EMS WEEK

2022

Rising to the Challenge

WEBINAR Registration Required

EMS FOR CHILDREN DAY

COPE–ing with the Challenges of Pediatric Behavioral and Mental Health Emergencies

WEDNESDAY, MAY 18
1:00 PM (EST)

SPEAKERS
Mary Fallat, MD
Nicholaus Glomb, MD
Kenshata Watkins, MD

Emergency Medical Services for Children
EMSC

HRSA Disclosure

- The EMS for Children Innovation and Improvement Center is supported by the Health Resources and Services Administration (HRSA) of the U.S. Department of Health and Human Services (HHS) as part of an award (U07MC37471) totaling $3M with 0 percent financed with nongovernmental sources. The contents are those of the author(s) and do not necessarily represent the official views of, nor an endorsement, by HRSA, HHS, or the U.S. Government.

- None of the speakers today have any financially relevant disclosures

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Continuing Education Credits

- CE provided by Prodigy EMS
- Link and QR code available at end of presentation

What is EMS for Children???

State
Partnerships (SP)

Emergency Medical Services for Children
EMSC FELLOWS

EMSC
Fellows/
Scholars

COPE
Compassionate Options for Pediatric EMS

Targeted Issues
grants (TI)

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EIIC
EMSC Innovation and
Improvement Center

Emergency Medical Services for Children
EMSC
PECARN
Pediatric Emergency Care
Applied Research Network

NEDARC

National EMSC Data
Analysis Resource
Center (NEDARC)

Today's Presenters

Nicolaus Glomb, MD MPH

Associate Professor, Pediatrics

University of California, San Francisco

Benioff Children's Hospital, Oakland/UCSF

Kenshata Watkins, BS Ed, MD

Fellow, Pediatric Emergency Medicine

Benioff Children's Hospital, Oakland/UCSF

EIIC Fellow, Advocacy Domain

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Chief of Pediatric Surgery

Norton Children's Hospital

Hirikati S. Nagaraj Professor in Pediatric Surgery

University of Louisville

Project Director KY EMSC

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Objectives

Prehospital Behavioral Health Emergency Management

- Review the state of pediatric behavioral health emergency care
- Understand the safety outcomes of pediatric behavioral health emergencies managed with an EMS driven diversion protocol
- Learn about the impact of first impressions during mental health encounters
- Learn about future steps to improve pediatric behavioral health emergency care

Ways to "COPE" at the Scene of a Child's Death

- Understand the challenges faced by EMS professionals when encountering an out-of-hospital arrest or death of a child
- Increase confidence in providing compassionate death notification for families
- Comprehend parental grief response
- Recognize and mitigate secondary trauma in the EMS professional

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Safety of Prehospital Medical Clearance for Pediatric Behavioral Health Emergencies

Nicolaus Glomb, MD, MPH
University of California, San Francisco

EMSC Emergency Medical Services for Children

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Acknowledgements

Tarak Trivedi, MD, MS

Jacqueline Grupp-Phelan, MD, MPH

David Schriger MD, MPH

Karl Sporer, MD

Objectives

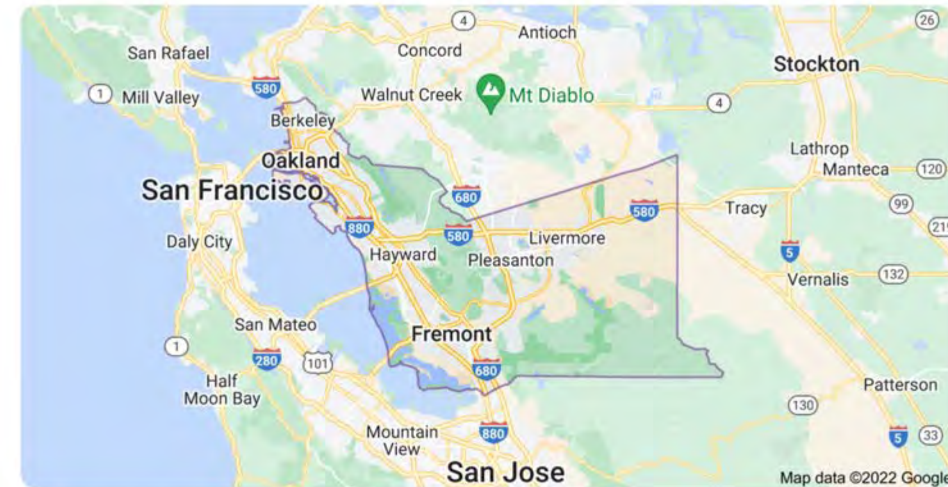
- Review of pediatric behavioral health emergency (BHE) care
- Describe demographic characteristics and EMS usage in Alameda County, CA
- Examine the safety outcomes of pediatric patients directly transported to pediatric psychiatric emergency services (PES) using an EMS pediatric BHE protocol
- Discuss future steps to improve pediatric BHE care

Background

- 30% of all pediatric Behavioral Health Emergency (BHE) related Emergency Department (ED) visits in the United States arrive by Emergency Medical Services (EMS)
- 15% of EMS transports in US are mental health related
- United States is experiencing an increase in pediatric BHEs outpacing the rate of growth of adult visits for BHEs by 30%
- Majority of ED visits for BHEs are unnecessary since most patients do not receive any medical or psychiatric treatment in ED

Setting

- Alameda County- population of 1.6 million
- Alameda County EMS responds to 125,000 calls and transports ~90,000 patients each year
- Maintains a database (ESO Solutions) of all EMS encounters
- Benioff Children's Hospital- Oakland is the designated Level 1 Trauma Center for Alameda County



Alameda County
California

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Setting

- In Alameda County, CA, patients found to be a danger to self or others are placed on an involuntary hold (IVH)
- Alameda County has the highest rate of IVH detentions in CA
- Alameda EMS uses a field-screening protocol to identify low-risk children with BHE who can be medically cleared in the field and transported directly to a regional pediatric psychiatric emergency services (PES) facility, bypassing ED

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Alameda EMS Field Screening Protocol

Required transport to an emergency department if:

- < 12 years old
- Patients with any medical complaint
  - Ingestions
  - Vomiting or report of no food or fluid intake for > 16 h
  - Known chronic medical conditions
- Depressed level of consciousness
- HR > 120
- BP > 190/110
- Outside of adult supervision for > 24 hours

Study Objectives

- Examine the safety outcomes of prehospital medical clearance of pediatric BHE patients and directly transporting to pediatric PES using an EMS BHE field-screening protocol

- Describe the mortality of patients being transported directly to PES

Methodology

- Retrospective review for pediatric (age<18 years) EMS encounters between 2011 to 2016, using Alameda County's EMS data set
- Unique patient identification using a 7-cycle Matching strategy using the MATCHIT tool in Stata
- Data linkage to mortality data from Alameda County Vital Statistics
- Identified the proportion of patients who were found to have a medical issue requiring re-transport to an ED after arriving at PES

