



Progress on Evidence-Based Guidelines For Prehospital Emergency Care

Office of Emergency Medical Services, National Highway Traffic Safety Administration



U.S. Department of Transportation
National Highway Traffic Safety Administration





INTRODUCTION

Since 2008, the National Highway Traffic Safety Administration (NHTSA) Office of Emergency Medical Services and the Emergency Medical Services for Children (EMSC) Program (Health Resources and Services Administration), have been fortunate to work with EMS stakeholders to create and pilot test a model for developing and implementing evidence-based guidelines (EBGs) for prehospital emergency care. NHTSA is pleased to share the progress (Appendix A) of the project with the EMS community.

BACKGROUND

In 2001, the National EMS Research Agenda recommended that EMS professionals apply the evidence from scientific research to improve patient care. Responding to this call to action, in 2006 the Institute of Medicine (IOM) released a report on the Future of Emergency Care in the United States, which called for several specific recommendations on improving prehospital emergency care, including that NHTSA:

“...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.”

A nationally accepted set of evidence-based model guidelines would allow state EMS officials and local EMS agencies to provide patient care based on the best available scientific knowledge of prehospital care practices. Such EBGs would be flexible and generic enough to allow state and local guidelines to take into account local population needs and available resources. While the evidence base for prehospital care is growing, there is considerable variation in the treatment interventions and response approaches used as well as timely implementation of new knowledge among EMS systems. Furthermore, there is frequently a lack of evidence on the impact of current practices on patient outcomes. Careful analysis of the available evidence can identify those interventions that have been proven to be effective and are optimal for application. EBGs are an important element in improving the quality of prehospital care, as they promote a consistent approach by prehospital providers for a given clinical scenario, and thus facilitate creation of standard for measures to evaluate the quality of prehospital emergency care.



ACTIVITIES TO-DATE

National Stakeholder Meeting

In September 2008, NHTSA convened a National EMS Evidence-Based Guidelines meeting, cosponsored by the Federal Interagency Committee on EMS (FICEMS) and the National EMS Advisory Council (NEMSAC). The conference was attended by representatives of EMS stakeholder organizations who heard presentations by a panel of international experts with extensive, multidisciplinary expertise in EMS, research, and EBGs, and provided input for the National Model Process (the Model Process).

Development of the Model Process

Input from conference attendees was used to draft the Model Process (Appendix B) for the development, implementation, and evaluation of EMS guidelines. The Model Process emerging from this conference was subsequently approved by both FICEMS and NEMSAC. One feature of this model is the reliance on an objective and transparent process for appraising the quality of clinical evidence, such as the process used in the Grading of Recommendations, Assessment, Development, and Evaluation (GRADE) system. A manuscript describing the Model Process was published in *Academic Emergency Medicine* in 2012.

The Model Process: Beta-Test

- * With funding provided by the Health Resources and Services Administration EMSC program, in 2008, the EMSC National Resource Center beta-tested the development phase of the Model Process to develop an EBG for prehospital management of pediatric seizures.
- * NHTSA, with supplemental funding from EMSC, competitively awarded a cooperative agreement to Children’s National Medical Center (CNMC) to further test the Model Process in September of 2009.
- * CNMC convened a group of experts in adult and pediatric emergency medicine, guideline development, trauma surgery, pain management, medical library science, prehospital care, aeromedical transport, and nursing. These experts used the Model Process to develop EBGs for prehospital pain management for adults and children and for decisions related to the utilization of helicopter transport of injured patients.
- * As part of the cooperative agreement, CNMC submitted the draft EBGs for review by the protocol review committee of the Maryland Institute for Emergency Medical Services Systems (MIEMSS). Both guidelines were reviewed by MIEMSS as part of their existing statewide protocol development process. The MIEMSS review committee adopted the pain management protocol, but chose not to adopt the proposed Helicopter Emergency Medical Services (HEMS) guideline, which was nearly identical to the existing Maryland protocol with the exception that it did not mandate online medical direction in order to activate a helicopter transport. Online educational materials were developed and completed by all Maryland prehospital providers for the adopted pain management guideline. Data are being collected on patient outcomes, acceptance and compliance for the implemented protocol; the preliminary analysis of these data is underway.

