inevitably shun trauma care until Current Procedural Terminology (CPT) codes are adjusted to recognize the difficulty of these cases and the cost of their management.

REIMBURSING EMS

The next panelist, Kurt Krumperman, chair of the finance committee of the National Emergency Medical Services Advisory Committee (NEMSAC), discussed a vision for the future of emergency medical services (EMS) financing. His comments did not represent final policy recommendations from NEMSAC, but reflected some of the themes from their discussions.

A study released by the Government Accountability Office in 2007 found that Medicare payments for EMS services were 6 percent below the costs associated with providing those services, "and Medicaid typically pays even less than Medicare does," Krumperman said. Many EMS patients have no insurance at all. Much of the revenue for ambulance service comes from shifting costs to commercial insurance companies.

Other components of EMS, such as 9-1-1 service, are not funded through fee-for-service financing. Contributions generally come from other parts of the health infrastructure or from tax-based financing. In addition to 9-1-1, funds may be used to finance medical direction for the EMS system, quality improvement activities, and other functions.

The committee believes that incorporating EMS as an integral component of an organized system of care can contribute to better patient outcomes and lower downstream costs. For example, the role that EMS plays in quickly transporting ST-Segment Elevation Myocardial Infarction (STEMI) patients to the cath lab for acute percutaneous coronary intervention (angioplasty) has been fairly well researched and has produced significant improvements in patient outcomes. One proposal the NEMSAC finance committee is discussing is to recommend that EMS receive higher payments (categorized as ALS2 rather than ALS1) to treat certain types of patients, such cardiac arrest, STEMI, stroke, pediatric, and serious trauma patients. These added payments would support EMS operations in integrated systems of care, including the cost of adopting the technology required to provide their portion of service.

In addition, EMS personnel now serve a number of patients who prob-

ably do not need transport to an emergency department and could instead be evaluated and referred to their regular provider (e.g., a physician's office or a clinic) or be transported to an alternative and more appropriate destination (e.g., a dialysis center). This could lower total health care costs by avoiding the need for an emergency department encounter and help relieve emergency department crowding. Unfortunately, EMS payment policy is currently contingent on transporting patients to the emergency departments so existing financial incentives are misaligned. EMS is paid for the ride, not for their care.

Another overarching concern with EMS financing is ensuring that it reflects the full cost of readiness—the capability to properly respond to time-sensitive requests for service 24 hours a day, 7 days a week, 365 days a year. Such a system should include metrics of response time reliability set at some national standard (or community standard) that includes a certain percentage of surge capacity, Krumperman said. This might require uncoupling EMS system financing from transport payments and building an alternative financing model.

A VIGNETTE

The final panelist, Michael Granovsky, president of Medical Reimbursement Systems Inc., an emergency physician, and a certified coder, provided a vignette to illustrate the payment issues involved in emergency cases. He selected a patient with blunt trauma, a typical serious trauma case in the United States. His slide depicted a 48-year-old female who had struck a guardrail at a high rate of speed and was brought in by ambulance. He said the patient was complaining of severe abdominal pain and some lower extremity pain. The patient received life-stabilizing, life-saving care and was admitted to the intensive care unit.

Granovsky examined the cost involved in providing care and compared it against the reimbursement (Figure 6-1). He said that an emergency physician might be paid $140 (he noted that trauma surgeons might receive more, including an on-call fee). Conservatively, liability premium costs allocated on a per patient basis might equal $13, he said. Overhead costs were estimated at $24. In addition, he said there are readiness costs. Granovsky noted between the hours of 11 pm and 7 am, all but the busiest EDs do not have enough patient traffic to cover cost. He explained it this way: "You can't have less than one doctor standing in the room, and yet often you only need about 0.6 physicians to be there at that point." So there is an enormous cost to have trained, qualified, board-certified providers ready to receive anyone who comes through the door. It does not just happen magically, he said.

Expected Medicare reimbursement for the woman's injury from the

Provider	Code/Bill	Liability	Overhead	Standby	Total
$140	$11	$13	$24	$32	$220

Cost	Medicare	Medicaid	Self-Pay
$220	$212	$148	$63
Net	–$8	–$72	–$157

FIGURE 6-1 Payment distribution for routine medical emergency.
SOURCE: Granovsky (2009).

guard rail under CPT code 99291 is $212. Granovsky noted that Medicare is one of the better payors in many situations, but the payment results in a net loss of $8 for providing the life-saving care. "You can see why hospitals back away from this," he said. "If the patient was covered under Medicaid, the reimbursement would vary by state, but in general, a fair and probably conservative estimate is that Medicaid reimburses about 70 percent of what Medicare pays. Self-pay patients, on the other hand, pay about 27 percent of the Medicare fee schedule, or about 9 cents on the dollar." At the end of the exercise, Granovsky estimated that a typical ED group would lose $8 providing this care to a Medicare patient, $72 for treating a Medicaid patient, and $157 for treating an uninsured (self-pay) patient. He concluded by saying that the safety net is threatened by the economic reality of having to provide care to so many patients at a loss.

DISTORTIONS IN THE MEDICARE PAYMENT SCHEDULE

Session chair Clifton said primary care faces a similar situation. Medicare pays about $50–65 for a low-acuity visit. As a result, many physicians feel they must order many X-rays or blood tests, or treat 45 patients a day to make a decent living. Distortions in the payment system from the Resource-Based Relative Value Scale (RBRVS) Medicare payment system are extraordinary. They are producing huge distortions in the practice of medicine and safety of patients.

AUDIENCE DISCUSSION

Sandra Schneider, emergency physician from the University of Rochester, said the Medicare payment system favors elective surgeries and other elective admissions, so hospitals preferentially admit these patients whenever they can. An unintended consequence has been that some hospitals have actually taken steps to block emergency departments and keep ED patients

out of beds to ensure there are beds for people who need elective surgeries. A further consequence of that, she said, is that many surgeons have chosen not to enter trauma-related specialties, or limit their practice to elective cases.

Marc Hartstein of CMS said that if CMS has placed a priority on elective admissions, it is by result, not intent. "If you feel that Medicare's priority is to encourage elective admissions, that is certainly not a current stated policy goal anywhere," Hartstein asserted. Schneider acknowledged that the American people want elective surgeries on the day that they want them.

Hartstein said he has been involved in Medicare payment policy for a long time and, for CMS, "Our role is setting the appropriate relative payment relationships among services so that physicians, hospitals, and other clinicians treat their patients according to their clinical needs and not according to financial incentives." He said that is obviously an ideal, acknowledging, "We are always striving to get there and we may never actually reach it."

CMS's objective is to establish the relative payments among different services, not to determine the absolute amount. The absolute amounts are really dictated by statute of Congress, Hartstein said. CMS wants to "get the appropriate relative balance among services so that there are no incentives to either encourage or discourage particular types of services." Most of these judgments about physician payments are not made by a single individual; rather, they are made by a collection of individuals, including advice CMS receives from organized medicine and through public comment periods, he explained.

Through payment reform and health care reform, Hartstein said, there is going to be an effort to encourage the types of services that we believe are the right types, such as primary care, for example. "This will certainly start a spirited debate, because I don't think there is a single uniform opinion as to what the results should be," he predicted.

Clifton observed, "I think the whole payment system is so distorted that I think we have to start over." He said, "Although I have seen many trauma patients who were denied beds in hospitals, I have never met a hospital administrator that wasn't able to find a bed for an elective spinal fusion." He added, "These payment distortions are absolutely driving function and they are driving us out of business, I think."

Nick Jouriles, president of the American College of Emergency Physicians (ACEP) also added: "We have to do something about EMTALA. We know from AMA [American Medical Association] data that the average emergency physician in 2001 gave away $120,000 worth of free care. That is just ludicrous." Although some people say there is not enough money in the system, "We have plenty of money in the system. We just need to make emergency care a national priority."

FINDING NEW REVENUE

Jerry Jurkovich, Seattle trauma surgeon and president of the American Association for the Surgery of Trauma, said staffing shortages are a key component of the emergency care problem, whether it is on the nursing side, the prehospital provider side, or the physicians' side. The problem we need to solve is attracting people to the specialty and retaining them, rather than driving them to leave because of economic disincentives. He posed this question: "If you assume that there is no new money and that to incentivize these providers you have to take money away from somebody else, where would the panel get the money?"

