Joint Report to the
Health and Welfare Committee
Of the Senate and
Health Committee
Of the House of Representatives

Report On the Status of Emergency Medical Services for Children

A Report to the 110th Tennessee General Assembly

Tennessee Department of Health
July 2019

TN Department of Health

July 1, 2019

The Honorable Rusty Crowe, Chair
Senate Health and Welfare Committee
425 5th Avenue North
Suite 720, Cordell Hull Building
Nashville, TN 37243

Dear Senator Crowe:

As required by Tennessee Code Ann. §68-11-251 and §68-140-321(e), we are pleased to submit the annual report on the Emergency Medical Services for Children (EMSC) program; the Board for Licensing Health Care Facilities and the Emergency Medical Services Board collaborated with the Committee on Pediatric Emergency Care (CoPEC) in preparation of the report. The TN EMSC program focuses primarily on enhancing access to quality pediatric pre-hospital and hospital care, with consideration for injury prevention, disaster preparedness, and patient safety. This report reflects activities and accomplishments of the Board for Licensing Health Care Facilities and the Emergency Medical Services Board in meeting national EMSC objectives.

Improving the availability and quality of children's health care is a major goal for the state of Tennessee and the Department of Health. Our boards help coordinate the role of Tennessee's medical facilities and emergency medical services in providing appropriate pediatric emergency care.

Respectfully submitted,

Jim Shulman, Chair Pro Tem
Board for Licensing Health Care Facilities

Sullivan Smith, MD, Chair
Emergency Medical Services Board

C: Lisa Piercey, MD, MBA, FAAP, Commissioner
Tennessee Department of Health

TN Department of Health

July 1, 2019

The Honorable Bryan Terry, Chairman
House Health Committee
425 5th Avenue North
Suite 646 Cordell Hull Building
Nashville, TN 37243

Dear Representative Terry:

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Joint Annual Report of
The Board for Licensing Health Care Facilities
And the
Emergency Medical Services Board
To the
Tennessee General Assembly
General Welfare Committee of the Senate
Health and Human Resources Committee of the House of Representatives
On the Status of
Emergency Medical Services for Children

July 1, 2019

I. Requirement of the Report

Tennessee Code Annotated § 68-140-321(e) and 68-11-251 requires that the Board for Licensing Health Care Facilities and the Emergency Medical Services Board in collaboration with the Committee on Pediatric Emergency Care (CoPEC) shall jointly prepare an annual report on the current status of emergency medical services for children (EMSC) and on continuing efforts to improve such services beginning July 1, 1999.

The mission is "to ensure that every child in Tennessee receives the best pediatric emergency care in order to eliminate the effects of severe illness and injury."

The vision statement is "to be the foremost advocate for children throughout the continuum of care in Tennessee and the nation."

II. Executive Summary

The Committee on Pediatric Emergency Care (CoPEC) in partnership with the Tennessee Department of Health created access to quality pediatric emergency care through establishing regional networks of care to ill and injured children 24 hours a day, 365 days a year. Emergency medical and trauma care services are defined as the immediate health care services needed as a result of an injury or sudden illness, particularly when there is a threat to life or long-term functional abilities.

Prior to the establishment of CoPEC there were significant barriers to access quality emergency care for children. It is important to understand that the delivery of healthcare to children is much different than adult care. "Children are not small adults," and these differences place children at a disproportionate risk of harm. Examples include:

- Rescuers and other health care providers may have little experience in treating pediatric patients and may have emotional difficulty dealing with severely ill or injured infants and children.

- Providers not familiar with many of the unique anatomic and physiologic aspects of pediatric trauma, such as unique patterns of chest injury, head injury, cervical spine injury, and abdominal injuries, may make assessment and treatment errors.
- Medication dosing for children is based on weight and/or body surface area whereas with adults there is typically a standard dose for a medication regardless of age or weight. Children are therefore more prone to medication dosing errors by inexperienced health care providers who do not take weight based dosing into account. They many times do not fully understand the dangers inherent with metric conversion when weight is reported or documented in pounds. Children also require equipment specifically designed to meet their anatomic and physiologic requirements.
- Children can change rapidly from a stable to life-threatening condition because they have less blood and fluid reserves. Assessment of these patients can be challenging to inexperienced providers.
- Children have a smaller circulating blood volume than adults making them more vulnerable to irreversible shock or death. Children are particularly vulnerable to aerosolized biological or chemical agents because their more rapid respiratory rate may lead to increased uptake of an inhaled toxin. Also, some agents (i.e. sarin and chlorine) are heavier than air and accumulate close to the ground – right in the breathing zone of smaller children.

A child's outcome depends on factors including:

- Access to appropriately trained health care providers including physicians, nurses and EMS professionals
- Access to properly equipped ambulances and hospital facilities
- Location of comprehensive regional pediatric centers and other specialized health care facilities capable of treating critically ill and injured children

CoPEC has spent two decades ensuring access to quality emergency care for all children in our state. This has been achieved through the institutionalization of pediatric specific rules and regulations that govern hospital facilities and EMS services. These rules and regulations now require different size equipment specific for children and personnel training. The rules and regulations for hospitals can be found at http://share.tn.gov/sos/rules/1200/1200-08/1200-08-30.20150625.pdf and EMS services at http://share.tn.gov/sos/rules/1200/1200-12/1200-12-01.20150401.pdf.

Approximately 2 out of 5 children less than 18 years of age were seen in Tennessee's emergency departments with approximately 31% being seen at one of the four Comprehensive Regional Pediatric Centers (CRPCs). These CRPCs include Le Bonheur Children's Hospital in Memphis, Monroe Carell Jr. Children's Hospital at Vanderbilt in Nashville, Children's Hospital at Erlanger in Chattanooga, and East Tennessee Children's Hospital in Knoxville.

Within each CRPC is a coordinator (or coordinators) charged with going out into the community to offer pediatric education opportunities to prehospital and hospital providers. These opportunities can be classified as simulation/mock codes, lectures, courses, hospital site visits

and community engagement events. Throughout the last year, thousands of providers from across the state have been directly impacted by the efforts of the CRPC Coordinators. Coordinators play an integral role in ensuring the system of care of children is exceptional. Every child deserves to receive the best care possible, no matter where they live in the state. Below is a breakdown of how many opportunities for each type of engagement have occurred in Tennessee (May 1, 2018 to April 30, 2019):

- Simulation/Mock Codes – 172
- Lectures – 46
- Courses – 99
- Hospital Site Visits – 38

A key role for CoPEC is to support the implementation of clinically appropriate evidence-based care for all children in Tennessee, regardless of what facility, EMS service or physician provider delivers that care. This is accomplished through the standardization of rules and regulations, education to all providers and continuous quality improvement activities. Additionally, this year new national performance measures for EMS were measured in Tennessee. These national performance measures work to improve the care children received across Tennessee and the country.

