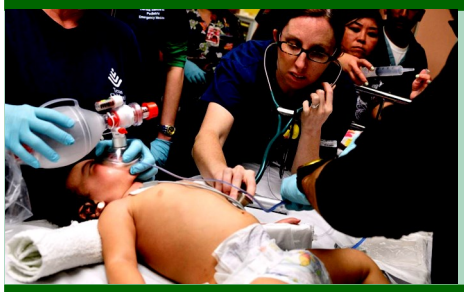

EMSC news

Emergency Medical Services for Children Program | March 2018

Program Legislation

The Emergency Medical Services for Children (EMSC) program, signed into federal law in 1984, is administered by the U.S. Department of Health and Human Services (HHS), Health Resources and Services Administration (HRSA), Maternal and Child Health Bureau (MCHB), within the Division of Child, Adolescent and Family Health.

Our Purpose

The only federal program focused on the emergency care needs of America's children, the mission of the EMSC program is to reduce child and youth mortality and morbidity resulting from illness or trauma. Long-term success is measured by assessing the quality of pediatric emergency care provided in the prehospital and hospital settings, and the integration of pediatric emergency care within the larger emergency medical service (EMS) system.

Reaching Every State and Territory

The HRSA EMSC program provides funding to 58 **State Partnership (SP) recipients** in 50 states, five territories, two freely associated states and the District of Columbia to expand and improve emergency medical services for children in need of treatment for traumatic injuries and medical illnesses. Since 2004, the EMSC SP program has been driving national efforts through defined performance measures (PM) that promote and evaluate the degree to which systems are in place to ensure optimal care of children in the emergent care settings.

In 2017, the federal EMSC program launched three new performance measures (PMs) focused on prehospital systems of care for children. The remaining six measures will not change at this time. The new PMs were developed by HRSA, the National EMSC Data Analysis Resource Center, and subject matter experts. Two rounds of public comment were incorporated into the final measure language. The new measures are:

- The degree to which EMS agencies submit National EMS Information Systems (NEMSIS) compliant version 3.x data or higher to the State EMS Office for submission to NEMSIS Technical Assistance Center;
- The percentage of EMS agencies in the state/territory that have a designated individual who coordinates pediatric emergency care;
- The percentage of EMS agencies in the state/territory that have a process that requires EMS providers to physically demonstrate the correct use of pediatric specific equipment.

All EMSC PMs aim to improve the quality and delivery of emergency care for children see https://mchb.hrsa.gov/sites/default/files/mchb/Data/dgis/DGIS_DCAFH_EMSC_Measures.pdf.

Building Bridges to Reach All Children

Focusing on inclusive emergency care models, the **State Partnership Regionalization of Care (SPROC)** program develops model systems designed to increase access to emergency medical services for children in rural and tribal communities. These systems of care work to improve the pediatric readiness of hospitals to treat and stabilize pediatric patients, implement technology solutions to aid in pediatric specialty care, improve the transfer process of pediatric patients to hospitals that are able to provide a higher level of care, and establish networks to increase access to physicians specializing in pediatrics. In June 2016, HRSA awarded three SPROC grants: California (Dr. James Marcin, University of California-Davis); Montana (James DeTienne); and New Mexico (Dr. Robert Sapien, University of New Mexico). For a list of SPROC resources and products see http://bit.ly/2DN70rV.

(Continued on page 2)

(Continued from page 1)

Investing in Pediatric Health Outcomes

The **Targeted Issue (TI) grants** focus on pediatric emergency care research and innovative cross-cutting projects in both the prehospital and emergency department setting that improve pediatric health outcomes related to emergency care and are replicable nationwide. The EMSC program awarded five TI grants in September 2016. The grants focus on workforce competency and family-centered care (Dr. Sage Myers, Children's Hospital of Philadelphia), prehospital research (Dr. Brooke Lerner, Medical College of Wisconsin), medication errors (Dr. John Hoyle, Western Michigan University), performance measurement and provider feedback (Dr. Jane Brice, University of North Carolina-Chapel Hill), and triage systems improvement (Dr. Jennifer Anders, Johns Hopkins University). For additional information about these grants see http://bit.ly/2FWlXd1

