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SE Ohio Workshop

Co-Hosted by Region V for Kids and UH Rainbow Babies & Children's
Hospital



Acknowledgement and Disclosure: This Pediatric Center for Disaster Excellence, Region V for Kids is supported by the Administration for Strategic Preparedness and Response formerly the Assistant Secretary for Preparedness and Response (ASPR) for as part of an award (U3REP190615-01-01) totaling \$2.85 M with zero percent financed with non-governmental sources. The content presented here and throughout the presentation is that of the authors and does not necessarily represent the official views of, nor an endorsement by ASPR or the U.S. Government.

Agenda



Welcome Remarks & Poll

Planning for Pediatric Medical Surge

Managing Pediatric Trauma Surge

Emergent Pediatric Care/EMSC

Break 5 min

Pediatric First Aide in Behavioral Health

Q&A

Final Poll

Dr. Deanna Dahl-Grove

Dr. Paula Kocken

Dr. Michael Dingeldein

Dr. Anne Runkle & Michelle
Moegling, BSN, RN,CPN

Sara Scheiwiller, BS Crisis
support team



Welcome

Dr. Deanna Dahl-Grove

Pediatric Centers of Excellence Activities

- Develop a coordinated pediatric disaster care capability
- Strengthen pediatric disaster preparedness plans and coordination
- Enhance state and regional medical pediatric surge capacity
- Increase healthcare professional educational competency
- Enhance situational awareness of pediatric disaster care across the spectrum
- Collaborate with the EMSC Innovation and Improvement Center and the Pediatric Pandemic Network





Mission and Goals

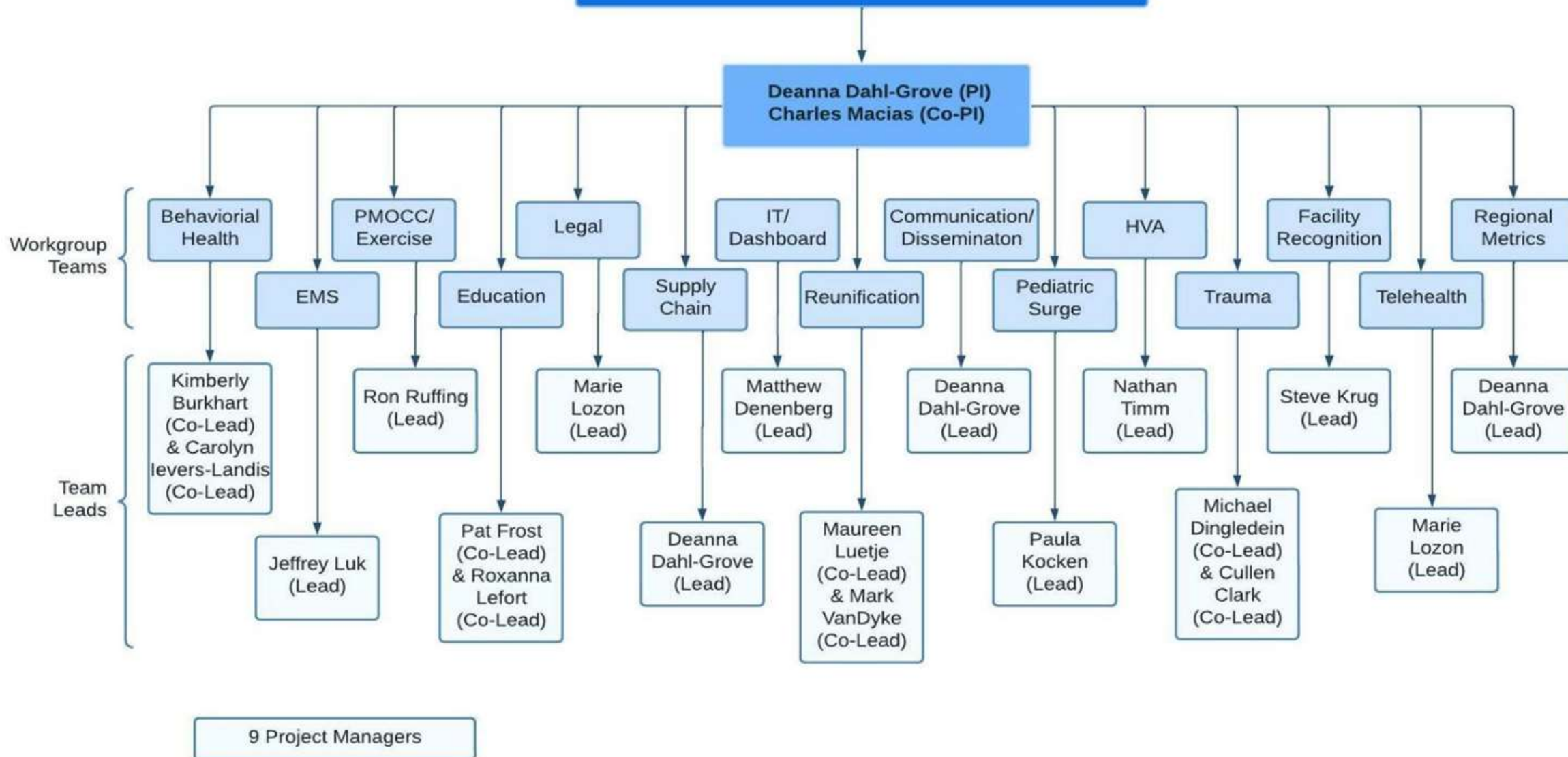
Mission:

Region V for Kids (formerly EGLPCDR) is to build on existing foundations in pediatric clinical care and emergency response by enhancing coordination mechanisms and incorporating relevant capabilities at the local, state and regional levels.

Goals:

The overall goal of the Region V for Kids is to harness and develop best-practices around disaster preparedness and response to be shared with other children's and non-children's hospitals and affiliated entities in the region.

Region V for Kids Workgroups and Team Leads





Overall Successes & Accomplishments

- Partnerships among children's hospitals
- Ability to pivot
 - Responsiveness to create work products to support during pandemic
- Ability to innovate and test on small scale within region
- Increased interaction with HPP Regional leadership raising awareness of pediatric topics
- Collaboration with other PCOE and EIIC
 - Compare and contrast projects and approaches to issues/topics

2022: Bed Availability & Situational Awareness

- Coordinated development with Intermountain region (WRAP-EM) and available in over 29 states
- Currently in use in Michigan and Intermountain Region
- Exercise Region V October 2022
- Scan code to obtain more information

Pediatric Test	FEMA Region	State Region	Partnership Region	Pediatric Trauma Level	Total Pediatric Med-Surg Beds	Open to Peds ED Transfers	Pediatric Med-Surg Beds Available	Total PICU Beds	PICU Beds Available	Total NICU Beds	NICU Beds Available	Pediatric Burn Beds Available	Pediatric Dialysis Available	ECMO Availability	Pediatric Neg Pressure Iso Available	PICU Transfer Capability	NICU Transfer Capability
Peds Test	Region V	MI Region 1	Great Lakes	Level I	10	No	Yes	12	Yes	4	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sample Academic Children's Hospital	Region V	MI Region 2N	Great Lakes	Level I	130	Yes	Yes	26	Yes	54	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sample Community General hospital	Region V	MI Region 2S	Great Lakes	Level II	21	Yes	No	8	Yes	45	Yes	No	No	No	Yes	No	Yes
Sample General Urban Hospital	Region V	MI Region 3	Great Lakes	Level III	0	Yes	No	0	No	0	No	No	No	No	No	No	No
Sample General Urban Hospital #2	Region V	MI Region 5	Great Lakes	Level II	20	Yes	Yes	12	Yes	35	No	No	No	No	Yes	No	Yes
Sample Limited Access Hospital	Region V	MI Region 6	Great Lakes	Level IV	1	Yes	Yes	0	No	0	No	No	No	No	No	No	No
Sample Rural Hospital	Region V	MI Region 7	Great Lakes	Level IV	4	No	No	0	No	0	No	No	No	No	No	No	No
Sample Urban Children's Hospital	Region V	MI Region 8	Great Lakes	Level I	89	No	No	36	No	108	No	Yes	Yes	Yes	Yes	Yes	Yes
Summary	N/A	N/A	N/A	N/A	275	N/A	N/A	94	N/A	246	N/A	N/A	N/A	N/A	N/A	N/A	N/A



2022: Pediatric HVA & Regional Metrics Scorecard



- Current HVA tools do not include pediatric specific considerations
- Hospitals/Regions can create more specific plans for children by considering impact
- Includes pediatric morbidity and mortality, schools, daycare, family reunification
- Metrics Scorecard aligns with Pediatric Annex components
- Scorecard considers Physical and Social determinants of health for pediatrics
- [Link to HVA](#)
- [Infographics for certain types of disasters and pediatric specific considerations](#)
- Web based linked version in production