Granovsky said millions and millions of dollars per year are paid out to insurance companies for malpractice costs. In Schwab's example, $100,000 per person in annual premiums is being charged for a group of trauma doctors with an excellent track record. Reducing unreasonable malpractice costs would be one way to reinforce the safety net for physicians providing emergency care under EMTALA mandates.

Angela Gardener, then president-elect of ACEP, said she had previously run a medical malpractice insurance company, and later became a national spokesperson for doctors for medical liability reform. She said the money to fix the emergency care system is currently in the legal system. She also argued that quality care should be decided by people who do not have conflicts of interest. "Everyone who is a payor or a payee should be removed from the room," she said, and the people remaining should base their decisions on quality in the absence of financial conflicts. Also, she said providers who follow the practice guidelines derived from comparative effectiveness research should not be subject to suits.

Schwab said he would keep the money within the system by establishing universal Good Samaritan tort reform for all emergency providers for the first 72 hours of hospital-based care, rather than underwrite the insurance companies. The second thing he would do is shift money among the specialties. Every year there are 115 million visits to EDs, "and it's only going to get worse," Schwab said. He said adjustment to CPTs or relative value units need to reflect the fact that emergency care is a priority in this country. If the margin for a neurosurgical elective case is $25,000 and the cost of delivering trauma care is $5,155, some cost shifting may be needed to close that gap.

Clifton argued that if you look at what happens in hospitals and primary care clinics, probably 40 percent of health care costs never need to be spent. Dartmouth study data show that patients in Miami with congestive heart failure get 2.5 times more hospital admissions, 2.5 times more imaging, and 2.5 times more consultations than patients with similar health problems in Minnesota. He said Texas is tied for first place in per-capita Medicare costs and tied for the lowest ranking for quality based on 25 cri-

teria. In hospitals, higher costs and complication rates track each other very closely. He argued that we shouldn't look to the federal government to fix this for us. The problem is largely within the specialties and how medicine is practiced.

Tip Gosch of the University of South Florida–Tampa, observed that in Washington there is always a need to draw money from a larger bucket. If we really embraced a national approach toward disaster preparedness and homeland security, then support for emergency care services needs to be part of that bucket. There is wide bipartisan support for homeland security. Rather than just looking to the Department of Health and Human Services or the Department of Transportation, emergency and trauma care should try to connect to funding streams in the Department of Homeland Security (DHS), Gosch said.

Trauma surgeon Bill Schwab said he knows of only one state, Connecticut, that has fully integrated their Level One and Level Two trauma centers into a disaster response system. However, he said that most people can reach a trauma center within about 45 minutes in the United States. Nevertheless, he has not seen the federal government make any efforts to build linkages with the trauma systems community. "It's got to go both ways," he said, adding that several years ago, some trauma community leaders had approached the DHS about this issue, but "it just wasn't on their radar screen." Nevertheless, Schwab believes the infrastructure of the safety net system can and should be integrated with the disaster response system.

Gosch added that Office of Management and Budget Director Peter Orszag has indicated that substantial Medicare budget cuts could occur over the next several years. The Administration is also looking at structuring payment incentives to promote best practices and quality of care. Hospital-based emergency care could be advanced under the rubric of best practices, which could have broad implications, he noted.

COVERING HOSPITAL COSTS

Jouriles of ACEP discussed federal action. "What we hear out of Washington is that people just need to stop using the emergency department. But 'Econ 101' teaches that when you have high [fixed] costs, the only way you are going to amortize those costs is to increase use, not to decrease it," he asserted. "We need to fund the [emergency care] infrastructure. It is a matter of patient safety and a matter of national security."

Ricardo Martinez noted that "EMTALA is a huge issue. While EMTALA was a good idea that started off for the right reasons, it has now become a perverse idea in many ways because of how it has been used. Patients without insurance are routinely sent to the emergency department, and conse-

quently there is a huge cost shift that occurs every day." Martinez noted that "right now, if I am an office-based practitioner, I can refuse to see anybody, no matter how sick they are or how long they have been a patient of mine. I can send them to the ER [emergency room]. That puts a huge burden on those hospitals." He added, "Health care reform has been focused largely on saving money, but where is the plan to not just save money, but to save the infrastructure that we all rely on to be there?"

Clifton agreed that EMTALA is an unfunded mandate. The solution is to make sure that the patients coming through the door have insurance, so that everyone has money attached to them. Covering the uninsured would turn EMTALA into a funded mandate.

John Fildes, chair of the American College of Surgeons' Committee on Trauma, concluded the session. He noted that trauma care systems vary widely across the country, as do liability provisions. There is no top-down coordination, he observed. There is so much variability in care and outcomes that without some sort of central mechanism to level the playing field with respect to liability, standardization of care, quality, metrics, and so on, it will be impossible to improve, Fildes argued. "We are working in 50 silos—it is clear from our discussions that some authority, some agency is going to have to help us to level the practice environment."

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7

Federal Partners Roundtable

Arthur Kellermann, workshop chair, moderated the concluding session. It brought together the chairs of the four crosscutting panel discussions, and the three federal partner representatives. Kellermann reminded the participants of the original charge of the workshop, which was to examine where the emergency medical services (EMS) community is 3 years after the release of the Institute of Medicine (IOM) reports, and to suggest concrete ideas and thoughts regarding how the federal emergency care enterprise can most immediately and significantly advance emergency care in the United States. The session chairs began by describing what they considered to be the high points of their sessions.

SESSION CHAIR SUMMARIES

Michael Rapp, who chaired the first panel on quality and patient safety, said that crowding had been the key point in his panel's discussion. A number of participants called crowding a major issue that adversely impacts quality and safety in the emergency care system. One participant argued that the state of hospital-based emergency care should be viewed as the "vital signs" for the functioning of the health care system overall. Rapp noted that workshop participants considered 40 percent of health care costs wasteful and unnecessary. He asked how the emergency care system could be more efficient in terms of delivery of care. He noted that the panel's discussion of regionalization highlighted the competitive issues that may arise among facilities operating in a regionalized system. Although regionalization has benefits, it can also have adverse impacts on community hospitals.

Tom Scalea, chair of the research panel, spoke next. He observed that the two issues that repeatedly emerged in all four sessions were money and workforce challenges. Among the four panel topics, he said emergency care research is probably the area where the least progress has been made in the past 3 years. He summarized the three major points of the research panel discussion. First, the field needs a team of investigators who can be funded and sustained through their entire career (much of the research conducted now, he said, is done on the backs of faculty practice plans). Second, research questions that cross traditional academic boundaries need to be defined, and people need to cooperate in order to be able to execute research plans. The corollary to this, he said, is identifying a way to fund that research. Little clinical research on trauma care is funded, he noted, other than perhaps by the Department of Defense. Finally, people need to grapple with regulatory issues that hinder emergency care research.

Jon Krohmer, chair of the workforce panel, spoke third. He said the top take-home message from his panel was how pessimistic the discussion had been. The overall theme was that there are critical issues at the physician level, not just among the emergency physicians and trauma surgeons, but also the on-call specialists, critical care specialists, and other disciplines that are needed to support the emergency care system. The emergency nursing workforce also has significant challenges, particularly in recruiting and retaining sufficient numbers of nurses to care for patients appropriately. In addition, there are ongoing concerns with EMS personnel, particularly in terms of how they should fit into the broader emergency care system. Overall, he said, the system today is very stressed.

Krohmer noted that his panel had discussed alternative models of care that involve mid-level providers, physician assistants, and nurse practitioners. However, he said that right now health profession students are not offered enough education in emergency health care. This problem needs to be addressed. Certification or some other type of recognition should be established, he said.

Guy Clifton, chair of the fourth and final panel discussion on economics, said the combination of underpayment of public programs and growing numbers of the uninsured has produced a chronically underfunded system. He recalled trauma surgeon William Schwab's statement that in Pennsylvania, the percentage of patients on which trauma hospitals lose money varies between 20 percent and 65 percent. Some hospitals are "operating on air."

Clifton said his panel's discussion highlighted longstanding distortions in the Medicare Resource-Based Relative Value Scale (RBRVS) system. This discussion raised interesting questions regarding where the money would come from to rebalance the system. In a zero-sum situation, would transfer payments have to come from other specialties such as neurosurgery and

cardiac surgery and be brought over to emergency care? Clifton does not believe it has to be a zero-sum game. Given widespread variability in care and obvious inefficiencies in the system, eliminating waste would free up plenty of money to strengthen the system.