Children's Emergency Care Alliance of Tennessee (CECA TN) is playing a vital role in offering feedback and input regarding the measures demonstrating that our state's program is highly regarded for its status as a leader in pediatric emergency care. Data collection as a quality improvement initiative is a key piece of enhancing the emergency medical services for children system in Tennessee. Each child whose care necessitates greater subspecialty pediatric care than their local community can provide, is transferred to one of the four CRPCs. Since 2011, the CRPC coordinators at each of the four locations review the patient's chart and records to identify opportunities for quality improvement. To address the needs of providers across the state, the coordinators use this information to offer educational outreach and trainings that cater to the various needs identified.

One of the most significant strengths of CoPEC is the involvement and participation of various stakeholders from across the state that advises the Tennessee Department of Health. These volunteers include EMS providers, doctors, nurses, parents of children with special needs, and professional organizations (Appendix 1).

Key Accomplishments in Fiscal Year (May 1, 2018 to April 30, 2019)

A. 2015-2018 Strategic Plan

Data Goal: TN EMSC will utilize data to assess outcomes of pediatric emergency care, identify gaps in outcomes and/or care delivery processes, plan appropriate improvement interventions and evaluate the effectiveness of TN EMSC programs and services.

Hospitals with an Emergency Department were invited to participate in a nationwide assessment to help better understand how interfacility transfer agreements are being used. Below captures the results for the HRSA EMS Guideline measures, once again

Tennessee EMSC is a nation leader.
Findings

TENNESSEE EMS FOR CHILDREN PROGRAM
2018 HOSPITAL SURVEY RESULTS

Number of Respondents: 118

Number Surveyed: 121

Response Rate: 97.5%

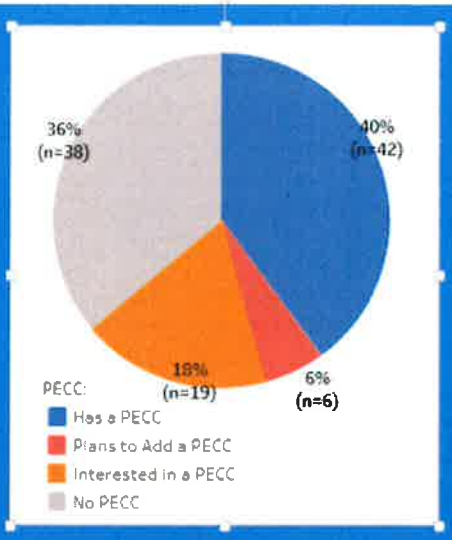
NUMBER OF PEDIATRIC AGENCIES BY ANNUAL 911 PEDIATRIC CALL VOLUME

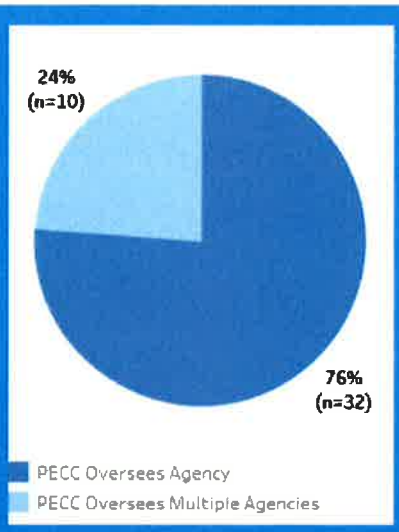
Annual 911 Pediatric Call Volume	Num Agencies	% of Agencies
None - Zero pediatric calls in the last year	1	1%
Low - Twelve (12) or fewer pediatric calls in the last year (1 or fewer pediatric calls per month)	10	10%
Medium - Between 13-100 pediatric calls in the last year (1 - 8 pediatric calls per month)	51	49%
Medium High - Between 101-600 pediatric calls in the last year (8 - 50 pediatric calls per month)	29	28%
High - More than 600 pediatric calls in the last year (more than 50 pediatric calls per month)	12	11%
Pediatric Call Volume Not Reported	2	2%
Grand Total	**105**	**100%**

*NOTE: *not all agencies may have reported; question not required.*

39% have at least 8 pediatric calls a month

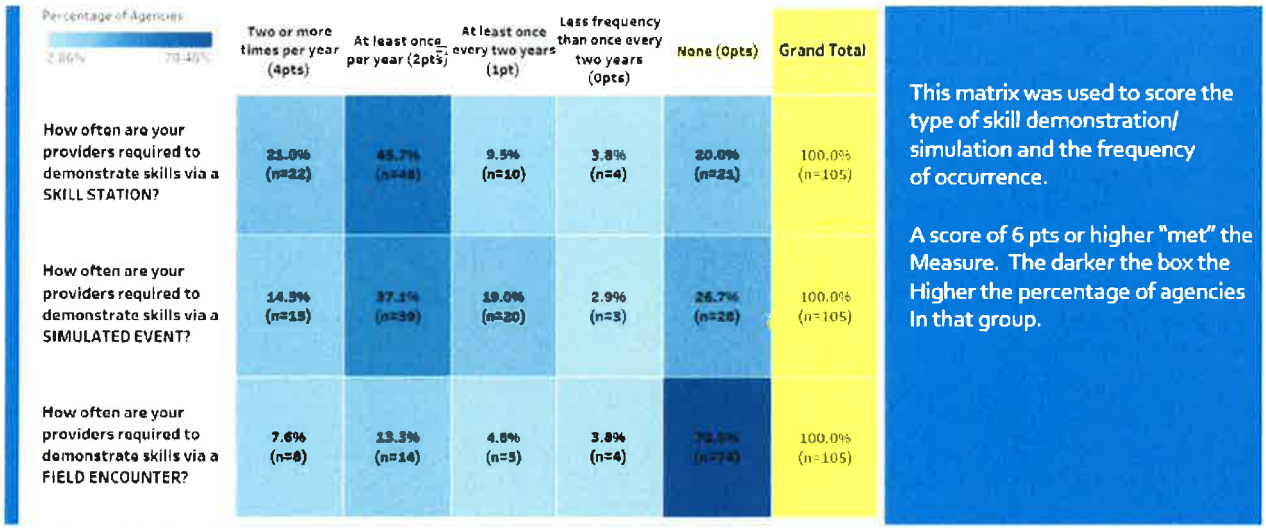
EMS PEDIATRIC EMERGENCY CARE COORDINATOR (PECC)





Roles of EMS Pediatric Care Coordinator (PECC)	PECC Oversees Agency	PECC Oversees Multiple Agencies
Promotes pediatric continuing education opportunities	100%	100%
Ensures that fellow providers pediatric clinical practice guidelines and/or protocols	97%	100%
Oversees pediatric process improvement initiatives	97%	90%
Ensures that the pediatric perspective is included in the development of protocols	97%	100%
Ensures the availability of pediatric medications, equipment and supplies	91%	80%
Promotes agency participation in pediatric prevention programs	66%	50%
Coordinates with the emergency department pediatric emergency care coordinator	66%	80%
Promotes agency participation in pediatric research efforts	56%	40%
Promotes family-centered care	63%	60%
Other activities	44%	50%

USE OF PEDIATRIC SPECIFIC EQUIPEMENT MATRIX:



Membership Goal: To develop and sustain membership quality and support to achieve optimal organizational mission delivery.