Results

Distribution of Patients, Encounters, and Involuntary Hold (IVH) Encounters

Percentage of Total

100%
75%
50%
25%
0%

24.5 % of encounters were for Behavioral Patients

Behavioral Patients N = 4,770

No History of Behavioral Transport

A. All Encounters (N=38,241)

B. Total Unique Patients (N=29,073)

Colors represent 4 Groups of Patients, stratified by # of IVH Encounters

5 +
2 - 4
1
0

C. Behavioral Patients (N=4,770)

D. Behavioral Encounters (N=7,670)

20.8 % of all IVH encounters were for 208 unique patients

Results

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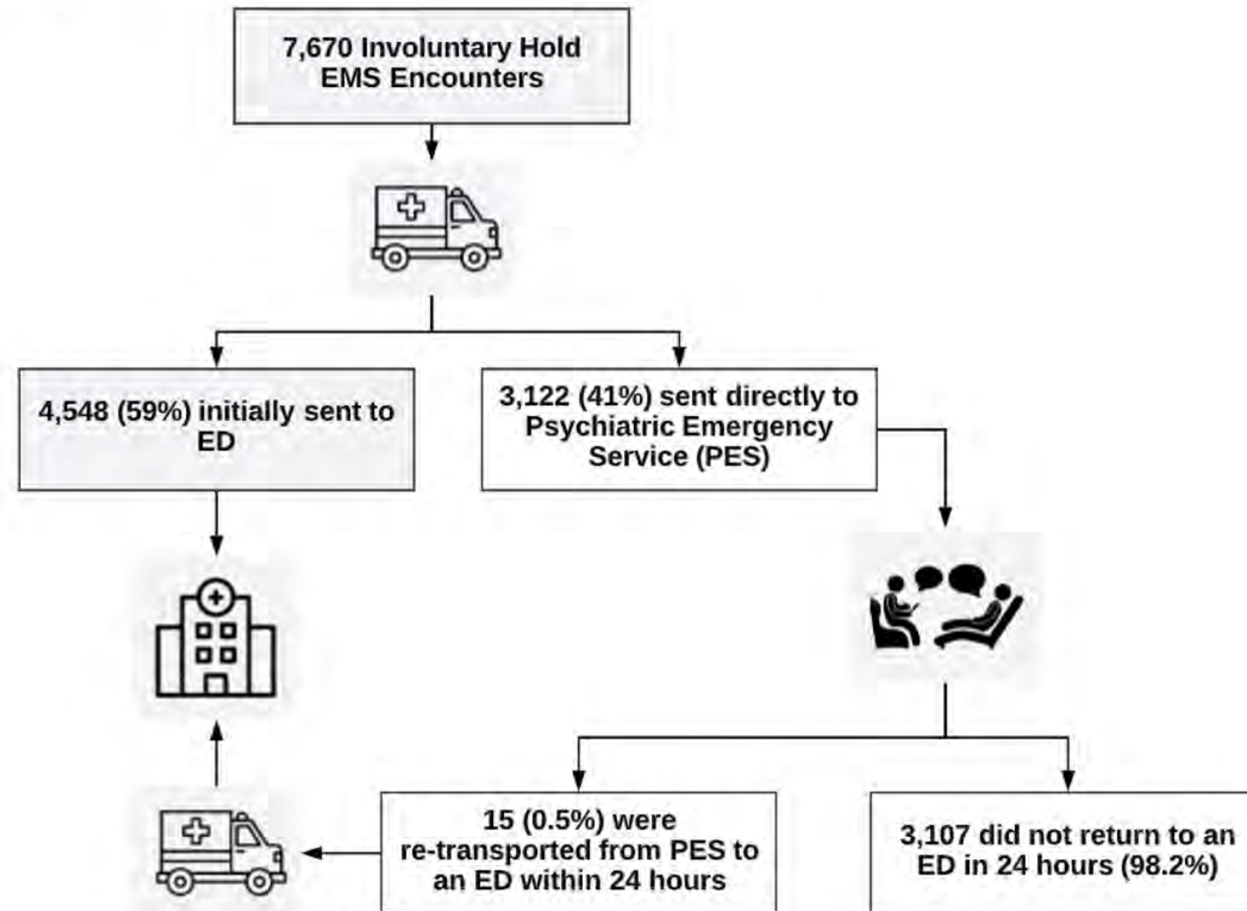
Results

PES Transports:



Staff Request	2
Supervision Issue	2
Combative	2
Ingestion	4
New Symptom	5

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Limitations

- Regional differences in the severity and types of pediatric BHEs, which could influence the safety of field medical clearance
- Underreporting in the identification of re-transports (failures in field medical clearance)
- Protocol only allowed for diversion for children $\geq$ 12 years old leaving 10.7% of all pediatric patients placed on an IVH ineligible for transport to the pediatric PES
- No data on other outcomes after admission or discharge from PES
- Limitations in understanding the cause of death for the 17 pediatric BHE patients who died during the study period due to the inability to obtain the cause of death from Alameda County Vital Statistics

Conclusions

- EMS BHE protocol was safe as measured by low rates of re-transport and death
- Patients who had at least one involuntary hold disproportionately used EMS
- Utilizing the protocols established by Alameda County EMS, 41% pediatric patients with BHEs were directly transported to the regional pediatric PES, bypassing medical clearance in the ED
- Failed diversion, as measured by EMS re-transport to the ED within 24 hours was extremely rare, occurring in 0.5% encounters taken directly to the PES

Next Steps

- This and similar protocols can significantly decrease the burden on local EDs and allow for more timely mental health evaluation
- Need for multi-center study and need to prospectively study EMS field-screening protocol
- Development of Community Assessment Teams might improve field medical clearance rate
- Drive policy and legislature to increase funding for PES for children

Questions

Thank you!

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May 18, 2022
Emergency Medical Services for Children (EMSC) Day: The ABC's of Equity, Diversity, and Inclusion (EDI) and Prehospital Pediatric Behavioral Health Management

Kenshata Watkins, MD
EMSC Fellow
Pediatric Emergency Medicine Fellow
UCSF Benioff Children's Hospital

EIIC
EMSC Innovation and Improvement Center

Pediatric Mental Health Crisis: Surgeon General's Report and American Academy of Pediatrics (AAP)

2020:

ED visits for mental health--> **increase 24%** (age 5-11), **31%** (age 12-17)

2021 vs 2019:

Suicide attempts: **increase~51%** for adolescent girls, **4%** for adolescent boys

EMS Personnel and Mental Health Encounters: The Impact of First Impressions

- **EMS Personnel:** 1st point of contact with health care provider, trust build opportunity