Pediatric Hazard Vulnerability Analysis (HVA) Template	Pediatric Risk Tools
This pediatric HVA template was developed as a part of the Great Lakes Pediatric Consortium for Disaster Response, funded by HRSA. It is a method of determining hazard impacts on a region and how prepared regions and hospitals are for the available consequences of each hazard. The tool categorizes hazard impact along three dimensions, each with specific pediatric considerations: the assigning hazard impact, hazard likelihood, and regional/hospital preparedness scores. The pediatric HVA template will produce an overall vulnerability and risk score for each hazard. This tool is not meant to be a thorough checklist of preparations, but instead serve the initiation of general pediatric considerations, best-practice, disaster planning, and emergency response. It is not intended to replace a hospital HVA with facility-specific processes. The HVA tool works best on a desktop or laptop computer, as opposed to a mobile device. Instructions for Completing the Pediatric Hazard Vulnerability Analysis (HVA) Template 1. Within the Pediatric Vulnerability Matrix tab, for a given hazard begin assigning scores to each category listed in the matrix. Severity measures (e.g., list the Hazard Impact Scoring Key tab as a guide for assigning impact / severity measure scores. Each hazard is meant to impact the same region, as opposed to an individual hospital (e.g., a hurricane that affects an entire community, as opposed to damaging one hospital). In each category within the Hazard Impact Scoring Key is a risk/benefit matrix that outlines disaster components. For any given hazard, available components may fall under different impact scores. These descriptions should be considered guidelines. It is up to the region/hospital to assign a hazard impact score for each category based on which description best fits the hazard and region. The higher the potential impact, the higher the score should be. a. Examples of using the Hazard Impact Scoring Key to assign impact / severity measure scores can be found in the Hazard Impact Examples tab. 2. After completing the impact / severity measure within the Pediatric Vulnerability Matrix tab, complete the probability measure in the same tab. Reference scores to assign the 0-3 likelihood score can be found in the right of the Vulnerability Scoring Matrix. A likelihood score of 0 will cause the final vulnerability calculation to be undefined, due to that hazard. 3. Complete the hazard preparedness efforts within the Pediatric Vulnerability Matrix tab by using the Preparedness Scoring Key. This is useful to know the impact scoring key was used to complete the impact/severity measures. These descriptions should be considered guidelines. It is up to the region/hospital to assign a preparedness score for each category. Select an effort description that best fits the effort and impact. The more prepared a region/hospital is for a given category, the higher the preparedness score should be. High preparedness scores will lower the final risk calculation.	Pediatric Risk Tools Pediatric Vulnerability Matrix Most scoring tool to enter hazard impact and preparedness, will produce an impact score, hazard vulnerability score, and overall hazard risk. Consists of list of relevant pediatric hazards. Rankings: The rankings of every hazard in the pediatric vulnerability matrix, ordered according to their risk score. Rankings change based on input entered in the pediatric vulnerability matrix. A higher vulnerability score indicates that the hazard has more significant effects, based on the assigning impact, likelihood, and preparedness. Hazard Impact Scoring Key: Guidelines for how to assign severity/impact scores for a given hazard within the pediatric vulnerability matrix. This tab also includes a place to enter region/patient demographics and hospital ID and other information. The demographic information will impact any scoring in the pediatric vulnerability matrix. Preparedness Scoring Key: Guidelines for how to assign preparedness scores for a given hazard within the pediatric vulnerability matrix. Hazard Impact Examples: Provides an example of how to score using the hazard impact scoring key. Each category score is broken down and explained. Weight: The statistical weights used for the impact, vulnerability, and preparedness risk scores. Weights can be changed according to institutional preferences. Copyright and Attribution Copyright © 2021 Great Lakes Pediatric Consortium for Disaster Response Software: Windows Excel 365, Apple, Linux, Mac OS, iPad, Android, and other mobile devices. Tooling was provided in 2021 from the Department of Health and Human Services (HHS) Assistant Secretary for Preparedness and Response (ASPR) in order to create pediatric disaster care services of excellence. This tool is complete in the spirit of the ASPR working group within the Great Lakes Pediatric Consortium for Disaster Response, one of the members of pediatric consent and funded by the HHS ASPR grant. This tool is free software. This program is free software: you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation, either version 3 of the License, or (at your option) any later version. Please include a copyright and attribution notice in any redistribution.
Pediatric Vulnerability Matrix Scoring Guide	
The Pediatric Vulnerability Matrix assigns a hazard impact score to each hazard impact and preparedness measure in order to produce overall hazard scores. All scores are provided on a 0-3 scale (the higher the number, the more the impact/vulnerability/risk). Hazard Impact Score: A weighted sum of a hazard's impact without considering the likelihood of the hazard occurring or the preparedness that the hazard poses. Can be used to compare hazard preparedness against each other (preparation of preparedness or vulnerability score). Device categories (e.g., hospital in healthcare system impact) carry different weights, depending on the values in the weight tab. Vulnerability Score: A weighted sum considering a hazard's impact with the likelihood of that hazard occurring, not taking into account any preparedness. A likelihood score (0-3) can be found in the right of the matrix. The vulnerability score can be used to compare hazard impact and likelihood, a measure of preparedness. This statistical likelihood score affects the overall vulnerability score and the resulting hazard risk score. Risk Score: A weighted sum considering a hazard's impact, the likelihood of that hazard occurring, and already established preparedness against the hazard. Hazard risk score weights take into account how preparedness in a given category is a hazard impact correlates with the hazard impact in that same category for pediatric mortality or hospital impact. High preparedness in categories that the hazard presents impact will result in a lower hazard risk score.	



ASPR Regional Healthcare Coalition Measurement

Preliminary Questions

1

Are there any children's hospitals affiliated with your coalition?



☐ Yes
 ☐ No



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Education – Infographics Made Simple

Increasing healthcare provider competency in coordination with WRAP-EM

Active Shooter

- Awareness:** 15% of all active shooter events have occurred in schools (pre-K to 12) since 2000. In 2020 there were 113 shooting incidents and 44% of shooters were students. Shootings in communities frequently occur within proximity to schools.
- Preparedness:** Active shooter drills in schools were associated with a 42% increase in anxiety & stress and 29% in depression. The American Academy of Pediatrics recommends that drills be conducted in a manner that does not traumatize children.
- Response:** PsySTART Triage assists providers in allocating mental health resources to children and adults after the event. Limiting children's media exposure when an incident occurs reduces anxiety. Practice age-appropriate community messaging to reassure children.
- Mitigation:** Stop-the-bleed training is for everyone, including middle and high school students. Hospitals need to ensure there is a practiced plan for family reunification and unaccompanied children.

Behavioral Health

- Workgroup creating **Training Tools and Compendium of Resources** and **Literature Review** to add to EHC website.
- Workgroup members received training in **PsySTART**, Psychological **First Aid**, and Skills for **Psychological Recovery**.
- Created **Six** handouts on Psychosocial approaches to COVID related to **Parenting, Stress Management, and Sleep**.
- Presented **Three** ASPR-Trace talks, viewed by **One Million** people.

Eastern Great Lakes
Pediatric Center for Disaster Response

PEDIATRIC DISASTER EDUCATION GAP ANALYSIS

Recommendations From A National
Health Provider Survey
Research conducted from June 1, 2020-June 15, 2020

Survey: What Level Of Pediatric Disaster Competency?

Respondents asked to assign the level of pediatric disaster training for multi-disciplinary health care providers.

Performance Scoring Choices for Pediatric Disaster Provider Training

Foundational: (overview)
Aware: (understanding concepts)
Proficient: (capable of performing tasks)
Expert: (subject matter expert)

Who Responded: 226/439 multi-disciplinary providers (51% completion rate)

34 states including Puerto Rico & Washington DC

Professional Experience: 65% Acute Care; 56% EMS; 47% Education; 35% Emergency Mgt; 29% Govt; 23% Quality; 17% Ambulatory Care; 13% Executive; 11% Researcher

Pediatric Experience: 28.5% > 15 years; 10.8% 1-5 years; 7.7% 10-15 years; 7.4% 5-10 years; 5% < 1 year

Finding: Emergency/Hospital Providers

PROFICIENCY (able to perform tasks) recommended in pediatric disaster care including children with functional and access needs.

Finding: Primary Care Providers

PROFICIENCY (able to perform tasks) recommended in infectious control, vaccines, communications and go-kits.

Finding: Public Health Providers

PROFICIENCY (able to perform tasks) recommended in pediatric ambulatory care clinical skills.

Finding: Ambulatory Care Providers

PROFICIENCY (able to perform tasks) recommended in wound care and food borne disease.