Findings	Action
New members unclear of history, organization relationship, goals and objectives for EMSC in Tennessee	Member attendance tracked. Operating rules for CoPEC revised and published to group. This update includes requirements for voting and non-voting membership. Orientation for all new members and inclusion of new operating rules conducted annually.

Standardization Goal: Best evidence-based pediatric emergency care for every patient in every location of Tennessee.

Findings	Action
EMS protocols update with most recent evidence based pediatric practice	Worked with EMS medical director to review and update all EMS protocols; fall 2019
Lack of accurate pediatric dosing tool.	Continuing to distribute pediatric dosing tool. Currently 833 RightDose dosing guides have been distributed.
Lack of knowledge regarding pediatric needs during a disaster	Disaster Simulation training provided hands-on instruction along with a Trauma Jeopardy review during the 2019 Update in Acute and Emergency Care Pediatric Conference.
Need to exercise the infrastructure of disaster	Pediatric patients included in 4 of the 8

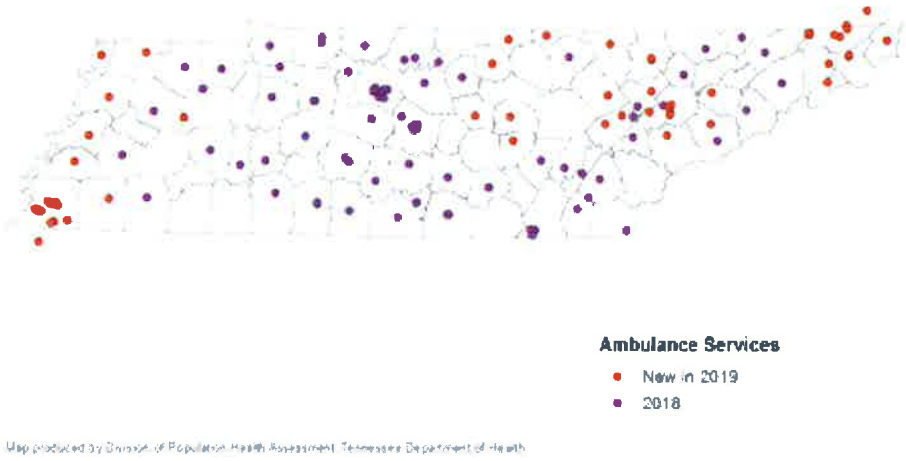
response for the pediatric population.	healthcare coalition disaster drills. Each coalition is including pediatric patients in their upcoming coalition disaster drills.
Maintaining the National EMSC Performance Measures including • Percent of hospitals recognized through a statewide, territorial or regional system that are able to stabilize and/or manage pediatric Medical and trauma emergencies. • Percent of hospitals that have written interfacility transfer agreements and guideline components	Standards for Pediatric Emergency Care Facilities are in the process of being updated and revised to reflect current evidenced based care. This work involves CoPEC members and pediatric content experts who meet regularly to discuss and collaborate on the proposed updates. This work requires committed and dedicated individuals across our state who devote their time and talent to this important work to reach our goal for completion in the fall of 2019.

Percent of TN Hospitals that have written Interfacility Transfer Agreements and Guideline Components in 2018

Funding goal: Increase revenue base

Findings	Action
President Trump's budget eliminates the federal EMSC program	Legislation has been introduced that would extend the EMSC program for another five (5) years.
Additional funding needed for tool to address pediatric drug dosing errors	Secured $10,000 donation to fund 559 additional RighDose Medication Tools to remaining facilities that have expressed interest in participating in this program.

ALS Ambulance Services Currently Funded to Receive the RightDose Pediatric Dosing Tool 2019



Map produced by Division of Population Health Assessment, Tennessee Department of Health

B. All TN EMSC stakeholders will recognize the TN EMSC program as a resource and authority for providing the best emergency care information and guidance for caring for critically ill or injured children in Tennessee.

Continuation of the TN EMSC website (www.cecatn.org) which contains content to enhance access to quality pediatric emergency care, has recently been updated.

C. National Performance Measures

Tennessee has demonstrated achievement with all previous HRSA/MCHB Performance Measures. These included:

- By 2022, 25 percent of hospitals are recognized as part of a statewide, territorial, or regional standardized program that are able to stabilize and/or manage pediatric medical emergencies.

- By 2022, 50 percent of hospitals are recognized as part of a statewide, territorial, or regional standardized system that recognizes hospitals that are able to stabilize and/or manage pediatric trauma.

- By 2021, 90 percent of hospitals in the state or territory have written interfacility transfer guidelines that cover pediatric patients and that include specific components of transfer. Currently at 69% of hospitals with an Interfacility Transfer Guideline and 93.1% of Tennessee hospitals have an Interfacility Transfer Agreement.

- Goal: To increase the number of states and territories that have established permanence of EMSC in the state or territory EMS system.
    - Each year: All Components Achieved
        - The EMSC Advisory Committee has the required members as per the implementation manual.
        - The EMSC Advisory Committee meets at least four times a year.
        - Pediatric representation incorporated on the state or territory EMS Board.
        - The state or territory requires pediatric representation on the EMS Board.
        - One full-time EMSC Manager is dedicated solely to the EMSC Program.

Spring 2017 New HRSA Performance Measures were added and a strategic plan to achieve these four measures is being developed and will be achieved by stated year.

- By 2027, EMSC priorities will be integrated into existing EMS, hospital, or healthcare facility statutes or regulations.

- By 2021, 80 percent of EMS agencies in the state or territory will submit NEMSIS version 3.x-compliant patient-care data to the State EMS Office for all 911-initiated EMS activations.
    - Tennessee Department of Health, Division of EMS awarded a contract to ImageTrend and compliance will be met by the end of 2019.