- **EMS Point of View:** Unique, powerful - context perspective

-Family members

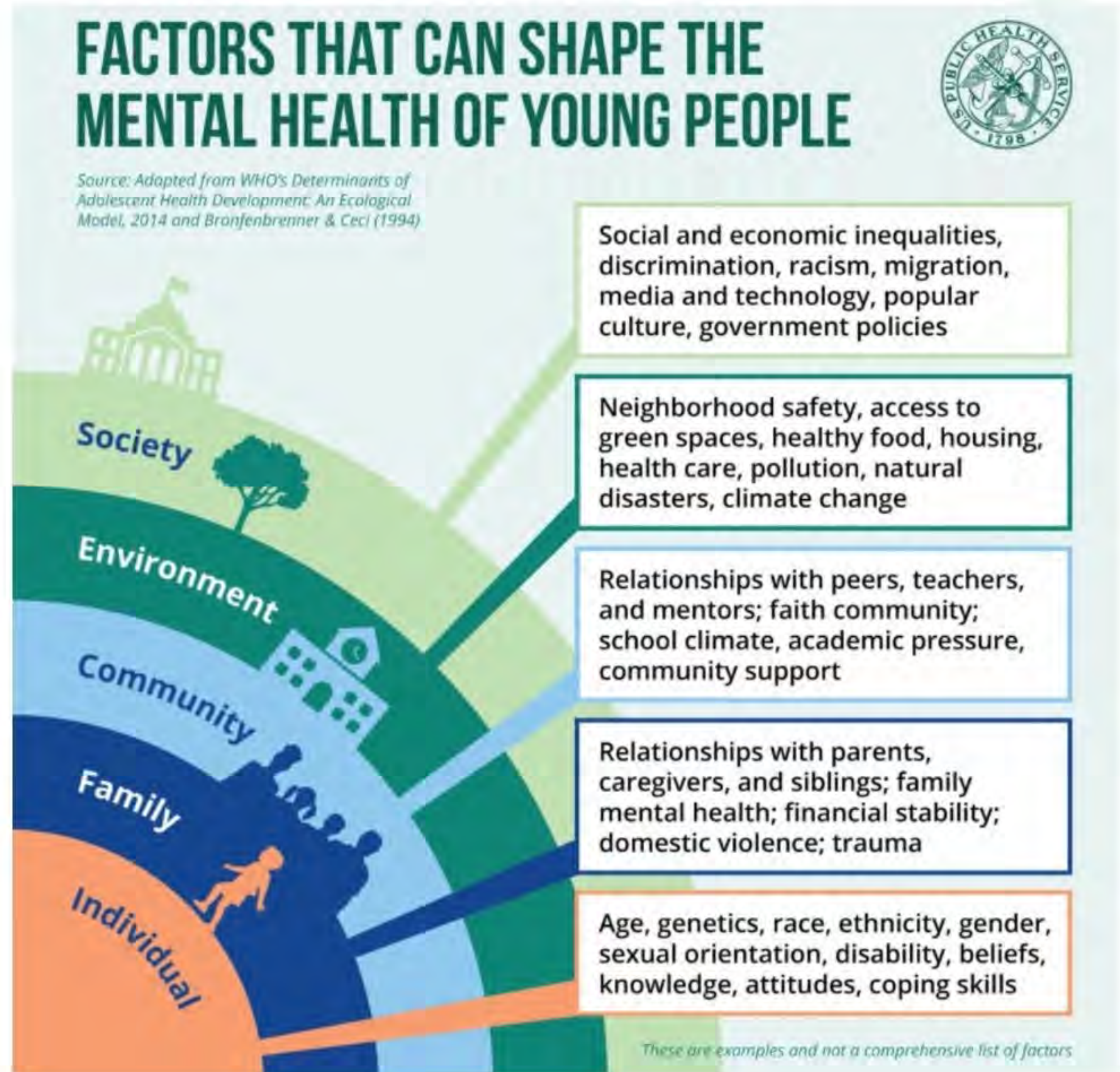
-Physical Setting

-Neighborhood/Community factors

- Interactions with multiple providers (health, non-health)

High Risk Groups:

- Youth w/ intellectual/developmental Disabilities
- LGBTQ+
- Gender non-conforming
- Racial and ethnic minorities
- Rural areas
- Low income
- Juvenile justice and child welfare system
- Immigrant households



Equity, Diversity, and Inclusion (EDI) in EMSC: What does EMSC mean by Equity, Diversity, and Inclusion?

- **Goal 1**: Values, embraces, and seeks out the unique contributions and perspectives of its stakeholders, staff, trainees, patients and families, and partners in all aspects of project and product planning, creation, and implementation

- **Goal 2**: That the emergency care continuum reflects and is responsive to the varied identities and needs of children and families

- **Goal 3:** That all children will achieve optimal and equitable outcomes through the receipt of the highest levels of care in emergency situations

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The Importance of Equity, Diversity, and Inclusion (EDI) and EMS:

- High-Risk groups: **More likely** to use of EMS for mental health encounters

-Racial/ethnic minorities
-Low income

- Mental Health:

-People are 16x more likely to be killed by law enforcement during a psychiatric related call for help
-EMS personnel: mediator, facilitator

Restraints:

1) Black and hispanic adults more likely to be placed in restraints in ED setting
2) Children more likely to be injured when placed in restraints

The ABC (DE)'s: Airway, Breathing, Circulation (Disability, Exposure)

Aims of ABC's

- Evaluation and treatment
- Administer timely life-saving treatment
- Transform complexity into "bite size" parts
- Common language among providers

Equity, Diversity, and Inclusion: The ABC..'s of EDI

Ask your patient how they identify!

Be an ally!

Check your biases!

Document appropriately!

Equitable care engagement!

Equity, Diversity, and Inclusion: The ABC..'s of EDI

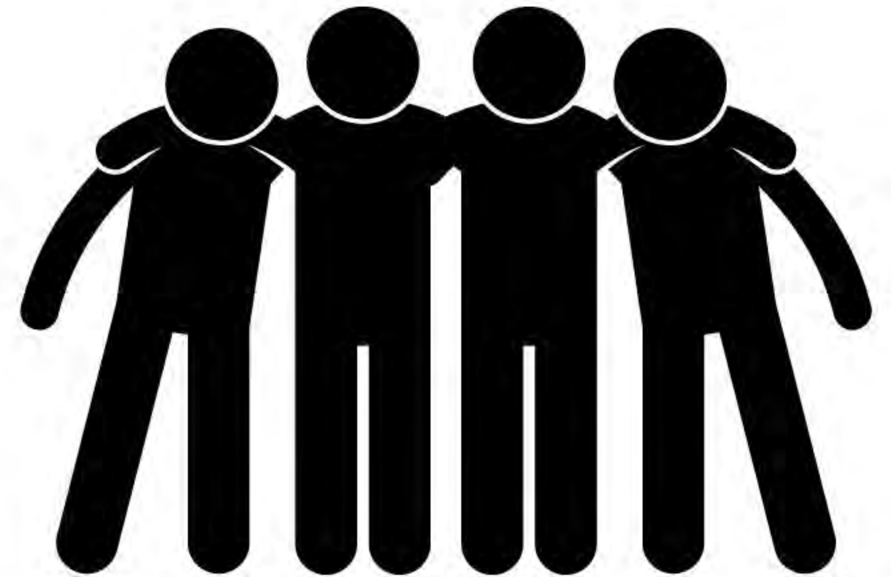
- Resisting the urge to assume
- Is it offensive to ask?
- We're all learning!