Conducting Multicenter Research in Pediatric Emergency Care

HRSA EMSC leads the field in its effort to support the **Pediatric Emergency Care Applied Research Network (PECARN).** PECARN conducts high-priority multicenter clinical research. The network includes prehospital and hospital emergency care systems to facilitate recruitment of patients to address important research questions on improving clinical outcomes and the best methods to care for children in the emergency setting. The network provides access to pediatric patients and increases the opportunity for enrollment in studies beyond what a single hospital or EMS system could provide. The network consists of 18 emergency departments and nine EMS agencies across the U.S. (www.pecarn.org). The 18 emergency departments (including academic children's hospitals) and the nine EMS agencies serve approximately 1.1 million pediatric patients and transport more than 66,000 pediatric patients annually. Since its inception, PECARN has received over $104 million in external funding, completed 33 studies involving more than 100,000 children, and published more than 130 peer-reviewed manuscripts and over 100 abstracts.

The PECARN sites are organized into seven nodes: six Emergency Department nodes with three Emergency Department affiliates per node and 1 Prehospital node with 9 EMS Affiliates.

1) **Great Lakes Emergency Medical Services for Children Research Network (GLEMSCRN)** led by Principal Investigator (PI) Rachel Stanley, MD, MHSA, located at Nationwide Children's Hospital.
2) **Hospitals of the Midwest Emergency Research Node (HOMERUN)** led by PI Richard Ruddy, MD, located at Cincinnati Children's Hospital Medical Center.
3) **Pediatric Emergency Medicine Northeast, West, and South (PEM-NEWS)** led by PI Peter Dayan, MD, MSc, located at Children's Hospital of New York.
4) **Pediatric Research in Injuries and Medical Emergencies (PRIME)** led by PI Nathan Kuppermann, MD, MPH, located at University of California, Davis.
5) **Southwest Research Node Center (SW-RNC)** led by PI Kurt Denninghoff, MD, located at the University of Arizona.
6) **Washington, Boston, Chicago Applied Research Node (WBCARN)** led by PI James Chamberlain, MD, located at Children's National Medical Center.
7) Finally, the **Charlotte, Houston, Milwaukee Prehospital EMS Research Node (CHaMP)** node that provides leadership to the prehospital research focus of PECARN. Led by PI Brooke Lerner, PhD, the consortium brings together all nine of the PECARN affiliated EMS agencies to initiate multi-center research.

Seminal PECARN studies have demonstrated how **to decrease use of head CTs in children** with mild traumatic brain injury, **use of the most appropriate medication** for status epilepticus, and that the use of corticosteroids are not effective in the treatment of bronchiolitis.

Currently, PECARN is enrolling patients in the following studies:

- ◊ **Established Status Epilepticus Treatment Trial:** to determine the best choice of drugs to treat people with prolonged seizures.
- ◊ **RNA Biosignatures:** to assess how RNS-based diagnostic technology help us distinguish between bacterial and non-bacterial fever in infants.
- ◊ **Emergency Department Screens for Teens at Risk for Suicide (ED-STARS):** to develop and test a brief, personalized suicide risk screening tool for adolescents.

PECARN has completed enrollment in a study showing how to optimize IV fluid delivery for children in diabetic crisis; and a project that tested screening tools for alcohol and substance abuse in teens. In addition, the network has implemented the PECARN Registry project, a quality improvement project that establishes a data registry from electronic health records at seven PECARN sites to collect and report quality measures of emergency care provided to children. For more information, visit www.PECARN.org.

(Continued on page 4)

Research Update

PECARN Publications

⇒ Accuracy of Complete Blood Cell Counts to Identify Febrile Infants 60 Days or Younger with Invasive Bacterial Infections. JAMA Pediatr. 2017 Nov 6;171(11):e172927. Epub 2017 Nov 6. PubMed PMID: 28892537

⇒ Determining the longitudinal validity and meaningful differences in HRQL of the Peds QL Sickle Cell Disease Module. Health Qual Life Outcomes. 2017 Jun 12;15 (1):124. PubMed PMID: 28606098; PMCID: PMC5468970.