Clifton said the panel's conclusion seemed to be that nationally accepted standards of care are needed to reduce wasteful variability of practice. A powerful idea, he said, is to tie malpractice protection to physician compliance with clinical standards.

FEDERAL PARTNER OBSERVATIONS

The three federal partners then highlighted some of the key messages they heard over the course of the 2-day workshop.

Mike Handrigan, from the Office of the Assistant Secretary for Preparedness and Response in the U.S. Department of Health and Human Services, said he thought this had been a tremendously successful meeting. Looking around the room, he said, "we have EMS personnel here with allied health, nursing, emergency physicians, surgical staff, and in-house physicians all converging and coalescing around the concept of the emergency care enterprise. . . . [I]t is absolutely amazing to see this coalition developing around the emergency care enterprise with such a great deal of momentum, both inside and outside the federal government."

Drew Dawson, director of the Office of EMS at the National Highway Traffic Safety Administration, said the key messages he would highlight have to do with the importance of collaboration and coordination, and how important both are in exercising leadership. He said we certainly need extra finances in many parts of the system, but he agreed with Dr. Runge's observation that "you can't grant your way out of a problem." In Dawson's view, one of the most critical issues raised in the workshop was to determine how "regionalized, accountable, and coordinated" systems of care should best be structured. "We need to examine the structure and function of existing systems—how they work, where they work, where they don't work, and what factors contribute to their success," he asserted.

Dan Kavanaugh, of the Maternal and Child Health Bureau at the Health Resources and Services Administration, said there had been discussion on Day 1 regarding who the champions on Capitol Hill are, but less focus on the consumer constituencies that need to serve as champions for emergency care resources and research. For example, where is emergency care's Michael J. Fox—a strong advocate for Parkinson's disease research? Perhaps one reason advocates are not out there is because frontline providers do such a good job, so people think everything is okay, Kavanaugh noted. With regard to research, he believes there is a need to improve linkages among academic institutions, community hospitals (where 90 percent of children

receive care), and EMS agencies. He endorses the notion of a moratorium on creating emergency care research agendas. Roger Lewis, an emergency physician from Los Angeles, recently identified 19 emergency care research agendas that had been produced over the past 10 years. Many priorities detailed in these agendas have yet to be addressed.

With respect to collaboration, Kavanaugh noted that even before the Federal Interagency Committee on Emergency Medical Services (FICEMS) and the Emergency Care Coordination Center (ECCC) existed, there was a lot of collaboration between NHTSA and the Emergency Medical Services for Children (EMSC), a part of HRSA. He believes it is important to institutionalize these relationships, rather than basing them on individuals. For example, each year the EMSC program sends a small amount of money to help support the NEMSIS effort, even though NEMSIS is not specifically directed to children.

SUGGESTED FEDERAL PRIORITIES

Ryan Mutter from the Agency for Healthcare Research and Quality (AHRQ) responded to Dawson's question by observing that we have data on what happens to patients before they come into an emergency department (ED) and on what happens after they arrive, but these two datasets do not talk to each other. There needs to be a push to link these datasets to capture what is going on across the entire emergency care enterprise. He also noted several important gaps in our knowledge. For example, two unknowns are how many ED beds our country has and how many staff members work in EDs. Improving data capture and linkage would be very helpful.

Dia Gainor of Idaho called for demonstration programs or grants aimed at supporting regionalized, accountable systems of emergency care. These will need to be geographically diverse and include rural areas. Although the IOM reports were great in describing regionalization in overarching terms, they lacked specificity with regard to what regionalized systems should look like and how they would work.

Jerry Jurkovich asked for more federal dollars for comparative effectiveness research in trauma and emergency care. This type of research would help to define which systems of care are cost effective, minimize variability, and maximize safety and quality. Rapp asked what aspects of these systems would be compared. Jurkovich replied that the two types of trauma systems, inclusive and exclusive, should be compared. For example, how many hospitals within a region should be part of the trauma program? Is 70 percent appropriate? Also, he asked, what transport distances provide the most cost-effective care? How many ambulances are needed in a system? How many helicopters are needed? Should helicopters transport patients from

100 miles away? If the federal government puts out a Request for Proposals, it will receive hundreds, he remarked.

Handrigan responded that his previous job was in the comparative effectiveness field, as a program officer in the Center of Outcomes and Evidence at AHRQ. Handrigan sees an opportunity to develop the argument that emergency care, systems of care, and disease-oriented questions should be evaluated in context of comparative effectiveness. "We stand ready to partner with you to make that argument," he said.

Dean Wilkerson, executive director of the American College of Emergency Physicians (ACEP), said many good ideas had been generated at this conference, but the reality is that money and staff—and time to find both—are limited. In response to Dawson's question, Wilkerson said he would encourage federal agencies to figure out where their efforts are most likely to result in immediate discernible progress. Wilkerson believes that figuring out how to address the boarding problem has the potential to have a huge impact on quality and patient safety in the United States. All five federal agencies are impacted by this problem, through disaster preparedness, metrics, young people, traffic crash victims, or other ways. These agencies should determine how to work within their spheres to improve this problem.

Bob Bass, director of the Maryland Institute of EMS Services and a member of the original 2006 IOM committee, rose to reiterate the point about boarding and overcrowding. He recalled that the committee spent a lot of time on this issue and came up with some well-thought-out recommendations. Some were directed to the Centers for Medicare & Medicaid Services (CMS), such as convening experts to develop standards and create financial incentives and disincentives to address the issue. Some hospitals have made improvements, he said, but it is not happening on a widespread basis. If CMS addressed some of these recommendations, it would result in tangible progress. He also believes the Joint Commission and professional organizations should take another serious look at the IOM recommendations.

Kellermann outlined three ways to solve the boarding and crowding issue. One is public shame. That requires publishing hospital-specific data. Second, regulatory or congressional action is needed, but that has not been forthcoming. The third is to cover the uninsured. That is the best way to change the financial incentives so that fixing crowding becomes a good business decision.

Jurkovich said comparative effectiveness research could focus on identifying the best approaches to reducing ED overcrowding. Handrigan noted that there is a natural experiment happening right now in Massachusetts with respect to the state's ban on ambulance diversions. This state's experi-

ence could be compared with others to find out if the ban has decreased crowding and improved service.

ACEP Vice President Sandra Schneider said the positive outcomes in Massachusetts have been tied to the ability to move ED patients to hallways upstairs, rather than hold every admission in the emergency department. Data have shown that when patients go upstairs, Schneider said, they get better care and get into a bed faster. Putting patients on the floor works, she said, because then the floor staff needs to find a bed for the patient, who is no longer invisible in the emergency department.

Angela Gardener from ACEP asserted that if a moratorium were placed on elective surgery when patients are being boarded in the emergency department, boarding would end tomorrow.

David Marcozzi, of the White House Homeland Security Council, said there are concerns that in fall 2009, the United States will experience a major public health and medical event with the H1N1 virus. The virus has the potential to significantly affect how acute care is delivered nationwide. He noted that many of the nation's leaders in acute care are present in the room. He acknowledged the value of broad and strategic goals, but said we also must focus on a short-term goal—the impending pandemic. He put it this way: This Hurricane Katrina (the H1N1 pandemic) is approaching, and we do not know whether it will be a Category 1 or a Category 5 storm, but we know it is coming. How can we express as one voice what we need to do to effect change by this fall?

Kellermann suggested that a Presidential order be communicated that every hospital that receives Medicare funding adopt and begin gaining experience with the use of a "full-capacity protocol"—a recommendation recently tendered by ACEP. It requires each inpatient unit to temporarily hold one or more admitted patients in their hallways whenever the ED reaches a critical level of crowding. This is a safer strategy than holding all admissions in the ED. Adopting this policy now, Kellermann argued, would give hospitals vital experience with the logistics required to operate at 120–150 percent of their normal occupancy. Emergency departments have been rehearsing this for 20 years; now is the time for inpatient units to do the same. Asking hospitals to begin placing additional patients on the inpatient floors now will communicate the level of gravity of and concern about the current situation and invest the entire hospital in planning for the challenge.

Lewis said the first question from the California hospital administration about H1N1 will be whether such a federal mandate will override state regulations on nursing ratios. If it does not, it is a nonstarter.