New National Performance Measures for EMS were published in 2017 and a national survey with a 100% response rate from EMS agencies with 911 services. Once again, Tennessee is above the national level.

- By 2026, 90 percent of EMS agencies in the state or territory will have a designated individual who coordinates pediatric emergency care. Preliminary baseline data 38.2% TN and the nation is at 23%.

- By 2026, 90 percent of EMS agencies will have a process that requires EMS providers to physically demonstrate the correct use of pediatric specific equipment, which is equal to a score of 6 or more on a 0–12 scale. Preliminary baseline data 28.4% TN and the nation is at 2.53%.

D. Educational outreach, publications and presentations to promote the goal of deploying the best evidence-based pediatric emergency care for every patient in every location of Tennessee.

1. Education

18th Annual Update in Acute and Emergency Care of Pediatrics Conference hosted by Le Bonheur Children's Hospital held April 25 & 26, 2019 in Memphis, TN. (Appendix 2)

This year the conference brought together nearly 150 physicians, nurse practitioners, physician assistants, nurses and EMS providers. The attendees received continuing education in the latest urgent and emergent trends in pediatrics including pediatric disaster management, behavioral emergencies, toxicology and other evidence based lectures.

CECA TN's website (www.cecatn.org) has been updated to include educational links to various educational offerings being provided by CRPCs and other partners.

2. TN EMSC Impact to National EMSC program

East Tennessee Children's Hospital continued their participation in the Pediatric Readiness Quality Collaborative developed by the EMSC Innovation and Improvement center. This is a Quality Improvement Collaborative to assist state programs in accelerating their progress in improving the pediatric readiness of EDs and to develop a program to recognize EDs in their state that are ready to care for children with medical emergencies. They are one of 16 teams to be selected to participate in this program. The two affiliate sites participating are Hawkins County Memorial Hospital and Sweetwater Hospital. They are continuing to demonstrate their leadership to enhance the quality of care for children in their region by sharing the knowledge that they are learning with their counterparts across the state.

3. Poster Presentations

Moyers, M. "Stop the Bleed: How to Teach Children in Middle and High Schools". National Health Care Coalition Conference, New Orleans, LA.

Eubanks J. "*Blunt Cerebrovascular Injury in Children*" 2019 Southeastern Pediatric Trauma Conference, Wake Forest, North Carolina.

Williams R. "*Image Gently-The Pediatric Trauma Patient*" December 2018 Le Bonheur Trauma Grand Rounds, Memphis, TN.

Nguyen V. "*Management of Subdural Hematohygromas in Abusive Head Trauma*" Congress of Neurological Surgeons (CNS) 2018 Annual Meeting, Houston, TX.

West N. "*Retrospective Analysis of Hypopituitarism Incidence After Pediatric TBI Using A Clinical Data Warehouse*" NeuroTrauma 2018, Toronto, Canada

Kelly D. "*Flexible IM nailing of femoral shaft fx: Closed vs Open Reductions*" 2018 Pediatric Orthopaedic Society of North America (POSNA) Annual Meeting, Austin, Texas.

Revels A. "*TURN THE HEAT UP: A Focused Effort to Improve and Maintain Normothermia in Pediatric Burn Patients*" 2019 Trauma Center Association of America (TCAA) 22nd Annual Conference, Las Vegas, Nevada.

4. Lecture Presentations

Fallat, M. *"Pediatric Readiness for All Emergency Departments, EMS Services and Trauma Centers."* 18th Annual Update in Acute & Emergency Care Pediatrics Conference, April 25, 2019, Memphis, TN.

Dyess, J. *"Human Trafficking 101"*. 18th Annual Update in Acute & Emergency Care Pediatrics Conference, April 25, 2019, Memphis, TN.

Diamond, A. *"Injury Prevention in Youth Sports"*. 18th Annual Update in Acute & Emergency Care Pediatrics Conference, April 26, 2019, Memphis, TN.

Helms, S. *"Roundtable Discussion: Strategies for Safe Sleep"*. 18th Annual Update in Acute & Emergency Care Pediatrics Conference, April 25, 2019, Memphis, TN.

Rainbolt, W. *"Sepsis"*. 18th Annual Update in Acute & Emergency Care Pediatrics Conference, April 25, 2019, Memphis, TN.

Kink, R. *"Safely Transporting the Violent Patient"*. 18th Annual Update in Acute & Emergency Care Pediatrics Conference, April 25, 2019, Memphis, TN.

Bratton, O. *"When Hugs Hurt: Considerations for the Treatment of Patients with Autism"*. 18th Annual Update in Acute & Emergency Care Pediatrics Conference, April 25, 2019, Memphis, TN.

Dishroon, J. *"Air Goes In, Air Goes Out and Blood Goes Round and Round"*. 18th Annual Update in Acute & Emergency Care Pediatrics Conference, April 25, 2019, Memphis, TN.

Sharma, S. *"Common Cold or Menace to Society?"* 18th Annual Update in Acute & Emergency Care Pediatrics Conference, April 25, 2019, Memphis, TN.

Graham, N. *"Trauma Informed Care-Implications for De-escalation in the Pediatric Population"*. 18th Annual Update in Acute & Emergency Care Pediatrics Conference, April 25, 2019, Memphis, TN.

Harrell, D. *"Acute Burn Management: The 1st 24 Hours"*. 18th Annual Update in Acute & Emergency Care Pediatrics Conference, April 25, 2019, Memphis, TN.

Stewart, D. *"Gang Awareness"*. 18th Annual Update in Acute & Emergency Care Pediatrics Conference, April 25, 2019, Memphis, TN.

Graham, N. *"De-escalation Tools for your Back Pocket"*. 18th Annual Update in Acute & Emergency Care Pediatrics Conference, April 25, 2019, Memphis, TN.

Jordan, L. *"Pediatric Stroke: Brain to Save"*. 18th Annual Update in Acute & Emergency Care Pediatrics Conference, April 25, 2019, Memphis, TN.

Schreiber, M. *"PsychStart"*. 18th Annual Update in Acute & Emergency Care Pediatrics Conference, April 25, 2019, Memphis, TN.

Love, T. *"Safe Stars Initiative"*. TN Trauma Care Advisory Council, November 9, 2018, Nashville, TN.

Dalton, B. *"When Less is More...A Smaller City's Approach to CIT"*. CIT (Crisis Intervention Team) International, Kansas City, MO.

Revels, A., Moreau, D., Sheppard, S., Deaton, J., Eubanks, J., Williams, R. *"Blood Refrigerators Improve Blood Availability for Trauma Activations"*. TCAA Annual Meeting, May 2018, New Orleans, LA.