Finding: EMS for Children Program Awareness

57% of non-respondents were unaware
38% of respondents were unaware

Pediatric Pandemic Virtual Tabletop

147 Organizations

609 Participants

18 States

98 Hospital & Medical Groups

11 Children's Hospitals

8 EMS Agencies

Hidden Consequences: How COVID-19 Pandemic is Impacting Children

ASPR: Pediatric Centers of
Excellence Web Series
5,674 Views

- Children with Special Needs
- Child Health & Wellness
- Emotional & Social Effects
- Children & Secondary Disasters

Link to Training

Exercises & Outreach



Virtual Exercises



**The Darkest Winter:
Pediatric Disaster and
Surge Response Virtual
Exercise**

September 10, 2020

[Access >](#)



**Pediatric Patient Tracking
& Family Reunification
Virtual Exercise**

April 27, 2021

[Access >](#)



**Advancing Pediatric
Telehealth Capability
Virtual Exercise**

May 20, 2021

[Access >](#)



**Pediatric Care
Coordination Center: A
Demonstration and Table
Top Exercise**

Demonstrate a Pediatric
Medical Operations
Coordination Cell (PMOCC)

Audience: Open invitation,
Nation-wide promotion

Held June 7, 2022

[For More Information >](#)



**Refining Pediatric
Telehealth Capability: A
Demonstration to
Leverage the Use of
Technology During
Disaster Response**

Demonstrate advanced use
of telehealth for pediatric
disaster and surge response

Audience: Open invitation,
Mid-west promotion

July 14, 2022



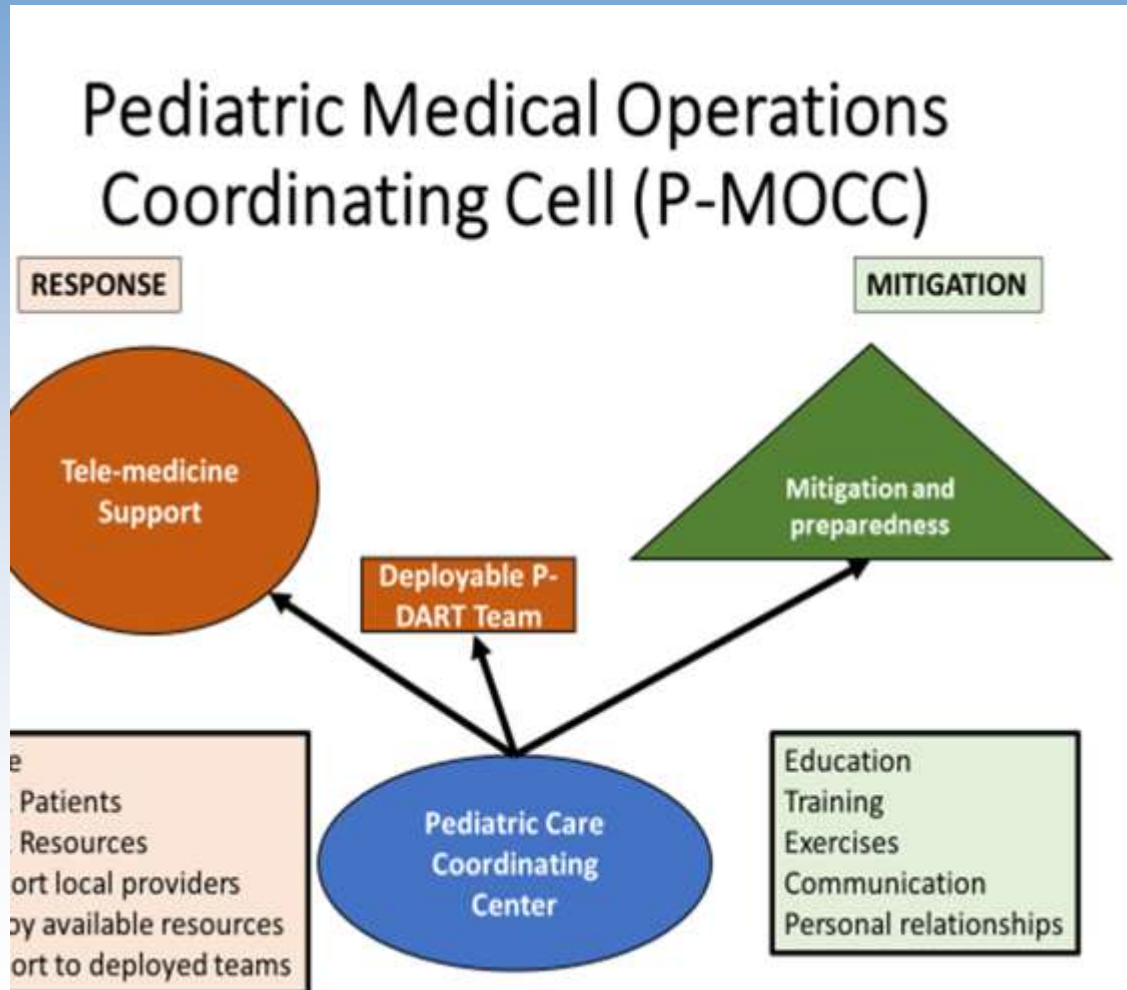
**Pediatric Medical
Operations Coordination
Cell (PMOCC): A PMOCC
Workshop and Pediatric
Surge Table Top Exercise
(TTX)W EXERCISE**

In depth discussion of
applying the PMOCC model
for all Region V for Kids
states.

Audience: Select invitation,
Mid-west promotion

August 9, 2022

Pediatric Medical Operations Coordination Cell



- Integrating telehealth capability and capacity
- Increasing coordination within a region

Projects for 2023

Address pediatric surge/trauma and related needs for rural/ critical access facilities within the region, coordinate workshops

Pediatric dashboard implementation of JUVARE pediatric platform to Region V institutions and create situational awareness and workshops.



Other Resources

- **Pediatric Disaster Checklist**
 - <https://emscimprovement.center/education-and-resources/toolkits/pediatric-disaster-preparedness-toolbox/>
- **Be Ready: Tips for Families of Children and Youth with Disabilities and Medical Needs**
 - <https://emscimprovement.center/domains/preparedness/asprcoe/eglpcdr/cyshcn/>
- **Pediatric Disaster Education Concept of Operations**
 - <https://emscimprovement.center/domains/preparedness/asprcoe/eglpcdr/education/infographics/conops/>
- **American Academy of Pediatrics Reunification Toolkit**
 - <https://downloads.aap.org/AAP/PDF/AAP%20Reunification%20Toolkit.pdf>



Questions & Contact Information

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[https://emscimprovement.center/domains/preparedness/asprcoe/eglp
cdr/](https://emscimprovement.center/domains/preparedness/asprcoe/eglp cdr/)



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Pediatric Medical Surge: Do you have a Plan?

Dr. Paula Kocken, Children's MN



Pediatric Medical Surge

- A volume of pediatric patients your hospital cannot handle with the “normal” personnel, equipment and space
 - Depending upon your institution, it may not take many pediatric patients to exceed your capacity and capabilities
- **Daily Readiness** with pediatric specific equipment, medications, training makes your hospital better prepared for a surge.
- Examples of medical surge:
 - Carbon monoxide poisoning of children at swim meet at the local YMCA
 - Insecticide exposure from a tanker car derailment near a school
 - The triple viral (RSV/Influenza/Covid) surge

Objectives of This Talk

“You Should be Able To...”

- Evaluate your ped surge plan or annex and note areas to improve
- List key areas and roles to fill in a medical pediatric surge response
 - The ED
 - Family reunification
 - Un-identified minors
 - Children and youth with special health care needs
- Recognize “Red Flag” situations that might occur during a medical pediatric surge
 - Poisoning/infectious
 - Decontamination





Have a Plan

- Know where it is located and have all shifts review it
 - Hard copy vs. online
 - Online available at home or at work
 - Online unavailable if power outage
- Keep it simple
 - Clearly state who can trigger it, how to activate it and initiate Hospital Incident Command (HIC)
 - Know what to do until HIC is established
- Examples of plans are available
 - [Assistance Center | ASPR TRACIE \(hhs.gov\)](#)



When and Why to Trigger

- When ever the incident outpaces your abilities
 - Can be 10 patients during the day but 5 on the night shift
 - The severity or complexity of the patients is too high
 - Your referral hospitals are experiencing the same situation and cannot help now
 - During a disaster, normal patient transfer operations may not function
- Know who you can call for help
 - Triggering the surge plan should give you options
 - Call in the hospital administration
 - Have contact information for pediatric experts
 - Establish remote consultation capabilities (telemedicine)

Key Areas

- The front door and ED triage
 - JumpSTART or SALT triage plans
 - Tracking patients
 - Transfer triage
- Family Reunification area
 - [AAP-Reunification-Toolkit.pdf](#)
- Unaccompanied minors/minimally injured area (separate from the Family Reunification)
- Addressing the needs of medically complex children





Key Roles

- Incident commander
 - Initially may be the charge nurse in the ED or hospital until the HIC is functional
- Communication
 - Headquarters may be in ED until HIC is set up
 - Internal and External (remember, cell phone towers get saturated during crisis)
- Subject matter expert (may be virtual)
 - Specially important if infectious or poison exposure
 - Equally important when caring for children with severe illness or injury and those who are medically complex

Medical Surge Red Flags



- Be aware children often get higher doses of poisons
- Monitor blood glucose and oxygenation
- **Pediatric patients get better and deteriorate quickly**
 - Re-assess, Re-assess, Re-assess
- Know your antidotes/medications
 - Dosed by weight
 - Use tools to determine weights (Broselow, Handtevy, etc.)
 - Some meds not be suitable for peds
 - Many medications are routinely given to children even though 'off-label'
 - May need to be given IM or IN instead of IV



Medical Surge Red Flags: Decon



- Determine the type of decon
 - Dry vs. wet vs none at all
- Try to keep families together
- Monitor the temperature of the water
- Children get cold quickly, even in the summer





Finally; “Children are not little Adults”