⇒ Epidemiology of Bacteremia in Febrile Infants Aged 60 Days and Younger. Ann Emerg Med. 2017 Oct 6. pii: S0196-0644(17)31388-4. doi: 10.1016/ j.annemergmed.2017.07.488. [Epub ahead of print] PubMed PMID: 28988964.

⇒ Implicit Review Instrument to Evaluate Quality of Care Delivered by Physicians to Children in Emergency Departments. Health Serv Res.2017 Nov 16. doi: 10.1111/1475-6773.12800. [Epub ahead of print] PubMed PMID:29143331.

⇒ Individual and neighborhood characteristics of children seeking emergency department care for firearm injuries within the PECARN network. Academic Emergency Medicine. April 2017 (PMID: 28423460]

⇒ Patient-level Factors and the Quality of Care Delivered in Pediatric Emergency Departments. Acad Emerg Med. 2017 Nov 18. doi: 10.1111/acem.13347. [Epub ahead of print] PubMed PMID:29150972.

⇒ Prevalence of brain injuries and recurrence of seizures in children with post-traumatic seizures. *Academic Emergency Medicine.* May 2017 (PMID: 28170143)

⇒ Racial and Ethnic Differences in Antibiotic Use for Viral Illness in Emergency Departments. Pediatrics. 2017 Oct;140(4). pii:e20170203. doi: 10.1542/peds.2017-0203. Epub 2017 Sep 5. PubMed PMID: 28872046; PubMed Central PMCID: PMC5613999.

⇒ Randomised controlled trial of Lactobacillus rhamnosus (LGG)versus placebo in children presenting to the emergency department with acutegastroenteritis: the PECARN probiotic study protocol. BMJ Open. 2017 Sep 24;7 (9):e018115. doi: 10.1136/bmjopen-2017-018115. PMID: 28947466

⇒ Reliability and Validity of a Two-Question Alcohol Screen in the Pediatric Emergency Department. Pediatrics. 2016 Dec;138(6). PubMed PMID: 27940674.

⇒ The impact of the introduction of PECARN head CT rules on the utilisation of head CT scans in a private tertiary hospital in Sub-Saharan Africa. Childs Nerv Syst. 2017 Dec;33(12):2147-2152. doi: 10.1007/s00381-017-3577-9. Epub 2017 Aug 30. PubMed PMID: 28856440.

⇒ Use of traumatic brain injury prediction rules with clinical decision support. *Pediatrics.* April 2017 (PMID 28341799)

Targeted Issue Publications

⇒ Compassionate options for pediatric EMS (COPE): Addressing communication skills. *Prehosp Emerg* Care early online 1-10, 2017.

⇒ EMS Treatment of Families in an Ambiguous Out-of-Hospital Child Death: The Role of Attribution Errors. *Journal of Loss and Trauma,* 22 (7).

⇒ Implementation of a Prehospital Protocol Change for Asthmatic Children. *Prehospital Emergency Care.* Published online in January, 2018. PMID: 29351496:

⇒ Improving Prehospital Protocol Adherence Through a Bundled Educational Intervention. *Prehospital Emergency Care.* Published online in January, 2018. PMID: 29364730:

⇒ Multicenter Evaluation of Prehospital Opioid Pain Management in Injured Children. *Prehospital Emergency Care.* 2016 Nov-Dec; 20(6):759-767. Epub 2016 Jul 13.

⇒ Study protocol of a randomized controlled trial of intranasal ketamine compared with intranasal fentanyl for analgesia in children with suspected, isolated extremity fractures in the pediatric emergency department. *BMJ Open* 2016;6:e012190. doi: 10.1136/bmjopen-2016-012190

National Pediatric Readiness Project

⇒ The Impact of a Pediatric Emergency Department Facility Verification System on Pediatric Mortality Rates in Arizona. *Journal of Emergency Medicine.* 2017 March; (PMID: 28341087)

(Continued from page 3)

Pediatric Trauma

Pediatric injury and trauma continue to be the number one cause of pediatric death and disability. According to the American College of Surgeons' Committee on Trauma (ACS-COT) 2014 Resources for Optimal Care of the Injured Patient, "the overall purpose of a trauma system is to address the needs of all injured patients wherever they are injured and wherever they receive care."[1] A recent report released by the U.S. Government Accountability Office reports that only 57% of America's children live within 30 miles of a pediatric trauma center.[2] Thus many injured children will likely be taken to adult trauma centers or hospital emergency departments that do not specialize in the care of children. Many of these children will then require inter facility transfer to care settings designed to care for children and youth. EMSC continues to emphasize the need to have preplanned transfer processes in place that address some of the unique needs of children. Additionally, the EMSC Innovation and Improvement Center (EIIC) has provided pediatric evidence-based guidelines for spinal stabilization/restraint to the ACS-COT EMS subcommittee for inclusion in the COT guidelines for spinal stabilization/immobilization during transport.