Williams, R. Anderson, K. *"Alternate Trial Structure"*. American Pediatric Surgical Association National Meeting, May 2018

Williams, R. Revels, A., Sheppard, S., Fischer, P., Eubanks, J. *"Using TQIP reports to audit Trauma Registry Data"*. TQIP National Meeting, November 2018, Anaheim, CA.

Staszak, J. *"Mediastinal Lymphadenopathy in Children with Histoplasmosis"*. Academic Surgical Congress, February 2019, Houston, TX.

Revels, A. Williams, A. Sheppard, S., Shield, D. Crisler, C. *"Turn the Heat Up: A Focused Effort to Improve and Maintain Normothermia in Pediatric Burn Patients"*. Trauma Center of America Association Annual Meeting, May 2019, Las Vegas, NV.

Williams, R. *"Updated American Pediatric Surgical Association Solid Organ Injury Guidelines"*. APSA Annual Meeting, May 2019, Boston, MA.

5. Journal Publications

Establishing the Key Outcomes for Pediatric Emergency Medical Services Research. Adelgais, K., Hansen, M., Lerner, B., Donofrio, J., Yadav, K., Brown, K., Liu, Y., Denslow, P., Denninghoff, K., Ishimine, P. Olson, L. 2018 Oct; 25: 1345-1254.

Apneic Oxygenation Reduces Hypoxemia During Endotracheal Intubation in the Pediatric Emergency Department. Viukovic, A., Hanson, H., Murphy, S., Mercurio, D., Sheedy, C., Arnold, D. 2019 Jan; 37 (1): 27-32.

Characteristics Associated with Problematic Pediatric Transports to a Regional Children's Hospital. Murphy, S., Blair, L., Phillippi, R., Meredith, M., Arnold, D. 2019 Jan; 37 (1): 163-164

External validation of a Clinical Prediction Rule for Very Low Risk Pediatric Blunt Abdominal Trauma. Springer, E., Frazier, S., Arnold, D., Vukovic, A. 2018 Nov; 23.

Characterization of Pediatric Golf Car Injuries to Guide Injury Prevention Efforts. Starnes, J., Unni, P., Fathy, C., Harms, K., Payne, S., Chung, D. 2018 Jun: 36 (6): 1049-1052.

Fractures in the Pediatric Emergency Department: Are We Considering Abuse? Lavin, L., Penrod, C., Estrada, C., Arnold, D., Saville, B., Xu, M., Lowen, D. 2018 Sep: 57 (10): 1161-1167.

Non-operative management of solid organ injuries in children: An American Pediatric Surgical Association Outcomes and Evidence Based Practice Committee systematic review. Gates, R., Price, M., Cameron, D., Somme, S., Ricca, R., Oyetunji, T., Guner, Y., Gosain A., Baird, R., Lal, D., Jancelewicz, T., Shelton, J., Diefenbach, K., Grabowski, J., Kawaguchi, A., Dasgupta, R., Downard, C., Goldin, A., Petty, J., Stylianos, S., Williams, R. 2019 Jan. pii: S0022-3468(19)30049-1.

Use of magnetic resonance imaging in severe pediatric traumatic brain injury: assessment of current practice. Ferrazzano, P., Rosario, B., Wisniewski, S., Shafi, N., Siefkes, H., Miles, D., Alexander, A, Bell, M. 2019 Feb 8:1-9.

Massive transfusion in pediatric trauma: An Atomac perspective. Noland, D., Apelt, N., Greenwell, C., Tweed, J., Notrica, D., Garcia, N., Todd, M., Eubanks, J., Alder, A. 2019 Feb: 54 (2):345-349.

Reimaging in pediatric blunt spleen and liver injury. Notrica, D., Sussman, B., Garcia, N., Leys, C., Maxson, R., Bhatia, A., Letton, R., Ponsky, T., Lawson, K., Eubanks, J., Alder, A., Greenwell, C., Ostlie, D., Tuggle, D., 2019 Feb;54(2):340-344.

Adherence to APSA activity restriction guidelines and 60-day clinical outcomes for pediatric blunt liver and splenic injuries (BLSI). Notrica, D., Sayrs, L., Krishna, N., Ostlie, D., Letton, R., Alder, A., St Peter SD, Ponsky TA, Eubanks JW 3rd, Tuggle DW, Garcia NM, Leys CM, Maxson RT, Bhatia AM. J Pediatr Surg. 2019 Feb; 54(2):335-339.

Concurrent Ipsilateral Tibial Shaft and Distal Tibial Fractures in Pediatric Patients: Risk Factors, Frequency, and Risk of Missed Diagnosis. Sheffer BW, Villarreal ED, Ochsner MG 3rd, Sawyer JR, Spence DD, Kelly DM. J Pediatr Orthop. 2019 Apr 8. doi: 0.1097/BPO.

Factors that predict instability in pediatric diaphyseal both-bone forearm fractures. Kutsikovich JI, Hopkins CM, Gannon EW 3rd, Beaty JH, Warner WC Jr, Sawyer JR, Spence DD, Kelly DM. J Pediatr Orthop B. 2018 Jul;27(4):304-308.

Surgical treatment of Supracondylar Humeral Fractures in a Freestanding Ambulatory Surgery Center is as Safe as and Faster and More Cost-Effective Than in a Children's Hospital. Rider

CM, Hong VY, Westbrooks TJ, Wang J, Sheffer BW, Kelly DM, Spence DD, Flynn JM, Sawyer JR. J Pediatr Orthop. 2018 Jul; 38(6):e343-e348.

Negative FAST Exam Predicts Successful Non-operative Management in Pediatric Solid Organ Injury: A Prospective ATOMAC + Study. McGaha P 2nd, Motghare P, Sarwar Z, Garcia NM, Lawson KA, Bhatia A, Langlais CS, Linnaus ME, Todd Maxson R, Eubanks JW 3rd, Alder AC, Tuggle D, Ponsky TA, Leys CW, Ostlie DJ, St Peter SD, Notrica DM, Letton, R. .J Trauma Acute Care Surg. 2018 Sep 21. doi: 10.1097/TA.

North American survey on the post-neuroimaging management of children with mild head injuries. Greenberg JK, Jeffe DB, Carpenter CR, Yan Y, Pineda JA, Lumba-Brown A, Keller MS, Berger D, Bollo RJ, Ravindra VM, Naftel RP, Dewan MC, Shah MN, Burns EC, O'Neill BR, Hankinson TC, Whitehead WE, Adelson PD, Tamber MS, McDonald PJ, Ahn ES, Titsworth W, West AN, Brownson RC, Limbrick DD. J Neurosurg Pediatr. 2018 Oct 26; 23(2):227-235.