Pennsylvania trauma surgeon Schwab said we need one government agency that speaks for all of emergency care. He said the Federal Aviation Administration sets regulations for nearly all things having to do with avia-

tion. If our nation had 50 airports that were run by 6 or 7 different federal agencies, the amount of crashes in aviation would increase exponentially. He said the IOM report acknowledges that the federal partners need to have good working relationships, but it concludes a single agency needs to speak for emergency care.

This lead agency structure needs to be inclusive because emergency care involves many different provider types, including cardiologists, neurologists, toxicologists, surgeons, high-risk obstetrician/gynecologists, and others, and to end boarding, "We have to make sure the back end of the house works well." But in his view the biggest crisis will come not from swine flu, but from the fact that "we just won't have a workforce in about 3 or 4 years."

John Fildes, chief of the Division of Trauma & Critical Care at the University of Nevada School of Medicine and chair of the Committee on Trauma (COT), agreed that in order to effect the kinds of changes detailed at this workshop, strong central leadership is needed. Otherwise, we will not be able to standardize care, reduce variation, implement an effective monitoring system, or enforce the metrics. We need a strong top-down leadership in order to standardize and integrate all the areas discussed. "The only difference between a pile of wool and a sweater is organization, and really we are like a pile of wool," he said.

Emergency physician Lewis suggested that the ECCC use the participants attending this workshop as an advisory group. Handrigan responded that the emergency care enterprise covers the entire spectrum of emergency care activities and agreed that the federal government should not act in a vacuum. He said the ECCC was created in part to be a "touch point" for nonfederal stakeholder partners, but also so officials in the federal government will have a touch point inside government to get a handle on emergency care issues. "I look forward to the nonfederal stakeholder input and I need it," Handrigan said. However, he noted that the Council on Emergency Medical Care (CEMC) is explicitly designed as a federal council. Creating a nongovernmental advisory council that complies with Federal Advisory Committee Act (FACA) is a multimillion dollar process that can take several years to establish. "The vetting process for that," he said, "is beyond something we can accomplish tomorrow." In the meanwhile, the CEMC will be reaching out to individual nonfederal stakeholders to get the expertise and guidance it needs.

Dawson mentioned that, with respect to the prehospital component of the emergency care enterprise, there is now the National Emergency Medical Services Advisory Council. It is compliant with the FACA and provides a significant amount of input to the national emergency care enterprise, predominantly from a prehospital perspective.

ECCC Paramedic Andrew Roszak, who recently worked for Congress, applauded the discussions about coming together and making a lobbying

effort on behalf of emergency care. Having said that, though, he cautioned against making enemies right off the bat by saying the attorneys and malpractice costs are to blame for the problems of emergency care. He noted that Capitol Hill is made up of attorneys.

Ron Anderson, president and chief executive officer at Parkland Health & Hospital System in Dallas, pointed out that there are limited resources to pay for health care in this country. In the allocation of limited resources, some services will be deemed essential and others nonessential. We should make it clear that emergency medical care is an essential public service and should therefore be protected and funded as an essential public service.

CLOSING REMARKS

Clifton said that problems in emergency care appear to be deep, structural, and financial. They are inextricably tied to the overall health care system. But he said you can't get attention to a problem if you can't measure it and you can't report it. As an example, the problem of diversion is underreported and consequently many are unaware of it. The first job should be to report publicly and continually the measures of distress of emergency care services.

Krohmer recalled Gainor's question on the first day of the workshop, "Why is the federal government requiring us to plan for taking care of 500 people in a catastrophic event, when we cannot take care of a regular patient load of 50 people on a day-to-day basis?" Krohmer completely agrees with that perspective. Having said that, he noted that some of the threats we face are real and significant. The H1N1 threat has very severe potential for harm. There are some real issues that our nation must address. It is vital to ensure that the preparedness activities enhance what happen on a day-to-day basis because enhanced day-to-day capabilities allow communities to respond more appropriately to catastrophic events.

Scalea noted that near the end of the meeting, much of the discussion had been focused on priorities for immediate action—what are we going to do first? He cautioned that we need a durable plan as well. Over the long haul, the ability to collect data, to ask and answer questions, will be hugely important.

Rapp cautioned that presidential directives sound appealing, but there are not too many areas in health care where even the President has complete authority. There are more than 4,000 hospitals in the United States, and most are run by various private entities. In highlighting the challenge of organizing a federal response, Rapp cited his own area of expertise—measurement. There, changes cannot just be directed; a lot of consensus making must take place first. Measures that CMS uses must go through the National Quality Forum, which has to endorse them. Pretty much anything CMS does

involves rule making and mandatory public comment periods. CMS must consider all public comments before coming up with a final ruling.

Rapp noted that the same considerations would apply to any modification in the Medicare payment system. Getting anything accomplished will require long-term engagement and will likely face resistance from interest groups. If overcrowding and boarding are issues this group wants the federal government to tackle, he said, it will be important to maintain continued engagement in the process. "When you try to push things one way," he said, "somebody will think it's great, but somebody else is going to think it's terrible. I urge you to continue your engagement with your federal partners as we try to tackle these issues through the ECCC."

Appendix A

Workshop Agenda

May 21–22, 2009

Embassy Suites
900 10th Street, NW
Washington, DC 20001

Background:
In 2006, the Institute of Medicine (IOM) released a series of three reports on the Future of Emergency Care in the United States Health System. This workshop provides an opportunity to examine the progress that has been made since that time in moving the nation toward the IOM's vision of a "regionalized, coordinated, and accountable" emergency care system. One of the central recommendations contained in the IOM reports encouraged the federal government to more effectively coordinate emergency care-related activities that are widely dispersed through various federal departments and agencies. Now, three years later, structures are being put in place to address this challenge. This workshop is being convened to bring stakeholders and policy makers together to discuss which of the many challenges facing emergency care are most amenable to coordinated federal action.

Audience:
Participants will include policy makers from the various federal agencies involved in emergency care, state and local officials, and stakeholders from the health care provider community. Thought leaders from a wide range of relevant disciplines will be in attendance, including nursing, EMS, special-

ist physicians and surgeons, public health officers, and hospital and health system administrators.

Objectives:

1. Foster information exchange between federal officials involved in advancing emergency care and key stakeholder groups from around the country.
2. Identify policy areas that are of great and immediate concern for emergency care stakeholders and federal policy makers.
3. Hold discussions with federal partners regarding the policy and programmatic areas that should be the focus of coordinated federal action.

DAY 1: THURSDAY, MAY 21, 2009

7:30 a.m.–8:30 a.m. **Continental Breakfast and Workshop Registration**

8:30 a.m.–8:45 a.m. **Welcome and Workshop Overview**

Art Kellermann (Workshop Chair)
Professor and Associate Dean for Health Policy
Emory School of Medicine

8:45 a.m.–9:15 a.m. **Keynote Address**

Jeff Runge
President, Biologue, Inc.
Former Assistant Secretary for Health Affairs
Department of Homeland Security
Former Administrator, National Highway Traffic Safety Administration
Department of Transportation

9:15 a.m.–10:30 a.m. **Status Reports: Federal Progress Since the IOM Report Releases (2006)**

Hospital-Based Emergency Care
Mike Handrigan
Acting Director, Emergency Care Coordination Center
Office of the Assistant Secretary for Preparedness and Response
Department of Health and Human Services
Chair, Council on Emergency Medical Care

Prehospital EMS
Drew Dawson
Director, Office of Emergency Medical Services
National Highway Traffic Safety Administration
Department of Transportation
Chairman, Technical Working Group
Federal Interagency Committee on Emergency Medical Services

Emergency Care for Children
Dan Kavanaugh
Senior Program Manager
Emergency Medical Services for Children Program
Maternal and Child Health Bureau
Health Resources and Services Administration
Department of Health and Human Services

10:30 a.m.–10:45 a.m. Break

10:45 a.m.–12:15 p.m. How Federal Policy Affects Emergency Care at the Community Level

Facilitator:
Mary Jagim
Client Engagement Manager, Intelligent InSites
Senior Health Policy Analyst, Emergency Nurses Association

Following a short presentation describing recent data on ED crowding, participants will provide input on how the policies implemented by the various federal agencies are impacting emergency care systems throughout the United States. The facilitator will direct questions to the audience and solicit their feedback. Topics will include (1) EMTALA (e.g., changing on-call staffing requirements); and (2) EMS and trauma systems planning and development (history of federal involvement).

