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Investing in Emergency Medicine to Improve Health Care for All Americans: The Role of the Agency for Healthcare Research and Quality

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Editor's Note: This article is part of a series that describes the many ways that the Department of Health & Human Services (DHHS) interacts with the emergency care system. DHHS includes many divisions that are well known to the health care world including the Center for Medicare & Medicaid Services, the Health Resources and Services Administration, the National Institutes of Health, and the Agency for Healthcare Research & Quality. The goal of the series is to increase the visibility of federal emergency care-related activities within the emergency care community.

Editor's Capsule Summary

What is this article about?

This article was written by the coordinator of emergency medicine research activities and the director of the Agency for Healthcare Research and Quality (AHRQ) and provides a description of the portfolio of emergency care–related activities that they sponsor.

How does this affect our patients?

AHRQ's mission is to improve the quality, safety, efficiency, and effectiveness of health care for all Americans. Their work affects our patients by focusing on the development of tools that help to disseminate best practices, the creation of quality indicators that help facilitate quality improvement, and the development of both data sources and investigators to advance emergency care research.

The Agency for Healthcare Research and Quality (AHRQ) is a component of the United States Department of Health and Human Services. AHRQ data show that there were nearly 129 million emergency department (ED) encounters in the United States in 2010, or approximately 1 ED visit for every 2.4

Americans.¹ In addition, there were more than 17 million emergency medical services (EMS) responses in 2010.² These high-frequency events profoundly affect the health and health care costs incurred by the people of the United States. Moreover, all of us depend on the ED being there when we or a loved one is in urgent need. Yet there are considerable gaps in the evidence base on the delivery of emergency medicine. The goal of this article is to show how AHRQ supports emergency medicine through the generation and dissemination of knowledge. As a vital component of its mission to improve the quality, safety, efficiency, and effectiveness of health care for all Americans, AHRQ supports research, the development of tools, the creation of quality indicators, the development of data and analytical capacity, and the training of young investigators.

CONDUCT OF RESEARCH

AHRQ supports emergency medicine research through a variety of grant mechanisms, including large research projects (R01s), small research projects (R03s), conference grants (R13s), health services research demonstration and dissemination projects (R18s), and exploratory/developmental research (R21s). Requests for Applications and Program Announcements from AHRQ are described at <http://www.ahrq.gov/funding/research/announcements/index.html>. As with all AHRQ-funded research, applications must be reviewed by external peer reviewers before funding recommendations. In general, AHRQ does not provide dedicated funding associated with any one setting but most commonly issues solicitations through our major program emphasis areas: patient safety, quality, health information technology, prevention and care management, and health care value.

Within the past few years, the studies supported by AHRQ's grant mechanisms have addressed a wide area of topics of importance to emergency medicine, including the racial composition of hospital service area and the use of ambulance diversion,³ transfer from the ED to the ICU,^{4,5} differences in care provided to patients with joint dislocation in the ED across racial and ethnic groups,⁶ treatment of pediatric syncope,⁷ differential mortality in injured patients treated in Level I and II trauma centers, the exchange of electronic information between

poison control centers and EDs,⁸ the association between the occurrence of preventable medical errors and ED crowding,⁹ the use of evidence-based care for injured patients,^{10,11} and the association between availability of patient information in an electronic health record and treatment intensity and outcomes for heart failure patients seen in the ED.¹²

In recognition of the effect that care delivered in the out-of-hospital environment can have on patient safety, costs, and outcomes, AHRQ has also invested in EMS research. Recent AHRQ-funded studies have demonstrated that high-performing hospitals collaborate closely with EMS professionals in the care of patients with acute myocardial infarction,¹³ suggested strategies for the discovery of medical errors in the out-of-hospital setting,¹⁴ examined the safety of using fentanyl in adult trauma patients,¹⁵ and identified the characteristics of EMS systems that chose to participate in the Cardiac Arrest Registry to Enhance Survival.¹⁶