FUTURE PLANS

Manuscripts on EBGs for pain management, HEMS, pediatric seizure management, and pediatric respiratory distress are in development for submission to a peer-reviewed journal. Future plans also include examining the implementation process of EBGs at the state level through a cooperative agreement awarded by NHTSA to NAS-EMSO in September of 2012. Finally, based on the recommendations of the CNMC study and stakeholder input, the Model Process will likely be modified to enhance its adoption and implementation by local, state, and national EMS stakeholders.



DECISION-MAKING CULTURE IN EMS

The EMS National Research Agenda, IOM, and several national organizations have repeatedly voiced the need for more research in EMS. As the body of research grows, the importance and feasibility of making patient care decisions based on existing scientific evidence in the prehospital setting will also increase. The process for developing clinical guidelines, based on an unbiased, transparent, and rigorous appraisal of the scientific evidence, is substantially different from basing patient care decisions on historical consensus, local convention, individual opinion, or anecdotes. This Model Process project will serve as a resource and model for national, state and local EMS organizations in a time of transitioning culture and growing research in EMS. Such a model brings together professionals on a multidisciplinary level to enhance and support guideline development from a comprehensive knowledge base around the scientific evidence that exists for EMS. The Model Process will serve to clearly and systematically identify knowledge gaps, focusing future prehospital research to promote more robust prehospital care guidelines. A nationally utilized set of guidelines will help to ensure more consistency in prehospital care, while accommodating varying EMS system resources and environments.

FOR MORE INFORMATION

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APPENDIX A: PROJECT TIMELINE

PROJECT STAGES

 Development

 Completed phases

 Future plans



2001  2006  2008   2009    2010   2011   2012    2013  

NHTSA-convened panel of multidisciplinary expertise to develop an evidence-based model for prehospital care protocols

Call for proposals for EBG development

NHTSA and EMSC competitively awarded the contract to CNMC
Implementation of pilot test initiated

Award of EMSC target-issues grant to implement an EBG for pediatric respiratory emergencies

Abstract presentation on use of GRADE methodology for prehospital care to Canadian Emergency Medicine annual meeting

Publication of manuscript describing the EBG development process in *Academic Emergency Medicine*

The NEMSAC makes recommendations regarding EBG next steps

Development and submission of manuscripts on each of the three EBGs to a peer-reviewed journal

Publication of the NHTSA National EMS Research Agenda calling for evidence-based protocols for EMS

Release of the Institute of Medicine recommendation to develop evidence-based model prehospital care protocols

Development and pilot-testing of pediatric seizure EBG by EMSC-NRC

Presentation of the Model Process at SAEM annual meeting

Review and partial adoption by MIEMSS protocol and review committee

Implementation of the prehospital pain management protocol in Maryland

Cooperative agreement awarded by NHTSA to NASEMSO for a statewide guideline implementation project