Pediatric Readiness

Identified in the 2013 National Pediatric Readiness assessment of 4,146 United State acute care hospitals, most EDs were found to be underprepared to stabilize and treat critically ill and injured children. The 2009 Joint Policy Statement ***Guidelines for Care of Children in the Emergency Department*** formed the basis for the assessment and was endorsed by 22 national organizations. Similar to trauma center guidelines, pediatric readiness includes not only equipment, medications, and supplies but also administrative oversight, quality improvement efforts, policies and procedures, and patient safety measures.

Using self-reported data, the median hospital weighted pediatric readiness score (WPRS) was 68.9 on a 100-point scale. Common gaps included lack of inter-facility transfer guidelines and agreements for children, measurement and recording of pediatric weights solely in kilograms, quality improvement processes with pediatric-specific metrics, policies for escalation of care when abnormal pediatric vital signs are identified, and disaster plans that include pediatric- specific considerations .[3]

Pediatric Readiness Endnotes:

[1] American College of Surgeons, Committee on Trauma. *Resources for the Optimal Care of the Injured Patient*, 2014. Chicago, Illinois. American College of Surgeons; 2014; 1.

[2] Government Accountability Office. *Pediatric Trauma Centers: Availability, Outcomes, and Federal Support Related to Pediatric Trauma Care*. Washington, DC. March 2017.

[3] Gausche-Hill M, ElyM, Schmuhl P, et al. A national assessment of pediatric readiness of emergency departments (published online April 13, 2015). *JAMA Pediatrics*. doi:10.1001/jamapediatrics.2015.138.

Quality Improvement

To address deficiencies in pediatric readiness a Pediatric Readiness Facility Recognition Collaborative was initiated in 2016 with 13 EMSC state and District of Columbia Programs participating. In December of 2017 this Quality Collaborative came to an end with all states demonstrating some progress in successfully establishing and/or implementing a facility recognition program based upon the pediatric readiness of the hospital emergency department. http://bit.ly/2pvyZqS

In January 2018, a second national quality improvement collaborative, the Pediatric Readiness Quality Collaborative (PRQC) was launched. The PRQC is a two-year, grassroots initiative, focused on frontline providers in participating emergency departments. The collaborative will run through Dec. 2019. Fifteen teams of more than 125 hospitals will collaborate to improve their pediatric readiness and overall capacity to provide pediatric emergency care. Champions from the participating emergency departments will be provided resources, tools, quality improvement education, strategies, and metrics to assist in improving pediatric readiness in their respective emergency departments. http://bit.ly/2GPPxCo

In addition, the EIIC, in cooperation with the American Academy of Pediatrics (AAP) has been connecting pediatricians to EMSC state contacts to leverage pediatric expertise (especially related to disaster planning and preparedness) and to increase pediatrician involvement in state EMSC activities. In 2016, AAP chapter contacts for disaster preparedness were confirmed in all states, and these contacts were connected with State EMSC directors/managers. The Center is also gathering information to better understand the extent to which pediatricians are involved in EMSC activities.

(Continued on page 5)

(Continued from page 4)

Quality Improvement Education

A major goal of the EIIC is planning and developing infrastructure to support and educate collaborative participants and grantees. EIIC goals include organizing an online portal with QI modules and materials, developing robust curricula for in-person meetings, and creating a pool of regional QI content coaches/ specialists to assist in the needs of the EIIC. An online learning platform has been adopted to create a training and education portal for our grantees and partners. The courses, in partnership with Pediatric Learning Solutions, will soon be available for learners to access.