12:15 p.m.–1:15 p.m. Lunch

FOCUS AREAS

Objective: The workshop will focus on four areas that are of central concern for policy makers and stakeholders: (1) quality and patient safety, (2) research, (3) workforce training, and (4) financing and reimbursement. Each of these sessions will last an hour and 45 minutes. Representatives from 5 disciplines will provide introductory remarks (5 minutes each), and then the session chair will engage them in interactive discussions. The chair will also invite the participation of the audience for their questions and comments.

1:15 p.m.–3:00 p.m. **Focus Area #1: Quality and Patient Safety**

Session Chair:

Michael Rapp
Director, Quality Measurement and Health Assessment Group
Office of Clinical Standards and Quality
Centers for Medicare & Medicaid Services
Department of Health and Human Services

Panelists:

Ron Anderson
President and CEO
Parkland Health & Hospital System

Susan Nedza
Vice President, Clinical Quality and Patient Safety
American Medical Association

John Fildes
Chief, Division of Trauma & Critical Care
University of Nevada School of Medicine

Dia Gainor
Chief, Bureau of EMS
Idaho Department of Health

Charlotte Yeh
Chief Medical Officer
AARP Services

3:00 p.m.–3:15 p.m. **Break**

3:15 p.m.–5:00 p.m. **Focus Area #2: Enhancing Emergency Care Research**

Session Chair:

Tom Scalea
Physician-in-Chief, Shock Trauma Center
University of Maryland Medical Center

Panelists:

Roger Lewis
Professor, Department of Emergency Medicine
Harbor–UCLA Medical Center

Gregory "Jerry" Jurkovich
Chief of Trauma and Surgical Critical Care
Harborview Medical Center
President, American Association for the Surgery of Trauma

Walter Koroshetz
Deputy Director
National Institute of Neurological Disorders and Stroke
National Institutes of Health
Department of Health and Human Services

Richard Hunt
Director, Division of Injury Response
National Center for Injury Prevention and Control
Centers for Disease Control and Prevention
Department of Health and Human Services

Ryan Mutter
Economist, Center for Delivery, Organization, and Markets
Agency for Healthcare Research and Quality
Department of Health and Human Services

DAY 2: FRIDAY, MAY 22, 2009

7:30 a.m.–8:30 a.m. **Continental Breakfast**

8:30 a.m.–10:15 a.m. **Focus Area #3: Health Professions Training**

Session Chair:

Jon Krohmer
Assistant Secretary (Acting) and
Chief Medical Officer
Office of Health Affairs
Department of Homeland Security

Panelists:

Leon Haley
Associate Professor and Vice-Chairman
Department of Emergency Medicine
Emory University
Deputy Senior Vice-President Medical Affairs
Grady Health System

Wayne Meredith
Chair, Department of General Surgery
Director, Division of Surgical Sciences
Residency Program Director
Wake Forest University Baptist Medical Center

Patricia Kunz Howard
Operations Manager, Emergency and Trauma Services
University of Kentucky Chandler Medical Center

Dan Manz
Director, Emergency Medical Services
Vermont Department of Health

Sue Prentiss
Chief, Bureau of Emergency Medical Services
Division of Fire Standards & Training
New Hampshire Department of Safety

10:15 a.m.–10:30 a.m. **Break**

10:30 a.m.–12:15 p.m. Focus Area #4: Emergency Care Economics

Session Chair:

Guy Clifton
Professor and Runnells Distinguished Chair
Department of Neurosurgery
University of Texas Health Science Center, Houston

Panelists:

Catherine Hoffman
Senior Researcher and Associate Director
Kaiser Commission on Medicaid and the Uninsured

Marc Hartstein
Deputy Director, Hospital and Ambulatory Policy Group
Center for Medicare Management
Centers for Medicare & Medicaid Services
Department of Health and Human Services

Gary Little
Medical Director
George Washington University Hospital

C. William Schwab
Chief, Division of Traumatology & Surgical Critical Care
CEO, University of Pennsylvania Trauma Network
Professor of Surgery, University of Pennsylvania School of Medicine

Kurt Krumperman
Clinical Assistant Professor
Emergency Health Services Department
University of Maryland, Baltimore County

Michael A. Granovsky
Vice President
Medical Reimbursement Systems, Inc.

12:15 p.m.–1:15 p.m. Lunch

1:15 p.m.–3:00 p.m. Federal Partners Roundtable

The Federal partners will discuss issues raised by stakeholders during the course of the workshop. Panelists include the Federal partner panelists from Day 1 and the four session chairs.

Session Chair:

Art Kellermann
Professor and Associate Dean for Health Policy
Emory School of Medicine

Panelists:

Mike Handrigan
Acting Director, Emergency Care Coordination Center
Office of the Assistant Secretary for Planning and Response
Department of Health and Human Services

Drew Dawson
Director, Office of Emergency Medical Services
National Highway Traffic Safety Administration
Department of Transportation

Dan Kavanaugh
Senior Program Manager
Emergency Medical Services for Children Program
Maternal and Child Health Bureau
Health Resources and Services Administration
Department of Health and Human Services

Michael Rapp
Director, Quality Measurement and Health Assessment Group
Office of Clinical Standards and Quality
Centers for Medicare & Medicaid Services
Department of Health and Human Services

Jon Krohmer
Assistant Secretary (Acting) and
Chief Medical Officer
Office of Health Affairs
Department of Homeland Security

Tom Scalea
Physician-in-Chief, Shock Trauma Center
University of Maryland Medical Center

Guy Clifton
Professor and Runnells Distinguished Chair
Department of Neurosurgery
University of Texas Health Science Center,
Houston

3:00 p.m. **Adjourn**

Appendix B

Workshop Participants

Terry Adirim
United States Department of Homeland Security

Ron Anderson
Parkland Health & Hospital System

Beth Armstrong
National Association of State EMS Officials

Joyce Bailey
Compirion Healthcare Solutions

Jill Baren
Society for Academic Emergency Medicine

Robert Bass
Maryland Institute for EMS Systems

Karen Belli
EMSC National Resource Center

Maria Bianchi
American Ambulance Association

Steve Blessing
National Association of State EMS Officials

Douglass Boenning
U.S. Department of Health and Human Services

Sabina Braithwaite
University of Virginia Health System

Kim Bullock
American Academy of Family Physicians

Angel Burba
National Association of State EMS Educators

Tabina Burney
U.S. Department of Health and Human Services

Regina Byrd
Unknown Affiliation

Anthony Carlini
Johns Hopkins Bloomberg School of Public Health

Guy Clifton
University of Texas Health Sciences Center

Susan Cozine
Regional West Medical Center

Drew Dawson
National Highway Traffic Safety Administration

Aram Dobalian
Safety and Health Solutions

John Fekety
Unknown Affiliation

Beth Feldpush
Unknown Affiliation

John Fildes
University of Nevada School of Medicine

Laura Fitzmaurice-Amick
Children's Mercy Hospital Clinics

Dia Gainor
Idaho Department of Health

Angela Gardener
American College of Emergency Physicians

David Gencarelli
Association of Air Medical Services

Asha George
U.S. House of Representatives

Marilyn Gerber
Healing Healthcare Solutions

Cathy Gotschall
National Highway Traffic Safety Association

Michael Granovsky
Medical Reimbursement Systems, Inc.