Ask your patient how they identify!

Equity, Diversity, and Inclusion: The ABC..'s of EDI

- Ally: *uses privilege and/or social standing to advocate for others who may not have the same access or privilege*
- "Allyship is **not** a noun"
- Pushing through our discomfort and using our voices/pens to show up for others

Be an ally!



Equity, Diversity, and Inclusion: The ABC..'s of EDI

<u>Bias: Explicit, Implicit</u>

Race/ethnicity
Sexual orientation
Gender
Weight
Age
Socioeconomic status
Disability

- Acknowledge role in decision making
- Discuss with colleagues, journal experience
- Self-accountability

Check your biases!

Equity, Diversity, and Inclusion: The ABC..'s of EDI

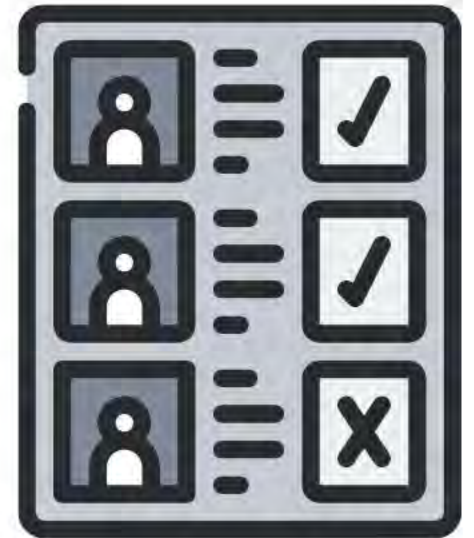
- Power of accurate documentation of demographics
- Tells us what we're doing right
- Ensures quality and equity
- Person first language: a person ≠ disease

"Person with sickle cell"

NOT

"Sickler"

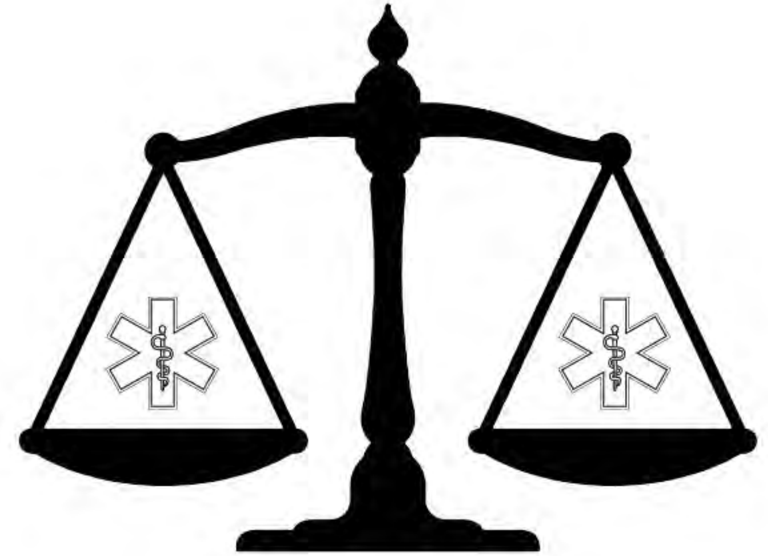
Document appropriately!



Equity, Diversity, and Inclusion: The ABC..'s of EDI

- Are we listening to our patients, muting bias
- Awareness of disparity literature
- Replacing blame with accountability

Equitable care engagement!



Ask your patient how they identify!

Be an ally!

Check your biases!

Document appropriately!

Equitable care engagement!

Remember your ABC's of EDI!

Questions?

Contact Info:

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Ways to “COPE” at the scene of a child’s death

May 18, 2022

Mary Fallat, MD

EMSC Emergency Medical Services for Children

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Ways to "COPE" at the scene of a child's death

Learning gap:

- The topic will briefly cover issues including giving "the worst" news, initiating compassionate care for families after sudden death of a child, and prevention of secondary trauma for providers.

Why does the gap exist:

- Providers of any type are reluctant to stop resuscitation in a child and are generally not well informed about giving bad news to families, especially when it comes to death notification.

EMS is UNDERVALUED AND OVERWORKED

Originated as a transportation service and it has been more difficult to transition them to a profession

Essential curriculum but not an advanced degree

Often not defined as an "essential service"

Professional role is threaded with hazards and risk of occupational injuries

Many volunteer services and per diem jobs still exist that don't qualify for benefits

EMS is UNDERVALUED AND OVERWORKED

- **National average annual wage** of paramedics is $38,830, according to the Bureau of Labor Statistics, over $10,000 less than average annual salary for all occupations, $51,960.
- **Disappointingly low number** for the heavy responsibility and demands of working as a paramedic.
- Even in the **top-paying state** for paramedics, their **average annual wage is only a little more than the average annual salary** for all occupations.

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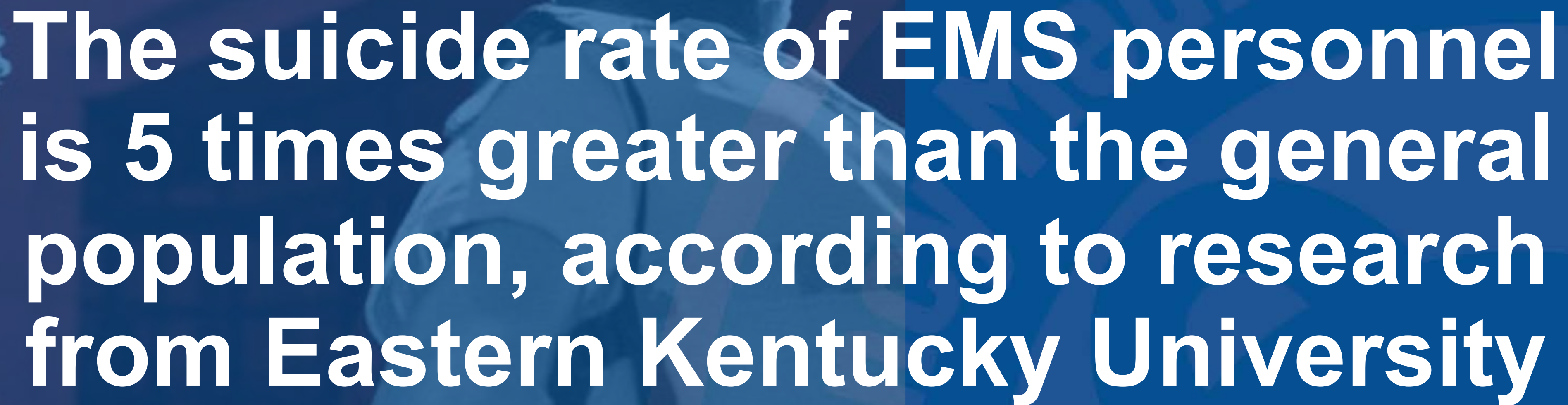

It's never been an easy job: The EMT profession is threaded with hazards that range from injury to infectious disease to a host of mental health issues