Using Data to Identify Areas for Improvement

The EMSC Data Center, based at the University of Utah, has two major functions. The first is to serve as the **National EMSC Data Analysis Resource Center (NEDARC)** (nedarc.org) to help EMSC program grantees develop their own capabilities to collect, analyze, and utilize EMSC performance measure data and other healthcare data to improve the quality of care in state EMS and trauma systems. NEDARC is the data coordinating center for the National Pediatric Readiness Project as well as for the EMSC Performance Measures. These data collection efforts have consistently yielded survey response rates of 80% nationally over the last decade, representing data from over 4,100 hospitals and nearly 10,000 EMS agencies regarding emergency provider capacity to care for pediatric patients. The data collected is being used by researchers across the country to identify gaps in care, and has also been the main source of data for several publications describing these gaps and to drive system improvements.

The second major function of the EMSC Data Center is to serve as the **Data Coordinating Center (DCC)** for PECARN. The DCC coordinates data collection across multiple PECARN studies, develops standards for data collection and analysis to ensure uniformity and quality of the data, and monitors the safety and timely progress of PECARN studies. Most emergency care for kids is downsized from adult medicine. Even experts in pediatric emergency care don't know which treatment works best for our smallest patients because research is so limited in this critical area. PECARN develops and conducts kid-focused research in emergency departments across the country to find out which treatment, drug or procedure works best for children when faced with critical illness or injury. PECARN also studies care for kids in the prehospital setting and to learn what works best immediately after injury to help emergency workers to provide the best care for kids.

Working with Partners to Improve the Healthcare System

National Highway Traffic Safety Administration (NHTSA), Office of Emergency Medical Services.

The EMSC Program works in partnership with the NHTSA Office of EMS to integrate pediatric considerations into programs, policies, and projects. In the ongoing effort to support effective prehospital emergency care, NHTSA and HRSA have worked collaboratively since 2009 to promote the development, implementation and evaluation of evidence-based guidelines (EBGs) for use by prehospital providers. More recently, NHTSA and EMSC completed a three-year project to study the implementation of evidence-based guidelines for prehospital pain management for injured children and adults.

In addition, twenty years ago, pioneers and leaders in the EMS industry described a vision of data driven and evidence-based EMS systems in the EMS Agenda for the Future. Since then, the profession has worked to fulfill the vision set out in that landmark document. The Office of EMS, with colleagues at EMSC, Office of the Assistant Secretary for Preparedness and Response and the Office of Health Affairs within the Department of Homeland Security are pleased to announce joint funding of the NHTSA-awarded contract to support the process to create a new agenda for the future, called EMS Agenda 2050. The process is anticipated to take about two years. Additional information can be found on the EMS Agenda 2050 website: http://emsagenda2050.org/.

Agency for Healthcare Research and Quality (AHRQ).

In partnership with the EMSC program, AHRQ analyzes data from the Healthcare Cost Utilization Project (HCUP) to determine nationwide patterns of disposition and patient outcomes for moderate to severely injured children.

(Continued on page 6)

(Continued from page 5)

Assistant Secretary for Preparedness and Response (ASPR), Hospital Preparedness Program (HPP).

The EMSC program and ASPR's HPP program work to improve collaboration between EMSC State Partnership and HPP awardees to better meet the needs of children receiving emergency medical care. In the HPP Funding Opportunity Announcement released in February 2017, ASPR further promotes collaboration between the HPP awardees and the EMSC grantees, and included as one of their performance measures the EMSC performance measure that focuses on ensuring Emergency Departments (ED) are recognized through a statewide, territorial, or regional standardized program to ensure they are able to stabilize and/or manage pediatric medical emergencies.

Also, in response to the NPRP assessment finding that less than half of all hospitals reported having a disaster plan that incorporates the specific needs of children, a multidisciplinary workgroup, including ASPR-HPP representatives, developed the Checklist of Essential Pediatric Domains and Considerations for Every Hospital's Disaster Preparedness Policies (download at http://bit.ly/2vCwBjs).

Federal Interagency Committee on EMS (FICEMS).