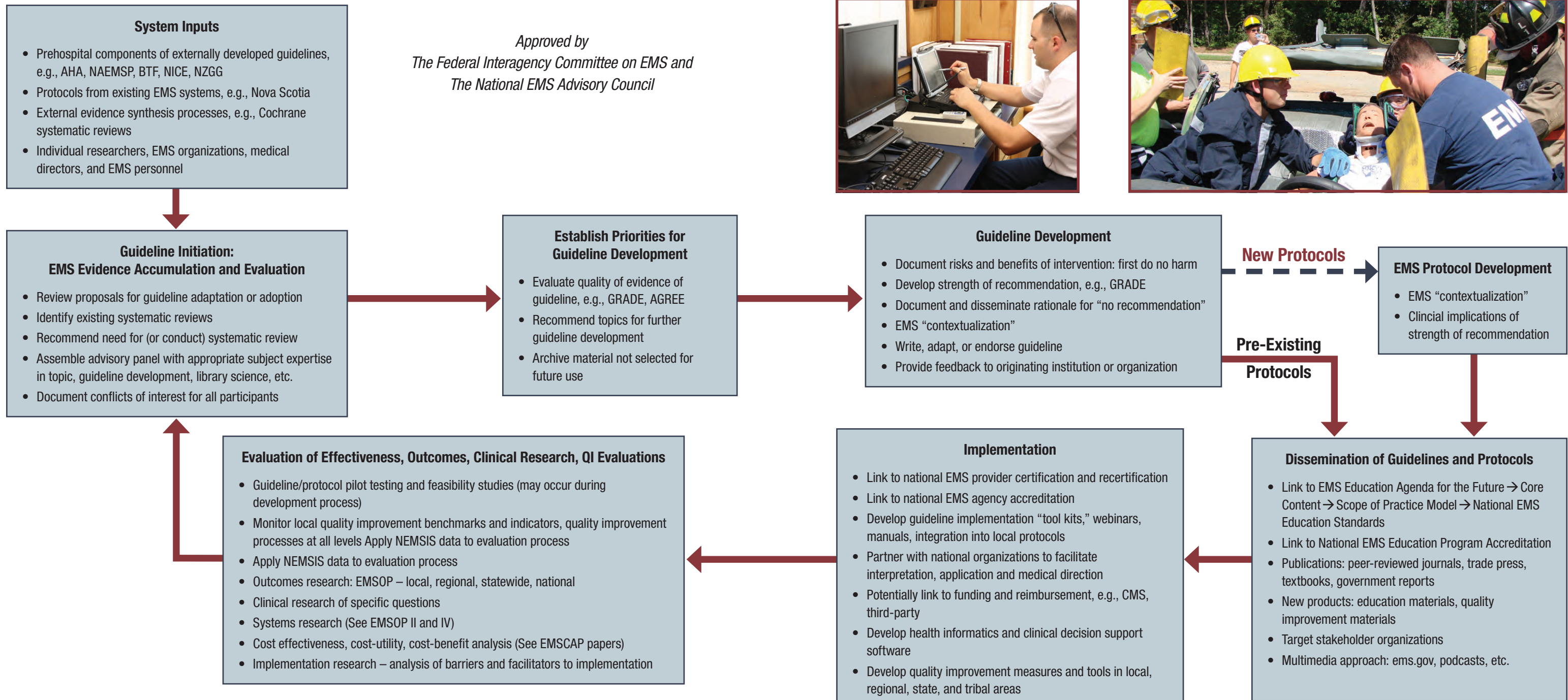
Collaboration with stakeholders on developing the next steps for EBGs, including modifying the model as needed for broader use



ABBREVIATIONS

CNMC	Children's National Medical Center	MIEMSS	Maryland Institute for Emergency Medical Services Systems
EBG	Evidence-Based Guideline	NASEMSO	National Association of State EMS Officials
EMSC	Emergency Medical Services for Children	NEMSAC	National EMS Advisory Council
EMSC-NRC	EMSC-National Resource Center	NHTSA	National Highway Traffic Safety Administration
GRADE	Grading of Recommendations, Assessment, Development, and Evaluation	SAEM	Society for Academic Emergency Medicine

APPENDIX B: NATIONAL PREHOSPITAL EVIDENCE-BASED GUIDELINE MODEL PROCESS



ABBREVIATIONS			
AGREE	Appraisal of Guidelines Research and Evaluation	EMSOP	Emergency Medical Services Outcomes Project
AHA	American Heart Association	NAEMSP	National Association of EMS Physicians
BTF	Brain Trauma Foundation	NEMSIS	National EMS Information System
CMS	Centers for Medicare and Medicaid Services	NICE	National Institute for Health and Clinical Excellence
EMSCAP	Emergency Medical Services Cost Evaluation Project	NZGG	New Zealand Guidelines Group