- Try to keep families together when possible
- Track your patients,
- Be aware of your special need patients
 - Behavioral and psychosocial concerns
 - Non-verbal children
 - Children who are dependent on medical equipment





Sources of Information

- Pediatric Readiness Project
 - <https://www.pedsready.org/>
- Region V for Kids
 - <https://emscimprovement.center/domains/preparedness/asprcoe/eglpcdr/>
- Emergency Medical Services for Children (EMSC) Innovation and Improvement Center, EIIC
 - <https://emscimprovement.center/>
- American Academy of Pediatrics – Disasters and Children website
 - <https://www.aap.org/en/patient-care/disasters-and-children/>



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Managing Pediatric Trauma Surge

Dr. Michael Dingeldein



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Managing a Pediatric Trauma Event in Critical Access or Rural Community



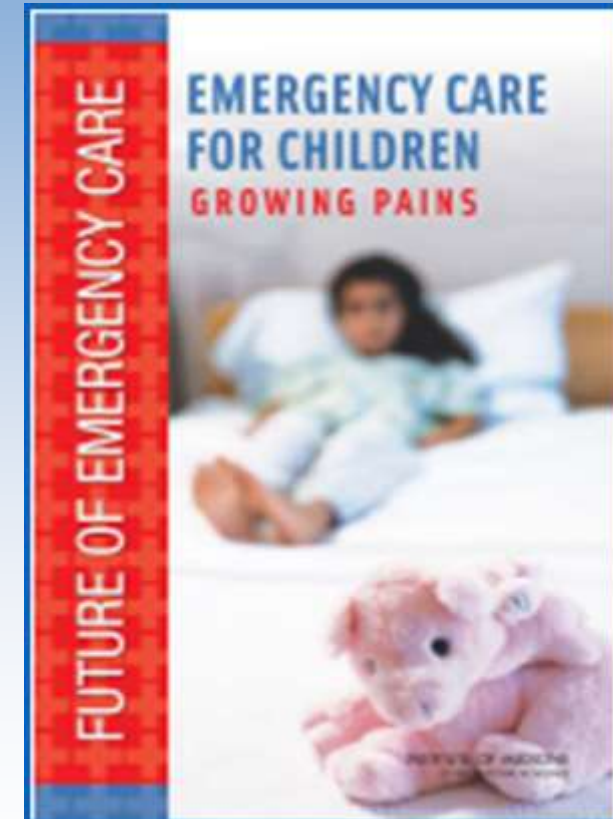
Pediatric Trauma Surge

- The best way to be prepared for a surge of pediatric patients is to be prepared for a **single** pediatric patient.
- Why does this matter?
- Why separate out pediatric care?



Limiting Factors for Pediatric Patients

- Variation of pediatric requirement for nurses and physicians by specialty & training program.
- Most EDs see fewer than 15 pediatric patients per day.
- Limited supplies & familiarity with pediatric equipment, supplies, & medications .
- Critical procedures performed in ~0.1% of pediatric patients.
- Physicians in general and freestanding EDs often perform zero critical pediatric procedures each year.
- Maintenance of Pediatric Life Support and Pediatric Simulation .



The Data – Important Facts



- 22% of the US population are children.
- 5000 EDs in the US. About 140 million visits per year.
- > 80% of pediatric ED visits are to general EDs.
- EMS transport of critically ill children is a rare event.
- Critically ill children are seen relatively infrequently.
- >80% of EMS agencies see <8 children / month.
- Hospitals with high ED readiness scores demonstrate a 4-fold lower rate of mortality for children with critical illness than those with lower readiness scores.

Unexpected Pediatric Trauma Disaster event in your organization?

- How far is the nearest Pediatric Level I or II trauma center?
- Would you be prepared with no forewarning?
- How do you assure competency of your staff for pediatric resuscitation?
 - Is pediatric resuscitation education included in annual competencies?
- Is your resuscitation bay setup for pediatric patients?
 - Can staff find pediatric equipment, medication dosing guides, and supplies?
 - Is pediatric resuscitation equipment clearly marked and easy to find?

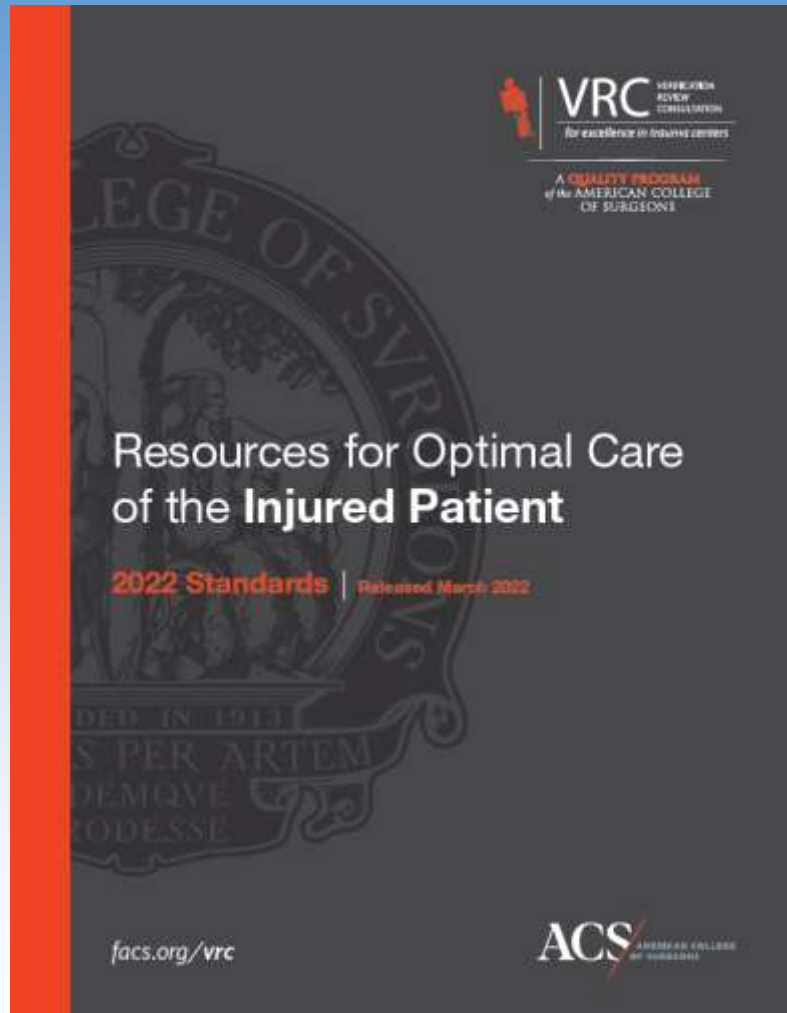


Pediatric Readiness – What is it?

- The ability of healthcare group (EMS, ED, etc) to care for critically ill children.
- Not just trauma -> medical emergencies also.
- *“The National Pediatric Readiness Project is a multi-phase quality improvement initiative to ensure that all U.S. emergency departments have the essential guidelines and resources in place to provide effective emergency care to children.”*
- **Hospitals with high ED readiness scores demonstrate a 4-fold lower rate of mortality for children with critical illness than those with lower readiness scores.**



Pediatric Readiness: Why are we talking about this?



5.10 Pediatric Readiness—Type II

Applicable Levels

LI, LII, LIII, PTCI

Definition and Requirements

In all trauma centers, the emergency department must evaluate its pediatric readiness and have a plan to address any deficiencies.

Additional Information

"Pediatric readiness and coordination of policies, equipment, and personnel. The components of the Resources section.

Measures of Success

Gap analysis with readiness

Resources

Pediatric readiness center/domains/po

Other resources to address deficiencies: <https://emscimprovement.center/domains/pediatric-readiness-project/readiness-toolkit/>

References

Remick K, Gausche-Hill M, Joseph MM, et al. Pediatric Readiness in the Emergency Department. *Pediatrics*. 2018;142(5):e20182459. doi:10.1542/peds.2018-2459.

Applicable Levels

LI, LII, LIII, PTCI, PTCII

Definition and Requirements

In all trauma centers, the emergency department must evaluate its pediatric readiness and have a plan to address any deficiencies.

Pediatric Differences



- There are true anatomic and physiologic differences.
- **Airway / Breathing ->**
 - Small oral cavity & large tongues & tonsils. Large occiput.
 - Larynx is more cephalad and anterior. Floppy U shaped epiglottis.
 - Hypoxia is most common cause of cardiac arrest.
- **Head ->**
 - TBI is the leading cause of mortality. Large head.
 - Cranium thinner and less protective. Significant force transmission.
- **Circulation ->**
 - Challenging vascular access and shock recognition.
 - Different vital signs. Hypotensive is the last step before death.

Physiologic Differences – Disaster Medicine

Pediatric characteristic	Special risk during disaster
Respiratory	Higher minute volume increases risk from exposure to inhaled agents. Nuclear fallout and heavier gases settle lower to the ground and may affect children more severely.
Gastrointestinal	Higher risk for dehydration from vomiting and diarrhea after exposure to contamination.
Skin	Higher body surface area increases risk for skin exposure. Skin is thinner and more susceptible to injury from burns, chemicals, and absorbable toxins. Evaporation loss is higher when skin is wet or cold, so hypothermia is more likely.
Endocrine	Increased risk for thyroid cancer from radiation exposure.
Thermoregulation	Less able to cope with temperature problems, with higher risk for hypothermia.
Developmental	Lower ability to escape environmental dangers or anticipate hazards.
Psychological	Prolonged stress from critical events. Susceptible to separation anxiety.