Student athlete concussions and postconcussion syndrome: ADHD as a risk factor. Nuwer MR, Nuwer JM, Tsao JW. Neurol Clin Pract. 2018 Oct;8(5):377-378.

Pediatric Abusive Head Trauma: Return to Hospital System in the First Year Post Injury. Fraser BD, Lingo PR, Khan NR, Vaughn BN, Klimo P Jr. Neurosurgery. 2018 Nov 23. doi: 10.1093/neuros/nyy456.

The Role of Computed Tomography and Magnetic Resonance Imaging in the Diagnosis of Pediatric Thoracolumbar Compression Fractures. Franklin, D. 3rd, Hardaway, A., Sheffer, B., Spence, D., Kelly, D., Muhlbauer, M., Warner, W. Jr, Sawyer, J. 2018 Dec 26. doi: 10.1097/BPO.

Enhanced neonatal surgical site infection prediction model utilizing statistically and clinically significant variables in combination with a machine learning algorithm. Bartz-Kurycki, M., Green, C., Anderson, K., Alder, A., Bucher, B., Cina, R., Jamshidi, R., Russell, R., Williams, R., Tsao, K. 2018 July 24.

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6. Injury Prevention

Injury prevention is an integral component of the EMS for children continuum of care. Children Emergency Care Alliance of Tennessee (CECA TN) has initiated a robust social medial campaign with an emphasis on injury prevention education. The intended audience is both healthcare providers and family caregivers alike.

Each of the four comprehensive regional pediatric centers (CRPC) have robust programs. Together, the CRPCs have had over 650 events in Tennessee to keep children safe. To develop injury prevention programs each CRPC reviews their local injury data and develop targeted interventions to keep children safe. To highlight one program, the Pediatric Trauma Injury Prevention Program at Monroe Carell Jr. Children's Hospital at Vanderbilt strives to reduce

unintentional injuries among children and promote safe behaviors in their community. The program has several initiatives under it that are all data driven:

Be In The Zone- Turn Off Your Phone (Teen Driver Safety Initiative): The Teen Driver Safety Program at Monroe Carell Jr. Children's Hospital at Vanderbilt addresses the growing problem of teen motor vehicle crashes in Tennessee. Funded by Ford Motor Company Fund and Community Services and The Allstate Foundation, the ''Be in the Zone'' (BITZ) Teen Motor Vehicle Safety program is a unique hospital-school collaborative program that educates teenage drivers of the dangers of texting while driving. Between 2011- 2018 the BITZ Campaign has reached 88 high schools and about 114,000 students in Middle TN.

Kohl's Stay Seat Smart Program (Child Passenger Safety Initiative): Tennessee Department of Health and the hospital's trauma registry identify motor vehicle crashes as the leading cause of injury and hospitalization for children 9 years and younger. Use of properly installed age-appropriate car seats is the most effective way to decrease the risk of injury and death from motor vehicle crashes. The National Highway Traffic Safety Administration estimates that correctly used child restraints can reduce fatalities by 71% for infants, 54% for children 1-4 years old, and 45% for children 4-8 years of age.

The Kohl's Stay Seat Smart Program sees to use a multipronged approach that addresses car seat misuse through education, community outreach and a media campaign to bring about enhanced knowledge and desired behavioral change. Between August 2017-September 2018, through the Kohl's Stay Seat Smart Program, Monroe Carell Jr. Children's Hospital at Vanderbilt hosted 37 events and conducted more than 90 workshops to educate over 145,000 community members about child passenger safety.

TN ATV Safety Program

At Monroe Carell Jr. Children's Hospital at Vanderbilt, ATV injuries are the fifth leading cause of emergency admission, accounting for 69 hospital admissions in 2017. Most treatments involve head injuries, caused by failure to wear a helmet or carrying too many passengers. The 2018-2019 school year marked the launch of the Tennessee ATV Safety Program at Monroe Carell Jr. Children's Hospital at Vanderbilt. The goal of this program is to offer teens in Middle Tennessee an empowering opportunity to make a difference in their school and community surrounding ATV safety. Each school will work in in partnership with their local FFA and 4-H programs. Student leaders from each county attended a hospital training day to witness, first hand, the true dangers that accompany ATVs. These teens were then tasked with creating a yearlong, student-led campaign advocating for ATV safety in their schools and communities.

One of the initiatives that each CRPC is continuing to be actively engaged in is **Safe Kids**. Safe Kids is an international campaign, focusing on preventing the serious injuries-- the leading health risk that children face today. The risk areas the CRPCs address include home safety, firearm, car and road safety, sports and play safety. Throughout the year they hold events in their communities educating the school administrators, parents and providers addressing these areas.

Stop the Bleed is intended to cultivate grassroots efforts that encourage bystanders to become trained, equipped, and empowered to help in a bleeding emergency before professional help arrives. The four CRPCs and many of the CoPEC members are actively engaged in their communities to teach the Stop the Bleed program. There was a Stop the Bleed Train the Trainer course offered at this year's Annual Update in Acute and Emergency Care of Pediatrics Conference held in Memphis, TN where 49 individuals became Stop the Bleed trainers.

There is also a collaboration with **Brain Links**, an organization that provides professional development trainings for those who serve people of all ages who have a brain injury. In addition to family education, our trainings support those who serve young children, such as daycare professionals, educators, school nurses and statewide athletic organizations in schools and the community. Drawing on their expertise and the products from our previous grant, this first year we have worked closely with the pediatric population. They have partnered with TN's Chapter of the American Academy of Pediatrics regarding Concussion Management and returning to home and school settings following an injury. We are as engaged with those serving people with brain injury across the adult population. They conducted 15 training events to over 240 people whom the audiences consisted of school and healthcare professionals along with community organizations across the state.

The **Safe Stars** initiative recognizes youth sports leagues throughout Tennessee for providing the highest level of safety for their young athletes. Safe Stars is a collaboration between the Tennessee Department of Health and the Monroe Carell Jr. Children's Hospital at Vanderbilt.

Sports leagues should be encouraged to achieve the highest possible safety standards for their young athletes. Safe Stars consists of 3 levels: gold, silver, and bronze, and involves implementation of policies around topics such as concussion education, weather safety and injury prevention. Safe Stars is a free and voluntary initiative in which all youth sports leagues can participate.

Safe Stars' goal is to provide resources and opportunities for every youth sports league to enhance their safety standards. The criteria for achieving recognition as a Safe Stars league has been developed by a committee of health professionals dedicated to reducing sports-related injuries among youth.