Giovanna Guerrero
National Institute of Neurological Disorders and Stroke

Leon L. Haley, Jr.
Grady Health System/Emory University

Michael Handrigan
Emergency Care Coordination Center

Marc Hartstein
Centers for Medicare & Medicaid Services

Jaclynn Haymon
EMSC National Resource Center

Jon Mark Hirshon
University of Maryland School of Medicine

Cherri Hobgood
UNC School of Medicine

Catherine Hoffman
Kaiser Commission on Medicaid and the Uninsured

Patricia Kunz Howard
University of Kentucky Chandler Medical Center

Richard Hunt
Centers for Disease Control and Prevention

Mary Jagim
Intelligent InSites

Ramon Johnson
American College of Emergency Physicians

Jerry Johnston
National Association of EMTs

Nicolas Jouriles
American College of Emergency Physicians

Gregory Jurkovich
University of Washington Harborview Medical Center

Captain Dan Kavanaugh
Health Resources and Services Administration

Arthur Kellermann
Emory University School of Medicine

Sandra Kinkade
Association of Air Medical Services

Walter Koroshetz
National Institute of Neurological Disorders and Stroke

Jon Krohmer
Department of Homeland Security

Kurt Krumperman
University of Maryland, Baltimore County

Nathan Kuppermann
University of California Davis School of Medicine

Roger Lewis
Harbor–UCLA Medical Center

Gary Little
George Washington University Hospital

Dawn Mancuso
Association of Air Medical Services

Dan Manz
Vermont Department of Health

Ricardo Martinez
The Schumacher Group

Linda McCaig
National Center for Health Statistics

Susan McHenry
National Highway Traffic Safety Association/
United States Department of Transportation

Greg Mears
University of North Carolina–Chapel Hill

J. Wayne Meredith
Wake Forest University Baptist Medical Center

Ryan Mutter
Agency for Healthcare Quality and Research

Terri Nally
Emergency Nurses Association

Susan Nedza
American Medical Association

Amy Nevel
Unknown Affiliation

Lenora Olson
University of Utah

Cynthia Pellegrini
American Academy of Pediatrics

Jesse Pines
University of Pennsylvania

David Prakash
University of Maryland–Baltimore County

Suzanne Prentiss
New Hampshire Department of Safety

Michael Rapp
Centers for Medicare & Medicaid

Adrienne Roberts
American Association of Neurological Surgeons

Kathy Robinson
National Association of State EMS Officials

Andrew Roszak
Emergency Care Coordination Center

Jeffery Runge
Biologue, Inc.

Nels Sanddal
Critical Illness Foundation

Thomas Scalea
University of Maryland

Sandra Schneider
American College of Emergency Physicians

Roslyne Schulman
American Hospital Association

William Schwab
University of Pennsylvania Medical Center

Jane Scott
National Institutes of Health

Melicia Seay
Emergency Care Coordination Center

Kathy Shaw
The Children's Hospital of Philadelphia

Tasmeen Singh Weik
EMSC National Resource Center

Noah Smith
Battelle

Jasper Sterling
AFGE Local 3721

David Thomson
PHI Air Medical

Alex Valadka
University of Texas Medical Center

David Werner
Association of Air Medical Services

Gordon Wheeler
American College of Emergency Physicians

Dean Wilkerson
American College of Emergency Physicians

David Wright
Emory School of Medicine

Charlotte Yeh
AARP Services

Linda Young
PHI Air Medical

Appendix C

Federal Response to 2006 IOM Recommendations

TABLE C-1 Federal Response to 2006 IOM Recommendations

Rec # (Report)	IOM Recommendation	Federal Response
2.1 (ED)	Congress should establish dedicated funding, separate from Disproportionate Share Hospital (DSH) payments, to reimburse hospitals that provide significant amounts of uncompensated emergency and trauma care for the financial losses incurred by providing those services. *a.* Congress should initially appropriate $50 million for the purpose, to be administered by the CMS. *b.* CMS should establish a working group to determine the allocation of these funds, which should be targeted to providers and localities at greatest risk; the working group should then determine funding needs for subsequent years.	Congress has taken up a number of related bills in the last two years, three of which were passed, but they targeted only two states (Tennessee and Hawaii). Overall this recommendation has gone unanswered. (Handrigan)

continued

TABLE C-1 Continued

Rec # (Report)	IOM Recommendation	Federal Response
3.1 (All)	HHS and NHTSA, in partnership with professional organizations, should convene a panel of individuals with multidisciplinary expertise to develop an evidence-based categorization system for emergency medical services, emergency departments, and trauma centers based on adult and pediatric service capabilities.	Some states (CA, IL, OK, TN) have voluntary designations that hospitals can seek. Illinois and California designate emergency departments approved for pediatrics; Oklahoma and Tennessee give pediatric medical recognition. This may signify the presence of a pediatric emergency coordinator, for example. (Kavanaugh)
3.2 (All)	NHTSA, in partnership with professional organizations, should convene a panel of individuals with multidisciplinary expertise to develop evidence-based model prehospital care protocols for the treatment, triage, and transport of patients, including children.	NHTSA, with FICEMS and NEMSAC, is creating an evidence-based guideline development process that will be dynamic rather than static and will keep pace with the changing nature of EMS best practices. (See Chapter 1.) (Dawson)
3.3 (All)	HHS should convene a panel of individuals with emergency and trauma care expertise to develop evidence-based indicators of emergency and trauma care system performance.	The ECCC has convened a new entity called the Council on Emergency Care which brings together partners from throughout government at all levels, with diverse subject matter expertise, to coordinate the entire federal emergency care agenda, but also to examine indicators of performance. (Handrigan) NHTSA has partnered with the EMS community in conducting the Performance Measurement Project, which will recommend indicators of quality emergency medical services and system performance. This project will soon be final. (Dawson)
3.4 (ED)	HHS should adopt regulatory changes to EMTALA and HIPAA so that the original goals of the laws will be preserved, but integrated systems can be further developed.	CMS convened a technical advisory group in 2006. They issued a series of recommendations which have contributed to the progress of legislation that is now in committee. (Handrigan)

TABLE C-1 Continued

Rec # (Report)	IOM Recommendation	Federal Response
3.4 (EMS) (Peds)	Congress should establish a demonstration program, administered by the HRSA, to promote coordinated, regionalized, and accountable emergency care systems throughout the country, and appropriate $88 million over 5 years to this program.	Congress has not yet provided the $88 million needed to fund the trauma system. However, there is now a bill in Congress that would help stabilize the trauma system. In addition, in May 2009 the ECCC, in conjunction with FICEMS and other federal partners, held a town hall meeting at the Society for Academic Emergency Medicine. IOM will also be conducting a workshop on regionalization in September 2009. ECCC also plans to create several demonstration projects focused specifically on regionalization in 2010. So this is moving forward. (Handrigan) NHTSA and NEMSAC have produced model legislation focusing on regional EMS systems. This will be reflected in DOT's revised highway safety standards that serve as a basis for assessing state EMS systems. (Dawson)
3.5 (ED)	Same as 3.4 (EMS) above Regional demonstrations ($88 million)	
3.5 (EMS)	Same as 3.6 (ED) below Federal lead agency	
3.5 (Peds)	Same as 3.4 (ED) above EMTALA and HIPAA	

continued

TABLE C-1 Continued

Rec # (Report)	IOM Recommendation	Federal Response
3.6 (ED) (Peds)	Congress should establish a lead agency for emergency and trauma care within two years of the release of this report. The lead agency should be housed in HHS, and should have primary programmatic responsibility for the full continuum of emergency medical services and emergency and trauma care for adults and children, including medical 9-1-1 and emergency medical dispatch, prehospital emergency medical services (both ground and air), hospital-based emergency and trauma care, and medical-related disaster preparedness. Congress should establish a working group to make recommendations regarding the structure, funding, and responsibilities of the new agency, and develop and monitor the transition. The working group should have representation from federal and state agencies and professional disciplines involved in emergency and trauma care.	The Emergency Care Coordination Center (ECCC) charter was signed in January 2009. ECCC is an infant organization, but this is the federal answer to the IOM recommendation. The primary mission of the ECCC is to support the USG's coordination of in-hospital emergency medical care activities and to promote programs and resources that improve the delivery of our nation's daily emergency medical care and emergency behavioral health care. (Handrigan)
3.6 (EMS)	Same as 3.4 (ED) above EMTALA and HIPAA	
3.7 (EMS)	CMS should convene an ad hoc working group with expertise in emergency care, trauma, and emergency medical services systems to evaluate the reimbursement of emergency medical services, and make recommendations with regard to including readiness costs and permitting payment without transport.	This recommendation is directed to CMS. However, NEMSAC has requested, through FICEMS, that CMS establish this working group. Also, NEMSAC is completing a white paper that addresses EMS financing. (Dawson)
3.7 (Peds)	Congress should appropriate $37.5 million per year for the next 5 years to the EMS-C program.	Recommendation not directed to the federal partners.
4.1 (ED)	CMS should remove the current restrictions on the medical conditions that are eligible for separate clinical decision unit (CDU) payment.	This issue has not been addressed, but is worthy of consideration by CMS. (Handrigan)