Adapted from AAP, *Pediatric Education for Prehospital Professionals*, Jones & Bartlett Publishers, London, 2006.



What can I do to be prepared?

Pediatric consideration in
existing training and disaster
plans

Knowledge of pediatric
equipment supplies &
medication

Pediatric Champion/ PECC in
the ED

Frequent pediatric
simulation

Knowledge of pediatric
policies, procedures, and
protocols

Assessment on your facility
for peds readiness

Practice and training on
pediatric early resuscitative
care

Pediatric telemedicine
partnerships



Practical Considerations

- Focus on the basics: triage and primary survey.
- **Circulation** -> hemorrhage control, vascular access, and volume replacement (pediatric MTP)
- Secure the **Airway** -> practice and know the pediatric equipment.
- **Breathing** -> stop right heart compression (tension pneumothorax, pericardial tamponade)
- *The best way to be prepared for a surge of pediatric patients is to be prepared for a **single** pediatric patient.*



What is a Pediatric Champion or PECC?

An individual(s) who is responsible for coordinating pediatric specific activities

83% of children arrive at
general EDs

Value of PECC Role



Increased pediatric
readiness scores...

...are associated
with decreased
mortality



Resources



[Trauma Care • EIIC](#)
[\(emscimprovement.center\)](#)



<https://www.pedsready.org/>



<https://emscimprovement.center/state-organizations/ohio-pecc/>

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[ImPACTS - Improving pediatric acute care through collaboration](#)
[\(impactscollaborative.com\)](#)



Region V For Kids

[Region V for Kids \(formerly EGLPCDR\) • EIIC](#)
[\(emscimprovement.center\)](#)

Trauma Resources from local Level One Trauma Center

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Emergent Pediatric Care

Dr. Anne Runkle

Michelle Moegling, BSN, RN, CPN

Case 1: Trauma

4-year-old run over by a bus:

- On the street outside of your hospital
- What do you do to prep the room?
- Agonal respirations, moaning
- Primary survey:
- HR 169, BP UTA, Sat 68% on NRB, GCS 6
- Airway: Intubate (what size tube, what meds?)
- Breathing: Ventilate (what settings?)
- Circulation: MTP (what volumes?)



Airway

- ETT size:
 - Cuffed: $3.5 + \text{Age}/4$ - in a 4-year-old, 4.5 cuffed (by weight, 4.0 cuffed)
 - Cuffed tubes >> uncuffed tubes
- Laryngoscope:
 - Mac 2
 - Miller 2/1
 - Improved chance of first pass success with VL
- Backup:
 - LMA

Breathing



- Vent settings:
 - Volume: 5-10 mL/kg IBW
- Pneumothorax decompression
 - Angiocath (14-20G)
 - Butterfly needle
 - Once they hit 30kg you can use a 28 Fr chest tube



Circulation



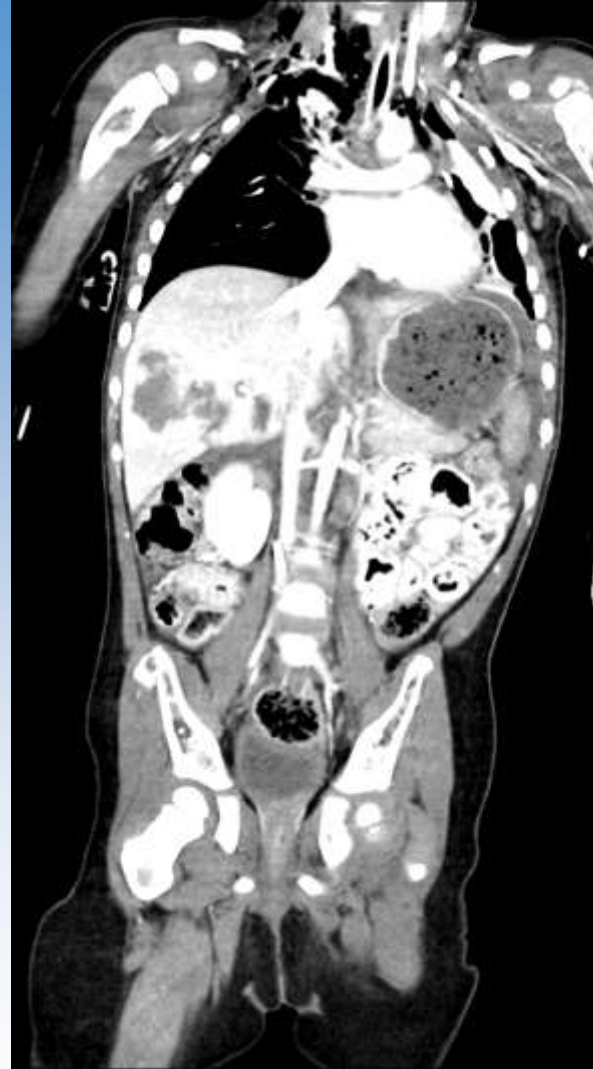
- MTP
 - What is your MTP for pediatric patients?
 - pRBC: 10-20 mL/kg
 - FFP: 10-15 mL/kg
 - Platelets: 10-15 mL/kg
- If this child gets 1 adult unit pRBCs – that's 300 mL = 2.5 pediatric “units” – 1/3 of his total blood volume



- It's snowing – no air transfer
- 2 hours by ground to local children's hospital
- Repeat exam
 - Tachycardic, borderline hypotensive, extremities are cool with mottling
- Would your trauma surgeon take this patient to the OR?



- Extensive fractures (rib, pelvic, femur)
- Grade 5 splenic laceration with large extravasation
- Grade 3 liver laceration



In real life:

- Delayed transport due to weather and stability
- Laparotomy, splenectomy, packing
- Intra-op transfusion (1:1:1 after 4 units)
 - *Two more RBC (now 4 total)*
 - *1 FFP*
 - *1 Platelet*
 - *Total of 1900 cc = 158 mL/kg = 2 x TBV*
- Transferred with open abdomen from OR to Pediatric Trauma Center
 - T 33, BP 77/55, HR 151
 - Cold, delayed cap refill, Sat UTA
 - Epi drip
 - Difficult to ventilate on transport vent



Outcome:

- **Extubated, neurologically intact**

Opportunities for improvement:

- Prolonged ventilator wean / ICU course
 - Consider pediatric MTP
- Subglottic stenosis requiring two trips to OR for bronchoscopy with dilatation
 - Consider cuffed ETT – even 15 minutes of an inappropriately sized ETT can cause necrosis leading to permanent damage



Case 2: Difficulty breathing

6-week-old presents with difficulty breathing

- Mother runs in with an infant that looks like this
- Airway: patent, no stridor
- Breathing: as seen in video
- Circulation: extremities warm, capillary refill 3 seconds



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What do you do next?

- How do you suction this patient?
- How do you get vitals?
- What about oxygen?



Suctioning

- Suction with bulb syringe or Neosucker
- Neosucker connects to suction and is designed to minimize potential tissue trauma
- Try to keep infant/child in caregiver's arms
- Avoid deep suction as it could create more swelling of nares



Neosuckers



Neotech products

Bulb Syringe



Obtaining infant/toddler vital signs

- Keep infant/toddler on caregiver lap when possible
- Distraction/Rewards, i.e. stickers
- Start with least invasive
 - Respiratory Rate (you can ask parent to lift shirt and count)
 - Count without disturbing the infant/toddler
 - Look for retractions, head bobbing and nasal flaring
 - Look at skin color
 - Listen for absent breath sounds, wheezing, stridor
 - Heart Rate
 - Listen with a stethoscope for 1 minute for infants
 - Pulse ox on toe, finger, hand (be cognizant that the red light can be scary)
 - Blood Pressure (“I’m going to give your arm/leg big hug..watch the numbers”)
 - Temperature- rectal for infants < 60 days for medical complaint



Ohio University Blog pediatric Vital signs

Placing Oxygen on a Child

- Nasal cannula
 - Caregiver involvement is key, have them hold the child in a way that they cannot pull cannula off
 - Place cannula on
 - Turn on oxygen
 - Distraction
- High flow nasal cannula
 - Do not fully occlude nares
 - Frequent vital signs for first hour
 - Make sure you have infant and pediatric cannulas for your HFNC devices
 - Based on your protocol, infants on HFNC are likely NPO





Bronchiolitis Evidence Based Practice

- Do:
 - Suction
 - Oxygen (LFNC or HFNC)
 - Hydration (PO/IV)
 - Antipyretics (if indicated)
- Don't:
 - Steroids
 - Racemic epinephrine
 - Hypertonic saline
 - Albuterol



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Reassessment

- Cap refill still 3-4 seconds, working
- Start calling for transfer
- Delayed due to weather