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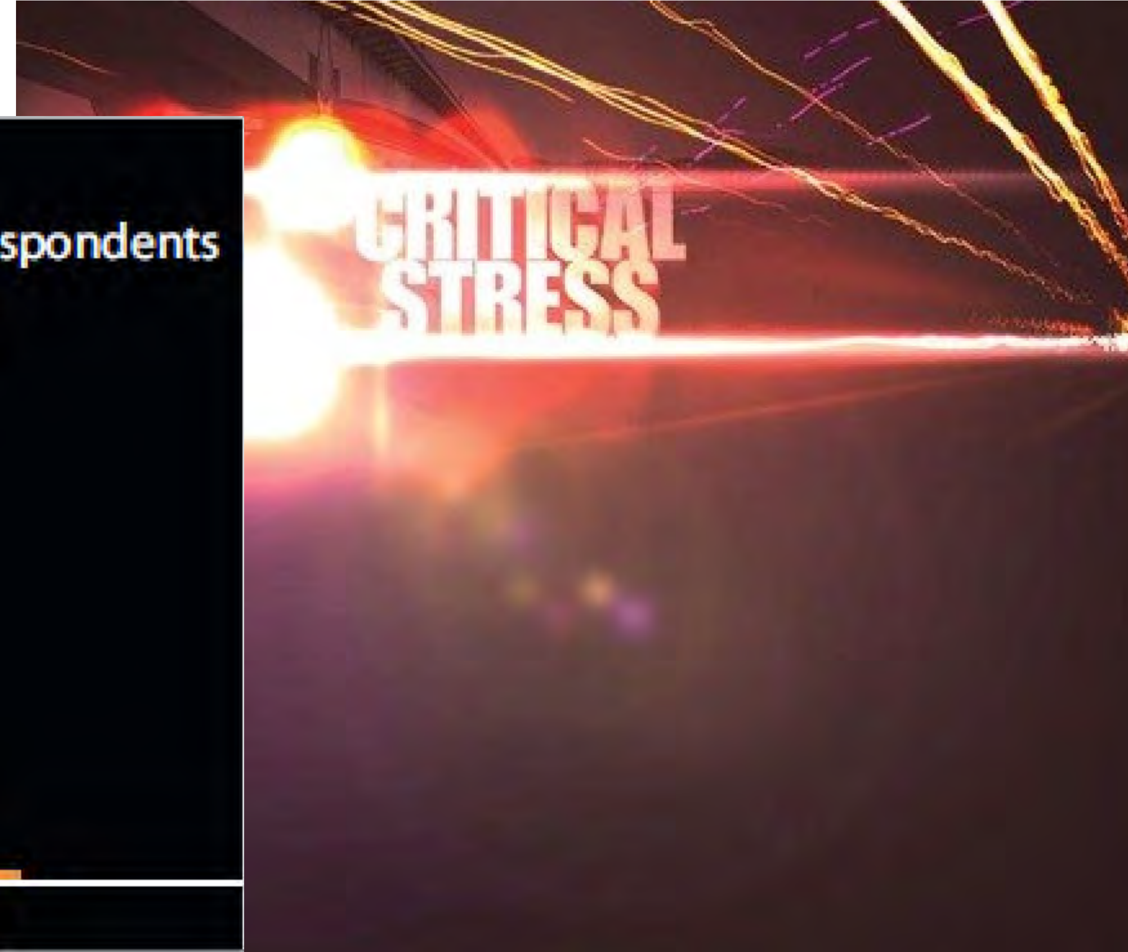
Survey Reveals Alarming Rates of EMS Provider Stress and Thoughts of Suicide

Sept 28, 2015 JEMS Newland et al

40%
35%
30%
35%
20%
15%
10%
5%
0%

EMS provider survey respondents
CDC national average

	EMS provider survey respondents	CDC national average
Suicide contemplation	37.0% (1,383)	3.7%
Suicide attempts	6.6% (225)	0.5%



Comparison of suicide contemplation and attempt rates: survey respondents vs. national average (n = 4,022)

Death by Suicide

The EMS Profession Compared to the General Public

Vigil, et al

Arizona Vital Statistics Information Management System Electronic Death Registry of all adult (≥18) deaths Jan 1, 2009-Dec 21, 2015

- 350,998 deaths during the study period with 7,838 categorized as suicide
- Proportion of deaths attributed to suicide among EMTs was 5.2% (63 of 1,205 total deaths) while the percentage among non-EMTs was 2.2% (7,775/349,793) ($p < 0.0001$)

Prehosp Emerg Care. 2019 May-Jun;23(3):340-345. doi: 10.1080/10903127.2018.1514090. Epub 2018 Sep 14. PMID: 30136908.

First responder oriented mental health advocacy and education organization

THE CODE GREEN CAMPAIGN

We call code strokes, code STEMIs, and code traumas. It is time we called a code alert on our mental health.

The Code Green Campaign calls a 'code alert' on the mental health of EMTs, paramedics, firefighters and cops by breaking the silence about mental illness in EMS and public safety by sharing the stories of those who have been there.

DELIVERY OF THE WORST NEWS

- CUSTOMARILY DELEGATED TO A PHYSICIAN
- PHYSICIANS/EMS PROFESSIONALS RECEIVE LITTLE FORMAL EDUCATION IN COMPASSIONATE CARE
- WILL HAVE A LASTING EFFECT ON FAMILY AND FRIENDS
- THE FIRST THING EVERY MORNING AND LAST THING AT NIGHT…THE FAMILY WILL REMEMBER YOU AND HOW YOU TOLD THEM THE BAD NEWS

Most EMS providers who find themselves the first to communicate with parents whose child dies due to severe trauma or illness that occurs out of hospital agree this responsibility can be overwhelming and a stressful part of their job. This initial conversation with grieving parents is a situation that EMS providers are often inadequately prepared to carry out. The task to console parents and loved ones is only part of the struggle; EMS providers must also find steps to help themselves "cope" after the event. This site was developed to assist EMS providers with an approach to comfort families and to better understand how to provide "next steps" including self-care for themselves.

This project was supported by the Health Resources and Services Administration (HRSA), Maternal and Child Health Bureau (MCHB), Emergency Medical Services for Children (EMSC) Targeted Issues grant program, Grant No. H34MC26204 for $849,246. This information or content and conclusions are those of the author 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.

HRSA FUNDING
2013-2016

EMSC

- KYEMSC Advisory Committee
- Performance Measures
- KID STUFF - the KYEMSC quarterly newsletter
- The Kentucky Pediatric Emergency Care Coalition
- Voluntary EMS Pediatric Recognition Program
- Resources for EMS Providers
- Pediatric Abusive Head Trauma Training (PAHT)
- **Compassionate Options for Pediatric EMS**
- EMS PEC Coordinators

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Home >> EMSC >> Compassionate Options For Pediatric EMS

Compassionate Options for Pediatric EMS

Compassionate Options for Pediatric EMS (COPE)

EMS providers are often the first line to console grieving parents who have lost a child because of a traumatic event or illness outside the hospital. Moreover, the initial encounter with grieving parents of pediatric fatalities is overwhelming to EMS providers because they feel inadequately prepared to handle the incident which has resulted in EMS providers leaving the profession. The goal of this project is to develop a systems approach to out-of-hospital (OOH) pediatric death that equips EMS providers with the knowledge, tools and skill set needed to manage emotional and psychological effects for the grieving families they encounter as well as for themselves.