Established in 2005, this committee aims to coordinate EMS efforts among multiple federal agencies. The EMSC program shares a leadership role on several committees including the EBG Committee, co-chaired by the EMSC program's Diane Pilkey, RN, MPH, and NHTSA's Cathy Gotschall, ScD. This committee has important ties to EMSC Targeted Issue projects on the development and implementation of EBGs. In addition, the EMSC program ensures that pediatric considerations are integrated into the guidance given to FICEMS and NHTSA by providing direct feedback to members of the National EMS Advisory Committee (NEMSAC), especially the Pediatric Emergency Physician sector representative. NEMSAC is made up of EMS representatives and consumers with the purpose of providing advice to FICEMS and NHTSA on matters relating to EMS.

(Continued on page 7)

The EMSC Innovation & Improvement Center (EIIC) is supported in part by the Health Resources and Services Administration (HRSA) of the U.S. Department of Health and Human Services (HHS) Maternal and Child Health Bureau Emergency Medical Services for Children grant number U07MC29829.

This information or content and conclusions are those of the authors and should not be construed as the official position or policy of, nor should any endorsements be inferred by HRSA, HHS or the U.S. Government.

New Publications and Resources

About the EMSC Program Fact Sheet. (updated Jan. 2018) This two-page fact sheet describes what the EMSC Program is doing to help improve the care of ill and injured children. Available at http://bit.ly/2IEF6ly

EMSC*Pulse* EMSC Pulse is a digest of program news and activities. This free newsletter is distributed about every 4 weeks and is archived at http://bit.ly/2mWi9Db

EMSC Program 5-Year Roadmap As the healthcare landscape shifts and to ensure improvement to children's, the program transitions to meet needs. As all thoughtful organizations must do EMSC developed a 5-year Roadmap for the program. Released July 2017. Find it at http://bit.ly/2txh43i

EMSC Historical Perspective Find a summary of the EMSC Program milestones. Released March 2018. http://bit.ly/2pzFn1t

EMS Grantees Interactive Contact Information List. To maintain the most current list of EMSC grantees, an interactive database allows interested parties to find specific people or programs using filters. Grantees are able to update data them own data. http://bit.ly/2pQm1Co

Ensuring Pediatric Readiness for All Emergency Departments: HHS Emergency Medical Services for Children Program and the National Pediatric Readiness Project: Over its 33 years of existence, the EMSC Program has focused on supporting and ensuring EMS systems, hospital EDs, and the entire continuum of medical care incorporate the needs of children. This report describes the progress and impact of one of the EMSC Program's efforts: The National Pediatric Readiness Project (NPRP). Available at http://bit.ly/2uJgioJ

EMSC Program Specific Performance Measures This page provides technical specifications and more for all EMSC Performance Measures that are effective March 1, 2017. Available at http://bit.ly/2u8dgr7

Resources for Implementation of New EMS-Focused Performance Measures. This is a compilation of resources to help states implement the EMS-focused performance measures that became active in 2017. Available at http://bit.ly/2rDo5zk

Pediatric Disaster Preparedness Toolbox. This toolbox contains resources that healthcare professionals and families can use to make sure that the needs of children are addressed in disaster planning activities. Many additions resources have been added in the last 6 months. Available at http://bit.ly/2rRMtS7

Quality Improvement Tools and Education There are many websites dedicated to Quality Improvement (QI) and QI tools within healthcare. On this page users will find selected tools with EMSC specific examples for contextualization and easier adaption to the EMSC scope of work. Available at http://bit.ly/2rDJAjw

HRSA EMSC Program Contacts

Theresa Morrison-Quinata
Branch Chief
Phone: 301-443-1527
tmorrison-quinata@hrsa.gov

Yolanda Baker
EMSC Project Officer
Phone: 301-443-6601
ybaker@hrsa.gov

Cathy Dooley
EMSC Program Analyst
Phone: 301-443-0771
cdooley@hrsa.gov

Lorah Ludwig
EMSC Project Officer
Phone: 301-443-2560
lludwig@hrsa.gov

Jocelyn Hulbert
EMSC SP Project Officer
Phone: 301-443-7436
jhulbert@hrsa.gov

Sarah O'Donnell, MPH
EMSC SP Project Officer
Phone: 301-443-0298
sodonnell@hrsa.gov

Diane Pilkey, RN, MPH
Sr. Nurse Consultant, Epidemiologist
EMSC Project Officer
Phone: 301-443-8927
dpilkey@hrsa.gov