Placing an IV in and infant or child

- Especially with babies, start in hand. With well-fed infants you will have a hard time finding a vein in the AC
- If they are dehydrated or clamped down put warm packs on both hands
- Prep the child for what to expect (age-dependent)
- Sweet-ease for infants, Topical LMX
- If you have a wee sight may be helpful
- US guided IV



Pictures courtesy of International Biomedical

*****Do not ever use an unapproved light source for illumination, some lights can cause burns*****

Push Pull

What is the best way to give IV Fluid rapidly:

Older children-teen → Pressure bag

Infant and young children → Push Pull





- Transfer center: on divert – will likely have bed in 12 hours
- You're stuck with this kid
- Feeding:
 - Not on HFNC
 - Consider on LFNC
 - Check with your referral hospital

Vital Sign Parameters (PALS)



Heart Rate (beats/min)			Respiratory Rate (breaths/min)	
Age	Awake	Asleep	Age	Normal
Neonate (<28 d)	100-205	90-160	Infant (<1 y)	30-53
Infant (1-12 mos)	100-190			
Toddler (1-2 y)	98-140	80-120	Toddler (1-2 y)	22-37
Preschool (3-5 y)	80-120	65-100	Preschool (3-5 y)	20-28
School-age (6-11 y)	75-118	58-90	School-age (6-11 y)	18-25
Adolescent (12-15 y)	60-100	50-90	Adolescent (12-15 y)	12-20
Reference: PALS Guidelines, 2015				
Blood Pressure (mmHg)				
Age		Systolic	Diastolic	Systolic Hypotension
Birth (12 h)	<1 kg	39-59	16-36	<40-50
	3 kg	60-76	31-45	<50
Neonate (96 h)		67-84	35-53	<60
Infant (1-12 mos)		72-104	37-56	<70
Toddler (1-2 y)		86-106	42-63	<70 + (age in years × 2)
Preschool (3-5 y)		89-112	46-72	
School-age (6-9 y)		97-115	57-76	
Preadolescent (10-11 y)		102-120	61-80	<90
Adolescent (12-15 y)		110-131	64-83	

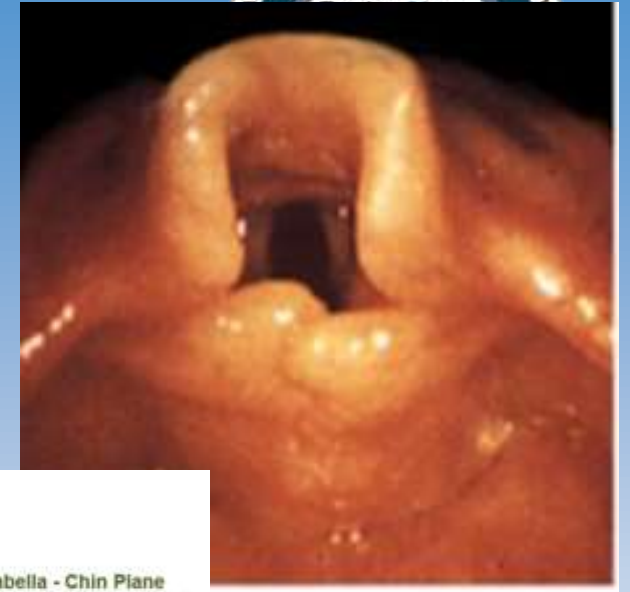
Infant Intubation

- Pearls/Pitfalls

- No ketamine < 3 months (etomidate + succ/roc)
- Adequate pre-oxygenation (consider apneic oxygenation)
- Atropine < 12 months
- Positioning:

- Backup

- LMA
- BMV



Case 3: Difficulty breathing

6-year-old presents with difficulty breathing

- Mother walks into triage with her son
- Airway: patent
- Breathing: as seen in video,
- Circulation: extremities warm, well perfused



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Asthma scoring



Asthma Clinical Score (ACS) Key

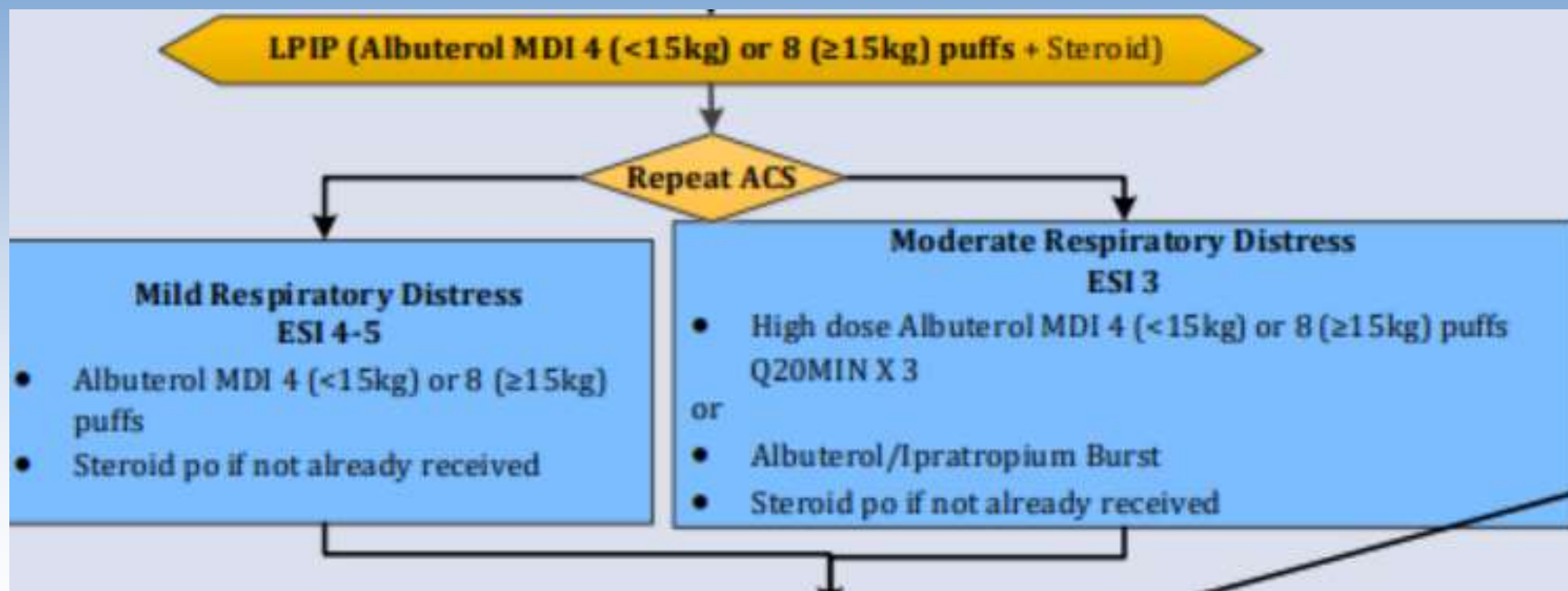
Scoring Key (Maximum score is "13")	0	1	2	3	4
Tachypnea (see reference)	No	Yes			
O2 Requirement to keep SaO2 ≥ 92%	RA	≤2 liters/31%	>2liters/31% ≤ 4liters/50%	> 4 liters/50%	
Wheezing	None	End expiratory or scattered wheeze	Expiratory wheeze throughout	Inspiratory and expiratory wheeze	"Silent chest" (no air movement)
Air Movement	Normal/Good	Fair	Tight	Silent	
Retractions (see reference)	None	One type of retraction	Two or more types of retractions		

Score: 0-13

Mild: ≤ 4

Moderate: 5-9

Severe: ≥10



What do you do next?

- How do you keep this patient calm?
- How do you get vitals?
- How do you do give him the meds he needs?



Comfort holds/distraction



Comfort Positioning

Comfort positions can be creatively adapted for a child's needs and to a variety of procedures.



Chest-to-Chest on Lap



Sitting on Bed



Back-to-Chest on Lap



Sitting Independently



Sideways on Lap or Bed



Reclining on Bed



Helpful Tips for Procedures:

- Plan for effective **pain management**
- Distraction (bubbles, pinwheel, light spinner)
- Give reasons for procedures and explanations specific to the child's age and level
- Use a hugging hold in an upright sitting position whenever possible.
- Adapt position and hold to maximize security, minimize movement and maintain easy access.
- Support a child's and parent's involvement with specific roles and realistic choices.
- Praise a child's and parent's specific efforts: trying, holding still, listening, being done, etc.

Meds – how do you give them?

Bronchodilators –HFA/mask vs neb

- Spacer should always be used with a HFA

Which way is better to give an **aerosol**?