Recent Pediatric Death

Preparation and Education

Pediatric death resources

Pediatric Death Resources

Search

- What you can do now — Expand
- Response statements — Expand
- Telephone script — Expand
- Take care of yourself — Expand
- First responder resources — Expand

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What you can do now

Immediately notify family of your plan—The moment you make contact, tell the family how long you and your crew intend to remain on scene and put them at ease by informing them your crew is doing everything the hospital would be doing if its staff were there. You can add that their loved one's heart is not beating, so it is very important that your work not be interrupted by transporting them too soon.

Be clear, even if it's uncomfortable—It is appropriate to hold off on using the words *dead* and *died* until the patient has been pronounced (or determined DOA), but when you do finally break the news, it is important to be clear with your delivery. While it might feel rude to say, "Your husband has died," the use of euphemisms such as "passed away" or "we lost him" do not fully process in the acutely stressed mind of a survivor. Sugarcoating the message may create unnecessary distress or confusion, and sometimes resentment, for not being more straightforward.

Silence is still golden—It is perfectly fine to say nothing at all. This is especially true once the foundation of treatment has been applied and you have informed your immediate point of contact of everything they need to know, plus answered any questions they might have. Please resist the urge to fill the silence and trust that your presence on scene is enough for that family member to feel comforted that you showed up and responded to their call for help.

EMS Training Videos

Communicating with families

Learn about principles of communication, how to engage with the family, dividing on-scene responsibilities, and providing emotional support.

Produced by COPE.

Suicide by overdose

Scenario-based video on family engagement and communication principles related to self-inflicted injury.

Motor vehicle collision with child fatality

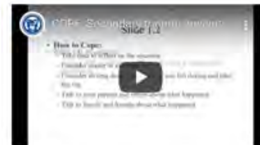
Scenario-based video on family engagement and communication principles related to motor vehicle collisions with child fatality.

SUID:SIDS

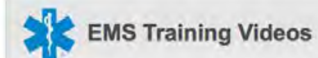
Scenario-based video on family engagement, communication, and transport considerations related to responding to a SUID:SIDS call.

Secondary trauma prevention

Learn about coping, self-care, and the importance of seeking out support resources when needed.



Links to Program Content:



EMS Training Videos

COPE Publications

COPE Publications:

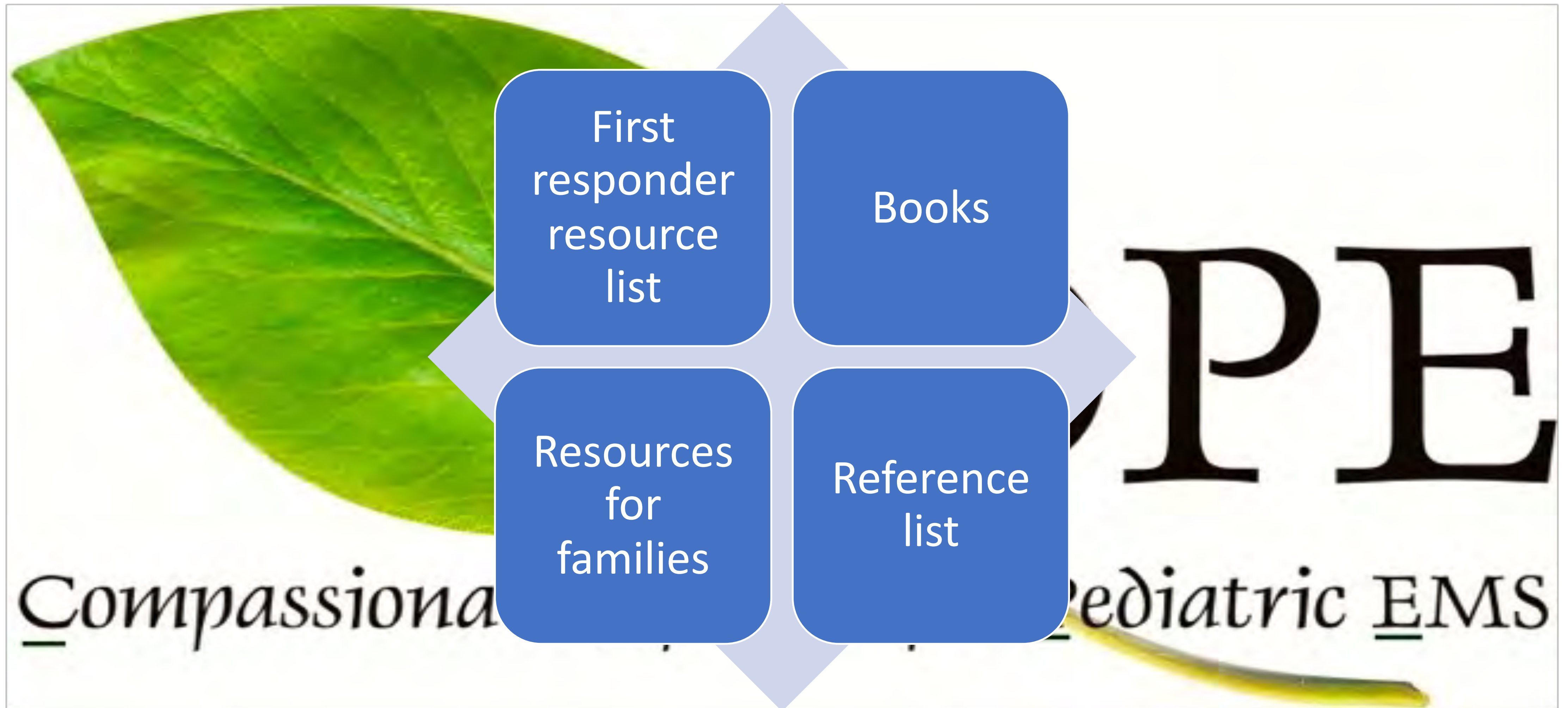
The COPE research group has received publisher permission to make available on this website the pdf of each article that was published as a result of the COPE grant, as well as two articles that provide background information.