TOOL DEVELOPMENT

AHRQ supports the development of tools through its Accelerating Change and Transformation in Organizations and Networks II (ACTION II) mechanism. ACTION II uses a field-based approach to promote innovation in health care delivery by accelerating the diffusion of research into practice. The 17 large partnerships and more than 350 collaborating organizations participating in ACTION II serve approximately 50% of the US population.¹⁷

In recognition of ED crowding as a public health problem,¹⁸ AHRQ used the ACTION II mechanism to produce a guide for hospitals on improving patient flow and reducing crowding in the ED.¹⁹ AHRQ is currently using ACTION II to conduct a project that seeks to improve the ED discharge process to reduce potentially avoidable ED revisits and better serve patient needs.

Team Strategies and Tools to Enhance Performance and Patient Safety (TeamSTEPPS), which was developed jointly by AHRQ and the Department of Defense, is a toolkit designed to increase patient safety and staff satisfaction through improved multidisciplinary teamwork and communication. Although it has been several years since the availability of the TeamSTEPPS resources was announced,²⁰ the program continues to be expanded, adapted by users,²¹ applied in diverse practice settings,^{22,23} and to have its utility recognized.²⁴ Information on TeamSTEPPS is available at <http://teamstepps.ahrq.gov/>. Information on other AHRQ tools for the ED can be found at <http://www.ahrq.gov/professionals/systems/hospital/edtools.html>.

QUALITY INDICATORS

The AHRQ quality indicators are used in free software that make use of readily available administrative data to help program managers, researchers, and others at the federal, state, and local levels to identify quality of care events that might need further study. AHRQ has 2 working papers on experimental quality indicators available on the quality indicator Web site, <http://www.qualityindicators.ahrq.gov/>, which make use of ED data.

The first working paper describes experimental ED prevention quality indicators. These indicators do not measure quality of care in the ED per se. Rather, they expand the inpatient Prevention Quality Indicators, which identify hospital admissions that evidence suggests may have been avoided through access to high-quality outpatient care, to include events in the ED to better measure the health care system influence of ambulatory care-sensitive conditions.

The second working paper describes experimental ED patient safety indicators, including several components that identify hospital discharges with evidence of a patient safety event, that were respecified for the ED, as well as indicators related to use of diagnostic procedures in the ED (eg, ECG for syncope) and the time from ED admission to discharge. The indicators can use discharge data with encrypted patient identifiers that permit tracking of ED utilization over time to measure ED revisit for asthma and chest pain, as well as possibly missed subarachnoid hemorrhage.

AHRQ is currently in the process of developing a module of ED community indicators. This effort takes the perspective that ED encounters offer insight into community access to primary care and preventive services. The indicators developed will measure community care overall and will include a subset of indicators specifically focused on mental health and substance abuse. The indicators will be available in 2014.

In addition to developing quality indicators, AHRQ facilitates initiatives to report quality and use measures through the My Own Network, Powered by AHRQ (MONAHRQ) software tool: <http://monahrq.ahrq.gov/>. MONAHRQ enables organizations to generate a customizable Web site through which they can report statistics on their own discharge data. MONAHRQ version 4.1, which was released in April 2013, permits organizations to do hospital-level reporting on ED utilization, including admission rates from the ED by condition, payer, race/ethnicity, and other variables of interest. It also provides national benchmarks based on AHRQ's Healthcare Cost and Utilization Project (HCUP) data.

DATA AND ANALYTIC CAPACITY

AHRQ sponsors HCUP, a family of health care databases and related software tools and products developed through a federal-state-industry partnership, which is an increasingly valuable resource for understanding and improving care in the ED: <https://www.hcup-us.ahrq.gov/overview.jsp>. There are currently 31 states that provide a census of ED encounters to HCUP. These data are captured in the State Emergency Department Databases, which contain data from hospital-affiliated EDs for visits that do not result in hospitalizations, and the State Inpatient Databases, which contain the universe of inpatient discharge abstracts from participating states. State Inpatient Databases and State Emergency Department Databases files from participating states are available to the public for purchase through the HCUP Central Distributor: https://www.hcup-us.ahrq.gov/tech_assist/centdist.jsp. Researchers have recently used