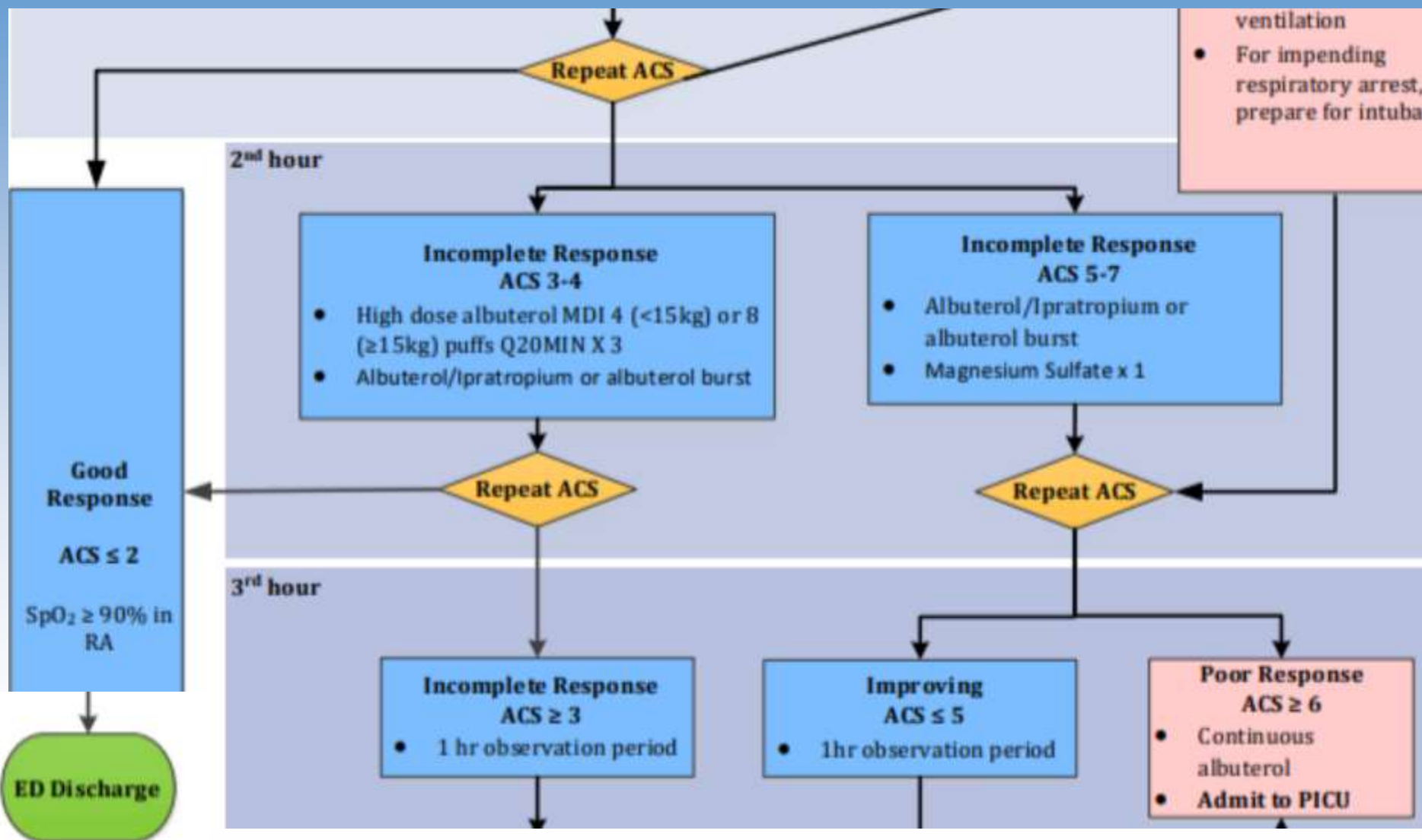


Blow By Oxygen		
Distance from Face	10 lpm	15 lpm
1"	49%	62%
2"	42%	50%
3"	40%	45%
4"	37%	42%
5"	35%	35%
6"	30%	33%

Steroids

- Mix with flavor (cherry syrup, popsicle piece, Gatorade, juice)
- Small volumes 3mL or less
- Rewards i.e. popsicle

What do you do next?





Children and Youth with Special Healthcare Needs

- Overall children make up 20% of the population
- 18.5% of children have special needs¹
- CYSHCN have special challenges
 - May require special transportation depending on equipment
 - May require electricity if vent dependent
 - May not be able to tell you what is wrong with them
 - May require specialized equipment
- Resources
 - <https://complexchild.org/caregiving/>
 - <https://emscimprovement.center/domains/preparedness/asprcoe/eglpcdr/cyshcn/clinical-skills/>

1. <https://mchb.hrsa.gov/sites/default/files/mchb/programs-impact/nsch-cshcn-data-brief.pdf>

Equipment

- Cost sharing



Simulation and Procedure Resources




EMS for Children Colorado

Home Pediatric Respiratory Resources Advisory Committee Programs **Education** Resources

Pediatric Procedure Videos



WATCH

Intraosseous (IO) Insertion

Simple tips and tricks for inserting an IO in a pediatric patient



WATCH

Push-Pull Fluids

How to set up and administer push-pull fluids



Click here

Click here

Step 1 Step 2 Step 3 Step 4 Step 5 Step 6 Step 7

Emergency Medicine Resident Simulation Curriculum for Pediatrics (EM ReSCu Peds)



OHIO
EMSC State Partnership Program

[.davis2@widechildrens.org](#)

[e.runkle@nationwidechildrens.org](#)
[helle.Moegling@uhhospitals.org](#)



Q&A



BREAK

5 minutes



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Pediatric First Aide for Behavioral Health Patients

Sarah Scheiwiller, BS



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Navigating and Preventing Pediatric Crisis

De-Escalation, Early Recognition and Intervention

(Informed by Therapeutic Crisis Intervention Concepts and Strategies)

Sarah Scheiwiller – Behavior Health Crisis Education Coordinator

How *comfortable* do you feel working with pediatric patients who have experienced emotional trauma?



Trauma Informed Care

A Trauma-Informed Organization supports and facilitates trauma informed care through:

Policies

Procedures

Practices



Trauma Informed Care



A Trauma
Informed
Organization
ensures that
staff:

- Understand



uma is and how
within the system

nd patters that
trauma

avoid re-

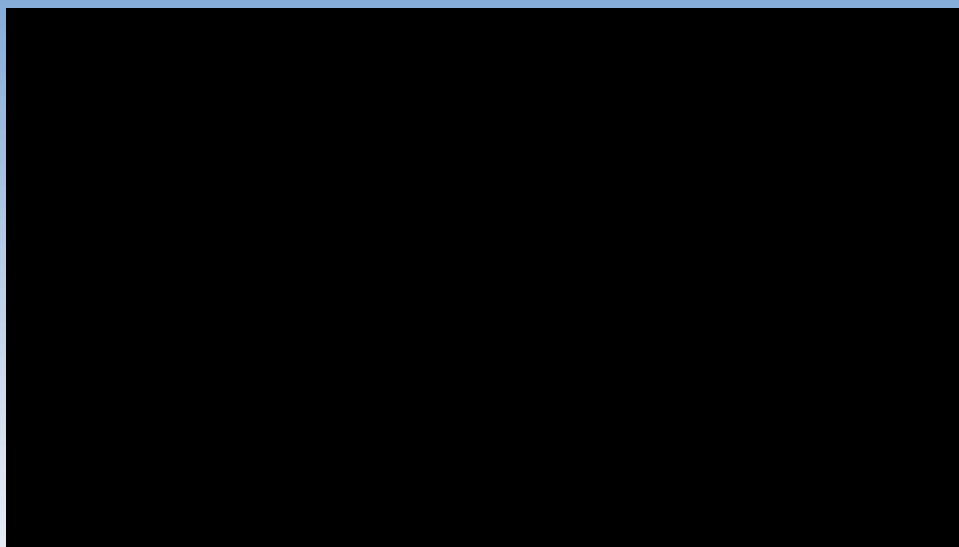


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Trauma Informed Care



<https://www.youtube.com/watch?v=8A1-rtioJxg>

Discussion Questions

- What do you think Zoe is experiencing?
- What might Zoe think about adults? What perception does she have about the world around her?
- What behaviors might we expect to see from Zoe and what might trigger those behaviors?
- What will she need to feel safe?





Effects of Trauma



The Thinking Brain.

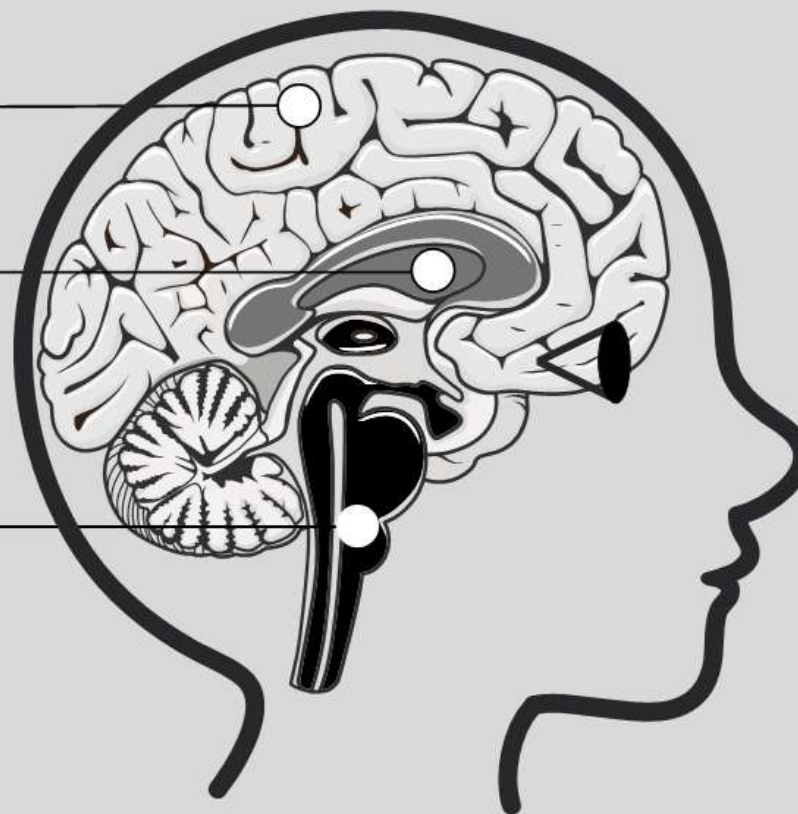
This is the **neocortex**, responsible for higher functions such as reasoning, language, creativity, and abstract thought.