1. Barbee AP, Fallat ME, Forest R, McClure ME, Henry K, Cunningham MR. EMS perspectives on coping with child death in and out of hospital setting. Journal of Loss and Trauma 21(6):455-470, 2016. doi: 10.1080/15325024.2015.1117929 pdf
2. Fallat ME, Barbee AP, Forest R, McClure ME, Henry K, Cunningham MR. Family centered practice during pediatric death in and out of hospital setting. Prehosp Emerg Care 18:1-10, 2016. doi: 10.1080/10903127.2016.1182600 pdf
3. Calhoun AW, Sutton ERH, Barbee AP, McClure B, Bohnert C, Forest R, Taillac P, Fallat ME. Compassionate options for pediatric EMS (COPE): Addressing communication skills. Prehosp Emerg Care early online 1-10, 2017. doi: 10.1080/10903127.2016.1263370 pdf
4. Barbee AP, Antle BF, Fallat ME, Forest R, McClure ME. EMS treatment of families in an ambiguous out-of-hospital child death: the role of attribution errors. J Loss Trauma 22(7):564-576, 2017. doi: 10.1080/15325024.2017.1358572 pdf

Related publications:

1. Jordan KA, Fallat ME. Prehospital resuscitation decisions in cases of traumatic cardiopulmonary arrest: assessing the risk of legal liability and the impact of TOR guidelines. Journal of Legal Medicine 36(2):159-213, 2015. doi: 10.1080/01947648.2015.1121073 pdf
2. American College of Surgeons Committee on Trauma, American College of Emergency Physicians Pediatric Emergency Medicine Committee, national Association of EMS Physicians, and American Academy of Pediatric Committee on pediatric Emergency Medicine (Fallat, ME, lead author). Withholding or Termination of Resuscitation in Pediatric Out-of-hospital Traumatic Cardiopulmonary Arrest. Published jointly in the following publications: Pediatrics 133(4);e1104-e1116,2014. Annals of Emergency Medicine 63(4):504-515, 2014. pdf

Other resources



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Giving the worst news: Communicating with a family about the death of a child

SETTING THE SCENE

- Introduce yourself
- Use the child's and parent's name
- Speak softly and slowly
- Establish what they already know

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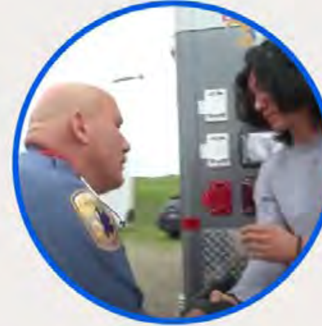
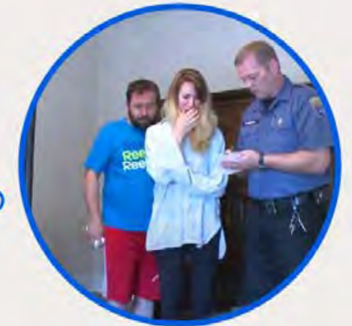
GUIDING THE FAMILY



- Avoid jargon and be honest
- Tell them the truth that their child has died or is dead
- Express sympathy
- Leave room for questions
- Offer to make calls
- Listen and respect

COPING FOR YOU

- Talking to your partner and other colleagues is important
- Be aware of what activities help to process vs numb
- These things affect us!



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The most important communication from the parents' perspectives are:

- the attitude of the informer
- clarity of the message
- privacy of the conversation
- and the ability of the informer to accurately answer parents' questions.

You are an expert, and you are there to support this family.

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Example phrases:

Statements for when there are no good words

NURSE ACRONYM

- Naming: "It looks to me like you are overwhelmed/sad/angry"
- Understanding: "Given what happened, I can understand how you feel" or "I cannot imagine how you feel"
- Respecting: "I can see how much you care for your child"
- Supporting: "We will be here for you through all of this"
- Exploring: "Tell me more about how you are feeling"

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SPOKEN SUPPORT

"I can't imagine how you feel right now but I (we) are here and willing to listen and help as much as we can"

"Some things that happen are tragic and make no sense"

"While we are waiting, can you tell me (us) a little bit about your child?"

PHYSICAL SUPPORT

Communicate at the level of the family–sit if they are sitting and look them in the eye

If the coroner allows families to be with the patient, you can guide them in touching the patient

Offer water, tissues, and calling family and community members

PLEASE THANK EMS FOR WHAT THEY DO !!

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EMS WEEK
Rising to the Challenge

Ways to "COPE" at the scene of a child's death

EMSC
Emergency Medical Services for Children

Continuing Education Credits

https://www.research.net/r/DTSTFF3

EMSC
Emergency Medical Services for Children

Thank you!!!

EMS WEEK

Rising to the Challenge

EMSC
Emergency Medical
Services for Children

	Involuntary Hold Patients N= 4,770	Never Held Patients N= 24,303	Absolute Difference
Patient Characteristics			
% Male	45.1%	53.0%	- 8.3% (-9.9% to -6.8%)
% Insured	59.4%	65.2%	-5.8% (-7.3% to -4.3%)
Total # of Encounters per Patient, No. (%)			
1	2945 (61.7%)	21,419 (88.1%)	-26.4% (-27.8% to -25.0%)
2	930 (19.5%)	2,035 (8.4%)	11.1% (9.9% to 12.3%)
3 to 5	662 (13.9%)	747 (3.1%)	10.8% (9.8% to 11.8%)
≥ 6	233 (4.9%)	102 (0.4%)	4.9% (3.8% to 5.1%)
Total Involuntary Hold Encounters per Patient, No. (%)			
1	3,515 (73.7%)	-	-
2 to 4	1,047 (21.9%)	-	-
≥ 5	208 (4.4%)	-	-
		-	-
Total Encounters (%) (N=38,241)	9,369 (24.5%)	28,872 (75.5%)	
Mortality at end of study period	17 (0.4%)	153 (0.6%)	-

**These impressions were recorded by paramedics in either the primary or secondary impression. Behavioral crises are identified using impression, but also using other criteria as detailed in Appendix C, making room for overlap.

PSYCHIATRIC EVALUATION - 5150 TRANSPORTS

1. **GENERAL INFORMATION:** Any patient who has been, or will be (e.g. - self-committal) placed on a 5150 hold for psychiatric evaluation shall be assessed and transported according to this policy. For minors (age below 18) the hold is called a 5585 hold and is similar to 5150 hold

2. **MEDICAL CLEARANCE CRITERIA:**

2.1 **Age 65 and Above:** Patients with or without acute medical issues, should be transported to the closest most appropriate receiving hospital for evaluation

2.2 **Age 12 to 64:**

2.2.1 Transport patients to a closest most appropriate receiving hospital* if there is a suspected acute medical or traumatic condition requiring emergent or urgent attention in an Emergency Department. Patients with these conditions include:

- ➔ Patients "in extremis" (those with a potential life-threatening illness or injury)
- ➔ Patients who are unconscious, unresponsive, have chest or abdominal pain, significant bleeding, or suspected shock
- ➔ Patients who shows signs of potential significant toxicity from illicit drugs or alcohol, which may include the following findings:
  - ▶ depressed mental status
  - ▶ inability to ambulate
  - ▶ diaphoresis, agitation
- ➔ Patients with combative behavior who require field sedation with Midazolam or whose combativeness prevents assessment (vital signs or examination)
- ➔ Patients with abnormal vital signs or findings:
  - ▶ Systolic blood pressure over 190 mmHg or diastolic blood pressure over 110 mm/Hg
  - ▶ Pulse rate sustained over 120
  - ▶ Blood glucose under 60 mg/dL or over 250 mg/dL
- ➔ Patients with a suspected overdose of medication