TABLE C-1 Continued

Rec # (Report)	IOM Recommendation	Federal Response
4.1 (EMS)	State governments should adopt a common scope of practice for emergency medical services personnel, with state licensing reciprocity.	The National EMS Scope of Practice Model was completed several years ago. It now serves as the basis for the National EMS Education Standards. The National Association of State EMS Officials (NASEMSO), through a cooperative agreement with NHTSA, is assisting in promoting implementation. Currently, 39 states have adopted or plan to adopt the scope of practice model. (Dawson)
4.1 (Peds)	Every pediatric- and emergency care-related health professional credentialing and certification body should define pediatric emergency care competencies and require practitioners to receive the level of initial and continuing education necessary to achieve and maintain those competencies.	Recommendation not directed to the federal partners.
4.2 (ED)	Hospital CEOs should adopt enterprisewide operations management and related strategies to improve the quality and efficiency of emergency care.	Recommendation not directed to the federal partners.
4.2 (EMS)	States should require national accreditation of paramedic education programs.	Although progress has been slow, the National Registry of Emergency Medical Technicians (NREMT) has made a decision to require paramedic students to graduate from an accredited paramedic educational program by the year 2013. The National Association of State EMS Officials is working with the Committee on Accreditation of EMS Programs (CoAEMSP) to ensure that this will happen. Twelve states currently require paramedic education program accreditation. (Dawson)

continued

TABLE C-1 Continued

Rec # (Report)	IOM Recommendation	Federal Response
4.2 (Peds)	HHS should collaborate with professional organizations to convene a panel of individuals with multidisciplinary expertise to develop, evaluate, and update clinical practice guidelines and standards of care for pediatric emergency care.	As the IOM report noted, unless there is a commitment to funding pediatric emergency medicine research, there won't be an adequate evidence base from which to derive the practice guidelines. Recently, EMS-C funding has been directed more toward activities that would improve the evidence base rather than guideline development specifically. However, EMS-C has provided some funds toward NHTSA's evidence-based guidelines development process. (Kavanaugh)
4.3 (ED)	Training in operations management and related approaches should be promoted by professional associations; accrediting organizations, such as the JCAHO and the NCQA; and educational institutions that provide training in clinical, health care management, and public health disciplines.	Recommendation not directed to the federal partners.
4.3 (EMS)	States should accept national certification as a prerequisite for state licensure and local credentialing of emergency medical services providers.	NASEMSO is tracking progress on this recommendation. As of May 2008, 45 states use NREMT certification for licensure of at least one level of EMS provider. However, state requirements still vary considerably. (Dawson)
4.4 (EMS)	ABEM should create a subspecialty certification in emergency services.	Recommendation not directed to the federal partners.
4.5 (ED)	Hospitals should end the practices of boarding patients in the emergency department and ambulance diversion, except in the most extreme cases, such as a community mass casualty event. CMS should convene a working group that includes experts in emergency care, inpatient critical care, hospital operations management, nursing, and other relevant disciplines to develop boarding and diversion standards, as well as guidelines, measures and incentives for implementation, monitoring, and enforcement of these standards.	The first part of this recommendation is directed to hospitals. However, the second part, relating to the working group, is now being considered by Congress. The Access to Emergency Medical Services Act would convene a bipartisan commission to evaluate and recommend a path forward. (Handrigan)

TABLE C-1 Continued

Rec # (Report)	IOM Recommendation	Federal Response
5.1 (ED)	Hospitals should adopt robust information and communications systems to improve the safety and quality of emergency care and enhance hospital efficiency.	This recommendation is directed to the hospitals; however, the federal government has provided significant momentum through the stimulus funds and the overall health IT strategy. (Handrigan)
5.1 (EMS)	States should assume regulatory oversight of the medical aspects of air medical services, including communications, dispatch, and transport protocols.	There are several bills in Congressional committees that would provide states with additional oversight responsibilities for air medical services. The National Transportation Safety Board (NTSB) also held a 4-day hearing on the topic in early 2009 and was scheduled to present a status report to FICEMS in June 2009. (Dawson)
5.1 (Peds)	HHS should fund studies on the efficacy, safety, and health outcomes of medications used for infants, children, and adolescents in emergency care settings in order to improve patient safety.	A number of studies are currently under way. For example, PECARN is conducting a study examining the safety and efficacy of Lorazepam and diazapem in treating pediatric status epilepticus. Also, in April 2009, NICHD updated its priority list of needs and pediatric therapeutics. Some of what is currently under study or proposed for study include ketamine for sedation and hydroxyurea for sickle cell disease. (Kavanaugh)
5.2 (EMS)	Hospitals, trauma centers, emergency medical services agencies, public safety departments, emergency management offices, and public health agencies should develop integrated and interoperable communications and data systems.	DOT has completed the Next Generation 9-1-1 (NG-9-1-1) project, and has a national systems architecture for looking at more digital based communication systems able to transmit digital data (e.g., telematics) from the caller to first responders. (Dawson) See also Recommendation 5.3 (EMS) below.

continued

TABLE C-1 Continued

Rec # (Report)	IOM Recommendation	Federal Response
5.2 (Peds)	HHS and the NHTSA should fund the development of medication dosage guidelines, formulations, labeling, and administration techniques for the emergency care setting to maximize effectiveness and safety for infants, children, and adolescents. Emergency medical services agencies and hospitals should incorporate these guidelines, formulations, and techniques into practice.	HHS and NHTSA are funding the development of medication dosage guidelines, formulations, labeling and administration techniques for the emergency care setting, and federal agencies and private industry are funding research on pediatric style technologies and equipment used by emergency care and trauma personnel. Also, the EMS-C National Resource Center, Duke University, and the American Academy of Pediatrics sponsored a meeting to discuss and prioritize ways to safely administer pediatric medication in emergency settings. (Kavanaugh)
5.3 (EMS)	HHS should be fully involved in prehospital EMS leadership in discussions about the design, deployment, and financing of the National Health Information Infrastructure.	The National EMS Information System (NEMSIS) and the national common data standard are now going through the HL-7 standardization development process so they will be in sync with health information technology and electronic health records. Information on NEMSIS is available at www.nemsis.org. (Dawson)
5.3 (Peds)	Hospitals and EMS agencies should implement evidence-based approaches to reducing errors in emergency and trauma care for children.	Recommendation not directed to the federal partners.

TABLE C-1 Continued

Rec # (Report)	IOM Recommendation	Federal Response
5.4 (Peds)	Federal agencies and private industry should fund research on pediatric-specific technologies and equipment used by emergency and trauma care personnel.	In February 2009, the National Center for Research Resources at NIH held a meeting on pediatric drug and medical device development. The meeting highlighted the insufficient and fragmented infrastructure for pediatric clinical drug trials and device development. Discussions surrounded use of clinical research infrastructure, provided through CTSAs, to develop effective partnerships to develop drugs and medical devices that meet the needs of children, including those that are most likely to be used by emergency care personnel. (Kavanaugh)
6.1 (ED)	Hospitals, physician organizations, and public health agencies should collaborate to regionalize critical specialty care on-call services.	This is a contentious issue. CMS has initiated a community on-call system to allow communities to develop on-call lists. This allows hospitals to continue to function within target guidelines, but it is arguable whether it is an adequate solution to the problem. (Handrigan)
6.1 (EMS)	HHS, NHTSA, and DHS, and states should elevate emergency and trauma care to a position of parity with other public safety entities in disaster planning and operations.	Since the IOM report, there has been considerably increased activity with respect to EMS at the Federal level. The Office of Health Affairs (OHA) was created in DHS; the Emergency Care Coordination Center (ECCC) was established in HHS; and FICEMS also has a Preparedness Committee. (Dawson)

continued

TABLE C-1 Continued

Rec # (Report)	IOM Recommendation	Federal Response
6.1 (Peds)	Federal agencies (HHS, NHTSA, and DHS), in partnership with state and regional planning bodies and emergency care providers, should convene a panel with multidisciplinary expertise to develop strategies for addressing pediatric needs in the event of a disaster. This effort should encompass the following: • Development of strategies to minimize parent–child separation and improved methods for reuniting separated children with their families. • Development of strategies to improve the level of pediatric expertise on disaster medical assistance teams and other organized disaster response teams. • Development of disaster plans that address pediatric surge capacity for both injured and non-injured children. • Development of and improved access to specific medical and mental health therapies, as well as social services, for children in the event of a disaster. • Development of policies to ensure that disaster drills include a pediatric mass casualty incident at least once every 2 years.	The Federal Emergency Management Agency (FEMA) operates the national emergency family registry and locator system to facilitate reunification of families separated after a major disaster. HHS has this information in the locations it provides disaster response services. The EMS-C program is also funding a system to capture and process digital images of disaster victims who enter disaster response facilities. This will enable parents to view retrieved images to identify their missing children. Other federal activities and capacity include the Integrated Medical Public Health Preparedness and Response Training Summit; AHRQ's "Pediatric Hospital Surge Capacity and Public Health Emergencies" report; the FEMA Crisis Counseling and Training and Assistance Program; the EMS-C National Resource Center's informational toolbox on pediatric disaster preparedness, the National Commission on Children and Disasters; the Pediatric Disaster Resource and Training Center in Los Angeles; The Substance Abuse and Mental Health Services Administration's (SAMHSA's) National Child Traumatic Stress Network, and the HHS National Disaster Pediatric Medical Team. (Kavanaugh)
6.2 (ED)	Congress should appoint a commission to examine the impact of medical malpractice lawsuits on the declining availability of providers in high-risk emergency and trauma care specialties, and to recommend appropriate state and federal actions to mitigate the adverse impact of these lawsuits and ensure quality of care.	This is the intent of the Access to Emergency Medical Services Act. (Handrigan)