State Inpatient Databases and State Emergency Department Databases files to examine the variation in admission rates from the ED and factors associated with it²⁵ and the effect of H1N1 surge on EDs and hospitals.²⁶ For some states, the State Inpatient Databases and State Emergency Department Databases files contain encrypted patient identifiers, which permit the tracking of patients over time and across acute care settings. These files have been used to analyze ED revisit rates for elderly patients with injury-related stays²⁷ and concentration of hospital use for acute care for sickle cell disease.²⁸ These analyses and others conducted with AHRQ staff highlight the capacity of the agency to examine and provide information on topics of interest to the emergency medicine community.

The State Inpatient Databases and State Emergency Department Databases serve as the sampling frame for the Nationwide Emergency Department Sample, the largest all-payer ED database in the United States, which yields national estimates of ED encounters.²⁹ The Nationwide Emergency Department Sample has recently been used by AHRQ grantees to examine the association between ED case volume and mortality for acute exacerbations of chronic obstructive pulmonary disease³⁰ and the association between age and mortality in the acute care setting for acute asthma.³¹

HCUP Statistical Briefs on ED use highlight different ways that HCUP data can be used to analyze treatment in the ED: https://www.hcup-us.ahrq.gov/reports/statbriefs/sb_emergency.jsp. Statistics from the Nationwide Emergency Department Sample and from participating states for the State Inpatient Databases and State Emergency Department Databases are available free online through the HCUPnet query tool, <http://hcupnet.ahrq.gov/>. In addition to providing valuable information, HCUPnet also indicates the capabilities of the data.

TRAINING OF YOUNG INVESTIGATORS

AHRQ is particularly pleased to provide funding for the training of the next generation of researchers working in emergency medicine through career development (K01, K02, and K08), health services research dissertation (R36), and institutional research training (T32) grants. Numerous recent publications have received AHRQ support through these mechanisms, including work on ED-to-inpatient handoffs,³² the association between pain score documentation and pain management for pediatric ED patients,³³ the cost-effectiveness of influenza vaccination for adults older than 65 years in the ED,³⁴ factors associated with patient perception of pain management in the ED for sickle cell disease,³⁵ characteristics of EDs that routinely screen for HIV,³⁶ characteristics of patients who are more likely to accept free HIV testing in the ED,³⁷ repeated imaging in transferred trauma patients,³⁸ differential mortality between severely injured patients transported by helicopter versus ground EMS,³⁹ geographic disparities in access to neurocritical care units,⁴⁰ differential mortality for sepsis associated with admission through the ED,⁴¹ and the use of computer modeling to test the effect of inpatient discharge timing on ED boarding.⁴²

The Affordable Care Act provides new resources to AHRQ to support dissemination of and building capacity for patient-centered outcomes research, including new career development mechanisms. AHRQ will continue to issue solicitations focused on training and career development for investigators at multiple levels interested in pursuing patient-centered outcomes research. In addition, AHRQ is the only Department of Health and Human Services division that provides support for dissertations.

CONCLUSION

AHRQ seeks to improve the health care delivered to all Americans by investing in a spectrum of health services research questions and evidence-based tools and resources that touch emergency medicine. Emergency medicine providers can support AHRQ's efforts by submitting grants, collaborating on contract applications, and serving on study sections. AHRQ's investments have influence when they are applied and spread; therefore, we encourage the emergency medicine community to take full advantage of the resources that the agency provides. Through 2019, AHRQ has dedicated resources for disseminating of and training to conduct patient-centered outcomes research. Emergency physicians can apply for career development (ie, "K") awards, dissertation support, and specific funding opportunity announcements designed to solicit research evaluating the comparative effectiveness of disseminating patient-centered outcomes research findings. Health care will continue to evolve rapidly in the coming years, and AHRQ looks forward to its ongoing collaboration with those working to understand, improve, and deliver emergency care.

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