2.2.2 Adult patients on 5150 who do not meet medical clearance criteria (see 2.1 and 2.2) should be transported to John George Pavilion, San Leandro. These include:

- ➔ Patients with history of use of drugs or alcohol who do not show signs of significant toxicity
- ➔ Patients with abnormalities in vital signs, but without other significant physical findings or history suggesting an acute medical problem (systolic BP up to 190, diastolic BP up to 110 and pulse up to 120)
- ➔ Patients with minor abrasions or contusions (not needing laceration repair or other complex care or evaluation)
- ➔ Patients who otherwise appear healthy but have communication barriers due to language or developmental disability, or are unwilling to answer questions

2.3 **Adolescents Age 12 to 17**

2.3.1 Criteria for transport to the closest most appropriate receiving hospital for medical clearance listed above (2.2.1) for adults also apply to adolescent patients on 5585 (5150) holds

2.3.2 Additionally, adolescent patients with the following findings should also be transported to receiving hospitals:

- ➔ Patients who have been outside of adult supervision/control for more than 24 hours
- ➔ Patients with recent vomiting over a prolonged period or who report no food or fluid intake for 16 hours or more
- ➔ Patients with known severe chronic medical conditions

2.3.3 Adolescent patients who do not meet medical clearance criteria (see 2.2) should be transported to Willow Rock Center, San Leandro. Notify Willow Rock en route (510) 895-5502

2.4 **Children Age 11 and Under**

- ➔ All children age 11 and under on a 5585 (5150) hold should be transported to Children's Hospital Oakland unless there is a need to divert to another hospital because of medical instability

NOTE: Additional considerations for most appropriate facility are listed in the Transport Guidelines and Abuse/Assault Policies

PSYCHIATRIC AND BEHAVIORAL EMERGENCIES

Cognitive Impairment/ Developmental Disability

- Alzheimer's disease
- Dementia
- Autism
- Down Syndrome
- Intellectual disability
- Developmental delays
- Traumatic Brain Injury

→ Attempt to determine triggering event

Involve caregivers (unless they are the trigger)

Determine level of language and communication ability

Full medical assessment

Utilize simple language, be mindful of vocal tone and body language

→ Calm/ Cooperative?

- Yes → If transport is necessary, transport to the closest, most appropriate receiving hospital (pg. 23)
  *If possible, allow caregiver to accompany the patient
- No → Attempt de-escalation (if possible)
  Consider Restraints (pg. 111)
  Consider Sedation (pg. 137)
  → If transport is necessary, transport to the closest, most appropriate receiving hospital (pg. 23)
  *If possible, allow caregiver to accompany the patient

Behavioral Crisis

- Aural/Visual hallucinations
- Anxiety
- Depression
- Manic behavior
- Suicidal ideation
- Disorganized thoughts
- Unpredictable behavior

→ Calm/ Cooperative?

- Yes → Consider Olanzapine administration (pg.134) → Transport to closest, most appropriate psychiatric facility or receiving hospital per transport policy (pg. 23 & pg.135)
- No → Attempt de-escalation (if possible)
  Consider Restraints (pg. 111)
  Consider Sedation (pg. 137)
  → Transport to closest, most appropriate psychiatric facility or receiving hospital per transport policy (pg. 23 & pg.135)

Excited Delirium

- Paranoia
- Disorientation
- Extremely aggressive or violent
- Tachycardia
- Increased strength
- Hyperthermia
- Clear danger to self/others

→ **Assessment**

Consider potential medical causes

ECG monitoring/12-lead ECG (pg. 124)

ETCO2 monitoring

Assess for Hyperthermia (pg. 15)

→ **Treatment**

IV access/consider fluid bolus

Consider Restraints (pg. 111)

Consider Sedation (pg. 137)

→ Transport to the closest, most appropriate receiving hospital (pg.23)

Encounter Characteristics

	IVH Encounters N=7,670	Non-IVH Encounters N=1,699	Absolute difference	All Encounters (Never Held Patients) N=28,872
Age, IQR	15.1 (13.6 - 16.6)	15.7 (14.2-16.9)	-	9.2 (2.6 - 15.2)
Location of EMS Pick-up				
School	1,806 (23.5%)	239 (14.1%)	9.5% (7.6% to 11.4%)	2,689
Home	3,371 (43.9%)	793 (46.7%)	-2.7% (-5.3% to -0.1%)	14,190
Other	2,493 (32.5%)	667 (39.3%)	-6.8% (-9.3% to -4.2%)	11,993
Clinical Information				
Alcohol	138 (1.8%)	59 (3.5%)	-1.7% (-2.6% to -0.8%)	252 (0.9%)
Trauma**	489 (6.4%)	444 (26.1%)	-19.8% (-21.9% to -17.6%)	9062 (31.4%)
Seizure**	88 (1.2%)	222 (13.1%)	-11.9% (-13.5% to -10.3%)	5182 (18.0%)
Overdose/Poisoning**	469 (6.1%)	238 (14.0%)	-7.9% (-9.6% to -6.2%)	975 (3.4%)
Mortality				
30 Day	0	1		105 (0.4%)
30 - 60 Days	0	1		3
60 - 90 Day	1	0		3
90 to 365	2	3		49

7-cycle matching strategy using the MATCHIT tool

939,988 Encounters

248,057 with no patient contact

591,931 Encounters

4,795 with missing name or date of birth

587,136 Encounters

247,310 Exact Name and Date of Birth Duplicates

339,826 Unique Patients

36.710
N-gram match > 0.6[1] +
Exact Date of Birth Duplicates

303,116 Unique Patients

2196
Phonetic First and Last Name Match +
Exact Date of Birth Duplicates Removed

300,920 Unique Patients

2631
N-gram match > 0.3[1] +
Precise GPS Location Match[2] +
Exact Date of Birth Duplicates

298,289 Unique Patients

3264
Exact Name Match +
Precise GPS Location Match[2]
Duplicates

295,025 Unique Patients

5415
Exact Name Match +
Not a Common First or Last Name[3] +
2/3 Match in Birth Day/Month/Year
Duplicates

289,610 Unique Patients

260,540
Patients with Age >18

29,073 Unique Pediatric Patients

1) Two records were considered to be from the same patient if both records shared a birthdate and had full names that met a specific cuttoff of similarity using the N-gram3 method. The N-gram3 method provides a way to algorithimically quantify the similarity exhibited by two strings. The cut-offs were very stringent; see Supplementary Table 1 for examples demonstrating the application of n-gram criteria.

2) Records were considered to have a location match if the two records had GPS coordinates that were within 0.005 degrees (lattitude and longitude). Not all records had the oppotunity to be matched this way because 18.8% (N=110,444) of records were missing GPS coordinates.

3) The top 100 most frequently occuring first and last names were considered common. We made the assumption that if the first and last name were not common and the exact full names matched, the date of birth could be allowed to have one error (in either day, month, or year). See Supplementary Table 2 for the 100 first and last names that were considered common.