The first year of Safe Stars has been a success with numerous educational events having taken place. There are currently 4 government agencies, 5 professional sports teams, 5 collegiate athletic departments and 23 community, child safety and healthcare societies and organizations that have partnered with Safe Stars. They also updated their website (www.tn.gov/health/safestars).

E. Star of Life Awards Ceremony and Dinner

This year was the 11th annual Star of Life Awards ceremony held to honor the accomplishments of EMS personnel from all regions of Tennessee who provide exemplary life-saving care to adult and pediatric patients. There were over 500 attendees from across the state that attended the ceremony. The emcee for this year's ceremony was Jennifer Kraus of News Channel 5 Nashville

and included the presentation of the actual adult or pediatric patient scenarios and reunited the EMS caregivers with the individuals they treated. Recipients were chosen from all eight of the EMS regions in the state that provided nominations. This is the premier event within the state to recognize and honor our excellent pre-hospital providers.

Overall State Winner: Michael G. Carr State Star of Life Award

Coffee County EMS, Vanderbilt LifeFlight, National Event Services, Erlanger Health Systems LifeForce, Air Evac Manchester and National Event Services

EMS Region 1: Eastman Emergency Services

EMS Region 2: Priority Ambulance of Loudon County

EMS Region 3: Erlanger Life Force, Puckett EMS, Puckett EMS Dispatch

EMS Region 4 (tie): Putnam County EMS, Putnam County 911, Putnam County Fire Department, Putnam County Rescue Squad, Baxter Fire Department, Putnam County Sheriff's Office, Vanderbilt LifeFlight

EMS Region 4 (tie): Erlanger Life Force 2, Sparta Police Department, White County EMS, White County Sheriff Department, White County 911

EMS Region 5: Williamson Medical Center, Williamson County Rescue Squad, Williamson County Emergency Communications

EMS Region 6: Marshall County EMS, Lewisburg Fire Department, Marshall County 911, Air Evac Base #9, Marshall County Sheriff Department

EMS Region 7: Weakley County Ambulance Service, Weakley County 911 Dispatch, Air Evac Life Team

EMS Region 8: Elvis Presley Trauma Center at Regional One Health, Memphis Fire Department

F. Awards

The TN EMSC Joseph Weinberg, MD, Leadership Award is bestowed upon an individual who displays the attributes of a leader that can bring together diverse stakeholders and organizations to improve the care of critically ill and injured children. This year's award was presented to **Kate Copeland, MSN, RN NEA-BC** for her dedication to Tennessee's children and moving forward the system of pediatric care within disaster preparedness. Ms. Copeland consistently demonstrates the leadership skills of Dr. Weinberg including pediatric expertise, advocacy, and civic duty. Ms. Copeland demonstrated this through her tireless effort in managing Children's Emergency Care Alliance through its leadership transition.

The TN EMSC Advocate for Children Award is given to an individual(s) who has made an outstanding contribution of major significance to the Tennessee Emergency Medical Services for Children program. This year's award was presented to **Rhonda Phillippi, RN** for their exemplary dedication to the well-being of children. Mrs. Phillippi was selected for her dedication over a 20+ year career with Children's Emergency Care Alliance.

Paula Denslow, Director of Brain Links with the Tennessee Disability Coalition received the Friends of National Association of State Head Injury Administrators (NASHIA) Award for her contributions to the organization.

Purnima Unni, Pediatric Trauma Injury Prevention Program Manager at Monroe Carell Jr. Children's Hospital at Vanderbilt received the Ford Driving Skills for Life Unsung Heroes of Highway Safety Award for her work to keep young drivers safe. She created the Be in the Zone Program, making teens aware of the dangers of texting while driving.

III. The Needs of the State Committee on Pediatric Emergency Care met by the Tennessee Department of Health since last year's annual report.

- Participation and input from Tennessee Department of Health staff implementing the strategic plan.
- Map created by the Division of Population Health Assessment.

IV. The Needs of the State Committee on Pediatric Emergency Care

- Ongoing support to achieve the goals of the 2015-2018 Strategic Plan to meet the needs of ill and injured children.
- Ongoing statistical support to assist in defining outcomes of emergency care for pediatrics

V. Conclusion

The mission of CoPEC is *to ensure that every child in Tennessee receives the best pediatric emergency care in order to eliminate the effects of severe illness and injury.* That mission draws people together, and has brought out the very best in our healthcare system.

The Board for Licensing Health Care Facilities and the Emergency Medical Services Board work cooperatively with other programs of the Tennessee Department of Health to improve the quality of health care and medical services available to the citizens of Tennessee.

We will further describe the impact of the rules on pediatric emergency care by utilizing data collected in our next report on July 1, 2020.

This report was reviewed by the respective boards on _____ and _____ and approved for presentation to the designated committees of the Tennessee General Assembly.

Appendix 1

Baptist Memorial Hospital for Women

Children's Hospital at Erlanger

Children's Hospital at TriStar Centennial

East Tennessee Children's Hospital

Family Voices of Tennessee

Hospital Corporation of America (HCA)

Jackson-Madison County General Hospital

Le Bonheur Children's Hospital

Monroe Carell, Jr. Children's Hospital at Vanderbilt

Niswonger Children's Hospital

Rural Health Association of Tennessee

TN Academy of Family Physicians

Tennessee Ambulance Service Association

Tennessee Association of School Nurses

TN Chapter of the American Academy of Pediatrics

TN Chapter of the American College of Emergency Physicians

TN Chapter of the American College of Surgeons

TN Congress of Parents and Teachers

Tennessee Department of Health

TN Disability Coalition

Tennessee Emergency Nurses Association

Tennessee Emergency Services Education Association

TN Hospital Association

UT Medical Center

Appendix 2

CECA TN
CHILDREN'S EMERGENCY CARE ALLIANCE OR.....