TABLE C-1 Continued

Rec # (Report)	IOM Recommendation	Federal Response
6.2 (EMS)	Congress should substantially increase funding for EMS-related disaster preparedness through dedicated funding streams.	N/A
6.3 (ED)	The American Board of Medical Specialties and its constituent boards should extend eligibility for certification in critical care medicine to all acute care and primary care physicians who complete an accredited critical care fellowship program.	Recommendation not directed to the federal partners.
6.4 (ED)	Professional training, continuing education, and credentialing and certification programs for all the relevant professional categories of EMS personnel should incorporate disaster preparedness into their curricula and require the maintenance of competency in these skills.	Disaster preparedness is included in the National EMS Education Standards. These have also been synchronized with NIMS through the national emergency responder credentialing process. So the entire EMS Education Agenda for the Future and NIMS are linked together. (Dawson)
6.5 (ED)	HHS, DOT, and DHS should jointly undertake a detailed assessment of emergency and trauma workforce capacity, trends, and future needs, and develop strategies to meet these needs in the future.	A detailed assessment of the emergency and trauma workforce has not yet been done, however the ECCC and FICEMS are now in an ideal position to take this on. (Handrigan) In June 2008, NHTSA, in partnership with HRSA, published *EMS Workforce for the 21st Century: A National Assessment*. The assessment describes the national EMS workforce, while also elucidating the absence of consistent, nationwide EMS workforce data. The assessment is being used to guide development of the *EMS Workforce Agenda for the Future*. (Dawson)

continued

TABLE C-1 Continued

Rec # (Report)	IOM Recommendation	Federal Response
6.6 (ED)	HHS, in partnership with professional organizations, should develop national standards for core competencies applicable to physicians, nurses, and other key emergency and trauma professionals, using a national, evidence-based, multidisciplinary process.	Multiple stakeholders are required to execute this broad recommendation. HHS established the Federal Education and Training Interagency Group (FETIG), which acts as the board of directors for the new National Center for Disaster Medicine at Uniformed Services University of the Health Sciences (USUHS) and will help define a core curriculum relating to disaster preparedness. Using quality measures, the group is developing and improving core competencies. More work remains to be done. (Handrigan)
6.6 (ED)	States should link rural hospitals with academic health centers to enhance opportunities for professional consultation, telemedicine, patient referral and transport, and continuing professional education.	This issue relates to regionalization. There is great interest in this topic at the federal level and we intend to partner with our non-federal stakeholders on it. The recommendation was directed at the states and we will leave it to the states and the hospitals to address it specifically. (Handrigan)
7.1 (ED)	DHS, HHS, DOT, and the states should collaborate with the Veterans Health Administration to integrate the VHA into civilian disaster planning and management.	Through Homeland Security Presidential Directive (HSPD)-21, the Department of Veterans Affairs (VA) has been substantially and increasingly engaged in preparedness activities both at the federal and local levels. There has been great progress on this recommendation. (Handrigan)
7.1 (EMS)	Federal agencies that fund research and trauma care research should target additional funding at prehospital EMS research, with an emphasis on systems and outcomes research.	PECARN is developing research partnerships with two EMS agencies. They have completed a descriptive study of the EMS pediatric population within PECARN, and they encourage the involvement of prehospital EMS in the Research Network. NEMSIS will aid researchers tremendously by making standardized data available. (Dawson)
7.1 (Peds)	See 8.2 (ED) below Research gaps and opportunities	

TABLE C-1 Continued

Rec # (Report)	IOM Recommendation	Federal Response
7.2 (ED)	All institutions responsible for the training, continuing education, credentialing and certification of professionals involved in emergency care (including medicine, nursing, emergency medical services, allied health, public health, and hospital administration) should incorporate disaster preparedness training into their curricula and competency criteria.	The Federal Education and Training Interagency Group (FETIG) and the national center have taken this on and we are moving forward. (Handrigan)
7.2 (EMS)	See 8.4 (ED) below Federalwide Assurance (FWA) Program	
7.2 (Peds)	Administrators of state and national trauma registries should include standard pediatric-specific data elements and provide the data to the National Trauma Data Bank. Additionally, the American College of Surgeons should establish a multidisciplinary pediatric specialty committee to continuously evaluate pediatric-specific data elements for the National Trauma Data Bank and identify areas for pediatric research.	The EMS-C program supports the National EMS-C Data Analysis Resource Center (NEDARC), which helps EMS-C grantees and state EMS offices refine their capabilities to perform EMS research and optimize the delivery of emergency and trauma care. Specifically, the staff at NEDARC provides guidance on formatting, interpreting, and displaying data. (Kavanaugh)
7.3 (ED)	Congress should significantly increase total preparedness funding in fiscal year 2007 for hospital emergency preparedness in the following areas: strengthening and sustaining trauma care systems; enhancing emergency department, trauma center, and inpatient surge capacity; improving emergency medical services' response to explosives; designing evidence-based training programs; enhancing the availability of decontamination showers, standby intensive care unit capacity, negative pressure rooms, and appropriate personal protective equipment; and conducting international collaborative research on the civilian consequences of conventional weapons of terrorism.	The trend is toward decreased, not increased, funding. The federal budget picture between now and 2019 is truly terrible. (Handrigan)

continued

TABLE C-1 Continued

Rec # (Report)	IOM Recommendation	Federal Response
7.3 (EMS)	See 8.2 (ED) below Research gaps and opportunities	
8.1 (ED)	Academic medical centers should support emergency and trauma care research by providing research time and adequate facilities for promising emergency care and trauma investigators, and by strongly considering the establishment of autonomous departments of emergency medicine.	Recommendation not directed to the federal partners.
8.2 (ED)	The Secretary of HHS should conduct a study to examine the gaps and opportunities in emergency care research, including pediatric emergency care, and recommend a strategy for the optimal organization and funding of the research effort. This study should include consideration of the training of new investigators, involvement of emergency and trauma care researchers in grant review and advisory processes, and improved research coordination through a dedicated center or institute. Congress and federal agencies involved in emergency and trauma care research (including DOT, HHS, DHS, and DOD) should implement the study's recommendations.	The NIH has moved forward substantially on this, for example by convening a Roundtable on Emergency Care that examined issues in the conduct of emergency care research. The other federal partners need to move forward on this as well, and coordinate their efforts. (Handrigan) The EMS-C program provided FICEMS with gap analysis of prehospital research. This analysis is inclusive of all ages, not just pediatric. The report noted that the literature in the prehospital setting continues to be largely non-randomized control trials conducted as retrospective observational studies. The majority of the recommendations of the research agendas continue to be unmet. Particularly lacking is research in optimal methods of education and competency assessment, quality and patient safety, and trauma management. (Kavanaugh)
8.3 (ED)	States should ease their restrictions on informed consent to match federal law.	Recommendation not directed to the federal partners.

TABLE C-1 Continued

Rec # (Report)	IOM Recommendation	Federal Response
8.4 (ED)	Congress should modify Federalwide Assurance (FWA) Program regulations to allow the acquisition of limited, linked, patient outcome data without the existence of Federalwide Assurance Program.	While no recent legislation addressing Federalwide Assurance could be located, it is no recommendation that deserves attention (Handrigan).

SOURCES: Dawson (2009); Handrigan (2009); Kavanaugh (2009); IOM (2006a,b,c).

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