Thursday, April 25, 2019			
7:00 a.m. – 7:30 a.m.	Breakfast, Registration and Visit with Exhibitors		
7:30 a.m. – 7:45 a.m.	Welcome and Opening Remarks		
7:45 a.m. – 8:45 a.m. General Session	Pediatric Readiness for All Emergency Departments, EMS Services and Trauma Centers – Why do we need it? Mary Fallat, MD		
8:45 a.m. – 9:45 a.m. General Session	Human Trafficking 101 Jody Dyess		
9:45 a.m. – 10:15 a.m.	Break and Visit with Exhibitors		
10:15 a.m. - 11:00 a.m. Breakout Session #1	Group A Roundtable Discussion: Strategies for Safe Sleep Susan Helms, RN, MALS	Group B Sepsis Wes Rainbolt, MD	Group C Disaster Simulation
11:05 a.m. – 11:50 p.m. Breakout Session #2	Group D Safely Transporting the Violent Patient Rudy Kink, MD	Group E Sepsis Wes Rainbolt, MD	Group F Disaster Simulation
11:55 p.m. – 1:10 p.m.	Lunch		
1:15 p.m. - 2:00 p.m. Breakout Session #3	Group G When Hugs Hurt: Considerations for the treatment of patients with Autism Oseana Bratton, RN	Group H Air Goes In, Air Goes Out and Blood Goes Round and Round Joel Dishroon, PM, IC	Group I Safely Transporting the Violent Patient Rudy Kink, MD
2:05 p.m. – 2:50 p.m.	Trauma Informed Care– Implications for De-escalation in the Pediatric Population Nikki Graham, MSN, RN , CEN		
2:50 p.m. – 3:10 p.m.	Break and Visit with Exhibitors		
3:15 p.m. - 4:15 p.m.	"Common Cold" or Menace to Society? Sujit Sharma MD		

Friday, April 26, 2019			
7:30 a.m. - 8:00 a.m.	Breakfast, Registration, and Visit with Exhibitors		
8:00 a.m. - 9:00 a.m.	Alex Diamond, DO, MPH Injury Prevention in Youth Sports		
9:05 a.m. - 9:50 a.m. Breakout Session #4	*Group J* Acute Burn Management: The 1st 24 Hours Debbie Harrell MSN, RN, NE-BC	*Group K* "What do you know about Trauma?" Trauma Jeopardy Edition Anissa Revels, RN	*Group L* "Save a Life. Stop the Bleed" training Sam Sheppard, AEMT Amie Yates , BSN,RN
9:55-10:10 a.m.	Break and Visit with Exhibitors		
10:15 a.m. - 11:00 a.m. Breakout Session #5	*Group M* Dustin Stewart Gang Awareness	*Group N* Nikiki Graham De-escalation Tools for Your Back Pocket	*Group O* "Save a Life. Stop the Bleed" Train the Trainer Sam Sheppard, AEMT Amie Yates , BSN,RN
11:05 a.m. –11:50 a.m. Plenary	*Plenary* Pediatric Stroke: Brain to Save Lori Jordan MD, PHD		
11:50 p.m.– 12:45p.m. General Session	PsychStart Merritt D Schreiber,PhD		
12:45 p.m. - 1:00 p.m.	**Closing Remarks Return Evaluations**		

About this Conference:

The 18th Annual Update in Acute and Emergency Care Pediatrics is a result of collaboration between Children's Hospital at Erlanger, Monroe Carell Jr. Children's Hospital at Vanderbilt, Le Bonheur Children's Hospital, East Tennessee Children's Hospital, Children's Emergency Care Alliance (CECA), and the East Tennessee State University Quillen College of Medicine Office of Continuing Medical Education.

Using interdisciplinary approaches throughout a series of plenary and breakout sessions, learners will be able to develop skills surrounding pre-hospital care of the medically complex child, as well as skills for the pediatric trauma patient. This program is designed for providers involved in the diagnosis, treatment, transportation, and management of pediatric trauma patients in Tennessee, Virginia, and Georgia Level 1 Pediatric Trauma Units.

Target Audience:

This conference is designed for pediatricians, nurses, emergency physicians, family practitioners, intensivists, nurse practitioners, physician assistants, respiratory care practitioners, EMS professionals, fellows, residents, health care students and others involved in the care of pediatric emergencies.

Overall Conference Objectives:

As a result of attending this activity, the participant will be able to:

- Understand emergency areas and new considerations in acute and pediatric care.
- Be better prepared for the complications that caring for pediatric population present in the acute setting.

Conflicts of Interest:

Activity Director	Disclosure
Regan Williams	None
Planning Committee Members	**Disclosure**
Patricia Harnois-Church	None
Oseana Bratton	None
Kate Copeland	None
Rhonda Phillippi	None
Donna Dougherty	None
Rudy Kink	None
Anissa Revels	None
John Wright	None
Wes Rainbolt	None
Amber Greeno	None
Jennifer Dindo	None
Maureen O'Connor	None

Accomodations:

Sheraton Memphis Downtown Hotel, 250 N. Main Street, Memphis, TN 38103

Click here for direct link to blocked rooms

When making room reservations please reference CECTN Children's Emergency Care Alliance to receive the group rate of $129 plus taxes. **Reservations must be received before 5:00 pm local time on April 14, 2019.** After that date reservations will be taken on a space available basis and may revert to a higher rate.

Accreditation:

ACCME Accreditation: This activity has been planned and implemented in accordance with the Essential Areas and Policies of the Accreditation Council for Continuing Medical Education (ACCME) through the joint providership of the Quillen College of Medicine, East Tennessee State University and the Children's Emergency Care Alliance (CECA), Children's Hospital at Erlanger, East Tennessee Children's Hospital, Le Bonheur Children's Hospital, and Monroe Carell Jr. Children's Hospital. The Quillen College of Medicine, East Tennessee State University is accredited by the ACCME to provide continuing medical education for physicians.

CME Credit: Quillen College of Medicine, East Tennessee State University designates this live activity for a maximum of 10.0 *AMA PRA Category 1 Credits™*. Physicians should only claim credit commensurate with the extent of their participation in the activity.

CNE Credit: A maximum of 10.41 continuing nursing education hours have been approved for this conference. East Tennessee State University College of Nursing is an approved provider of continuing nursing education by the Tennessee Nurses Association, an accredited approver by the American Nurses Credentialing Center's Commission on Accreditation.

Attending Both Days: Approved by the TN Office of EMS for Continuing Education Hours in the following categories: Four (4) hours in Pediatric and Six and one half (6.5) hours in Cardiac, Medical and Trauma.

Day One Only: Approved by the TN Office of EMS for Continuing Education Hours in the following categories: Two (2) hours in Pediatric and Four (4) hours in Cardiac, Medical and Trauma.

Day Two Only: Approved by the TN Office of EMS for Continuing Education Hours in the categories: Two (2) hours in Pediatric and Two and one half (2.5) hours in Cardiac, Medical and Trauma.

Fees:

Registrant Type	Fee
Physicians, PAs, & APNs	$250
Nurses	$165
Fellows/Residents	$150
Allied Health*	$150
EMS Providers	$125
Non-Licensed Students**	$100

*Examples include RRT, MHA, PT, OT, etc. If you are unsure of your registration type, please contact 423-439-8027 for assistance.

Student fee includes medical, nursing, APN, PA, and EMS students from any University/College with **no prior certification.