The Emotional Brain.

This part of the brain is also called the **limbic system** and is the center for emotions, emotional behavior, and motivation. Within this part of the brain is the **amygdala**, also known as the **sentry**. The role of the amygdala is to determine whether or not something is a threat.

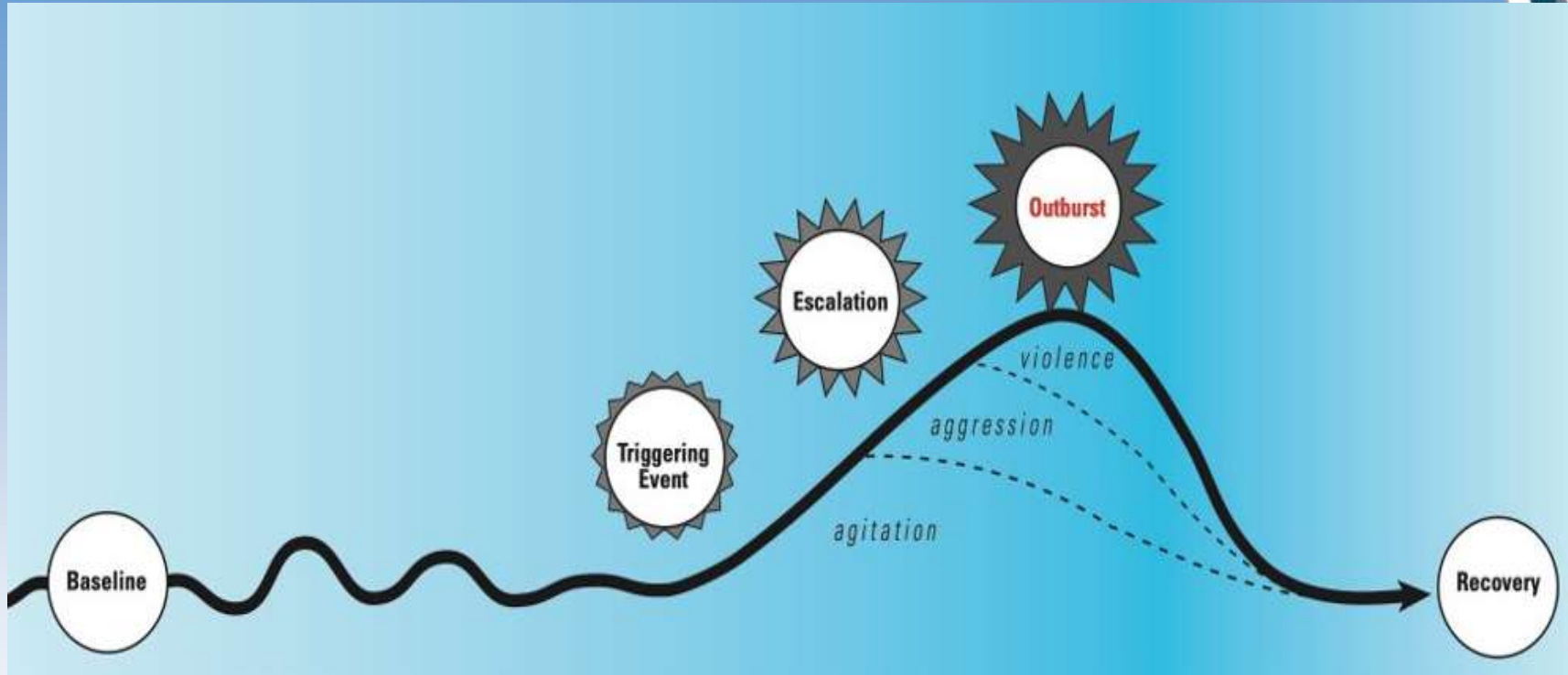
The Survival Brain.

This system of the brain (the **brain stem**) also known as the reptilian brain, is responsible for survival functions such as breathing, heart rate, circulation, and most bodily (autonomic) functions that do not require conscious thought.





The Build of a Crisis



A crisis occurs when a child's fight, flight or freeze is activated and they are unable to regulate their emotions and behaviors

Self Awareness - Practice



Zoe comes into your emergency department and currently has no disposition plan. While in the ED, she has had 3 escalations in the regarding male staff, partaking in her care, and is now labeled an elopement risk. She has been in the ED for 36 hours and a code violet was just called on Zoe for hitting staff who came in to obtain vitals....

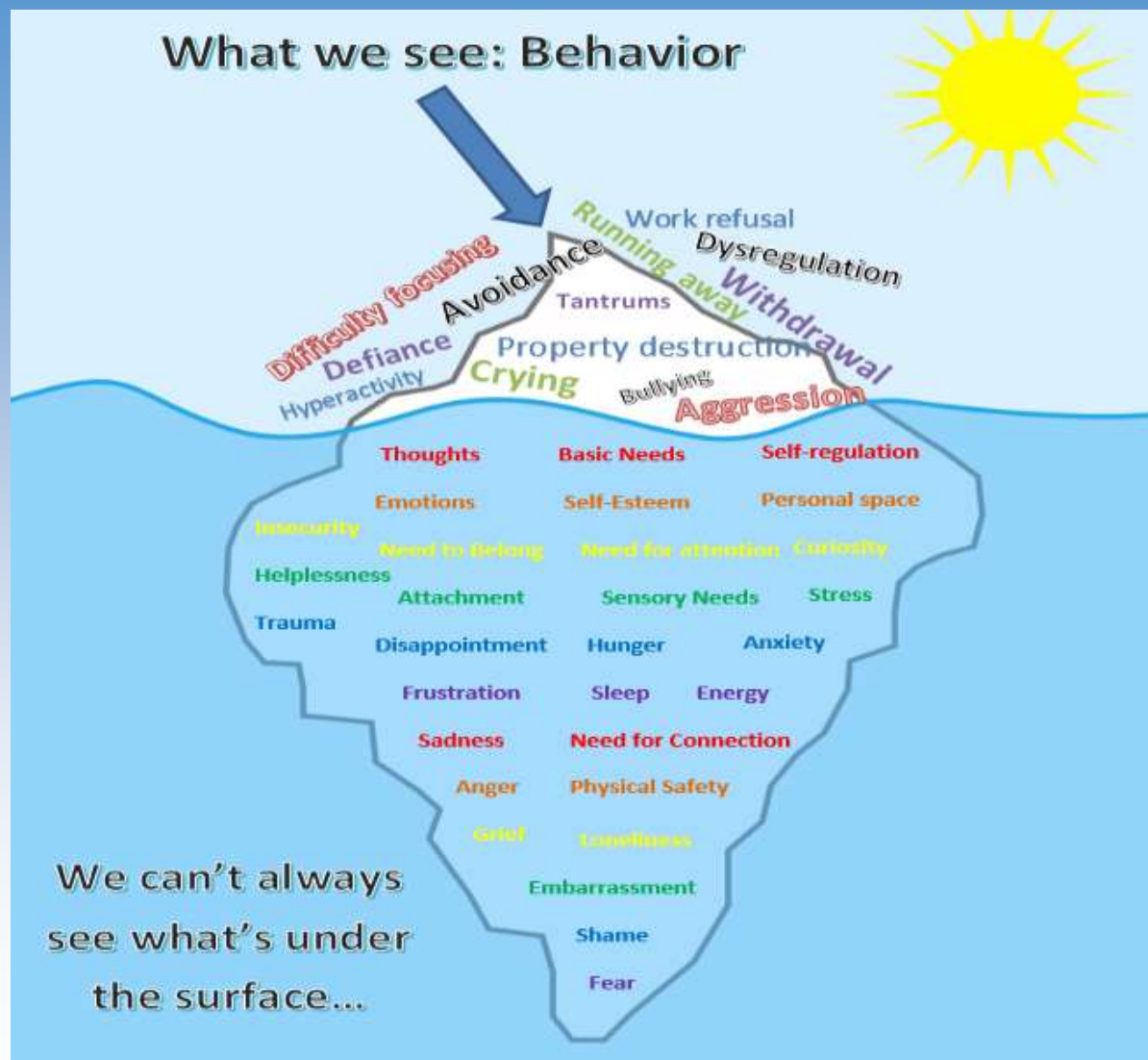


Self Awareness - Assessment

1. What am I feeling?
2. What does the child feel, need, expect or want?
3. How is the environment affecting the situation?
4. How do I best respond?

What, What, How, How?

What we see: Behavior



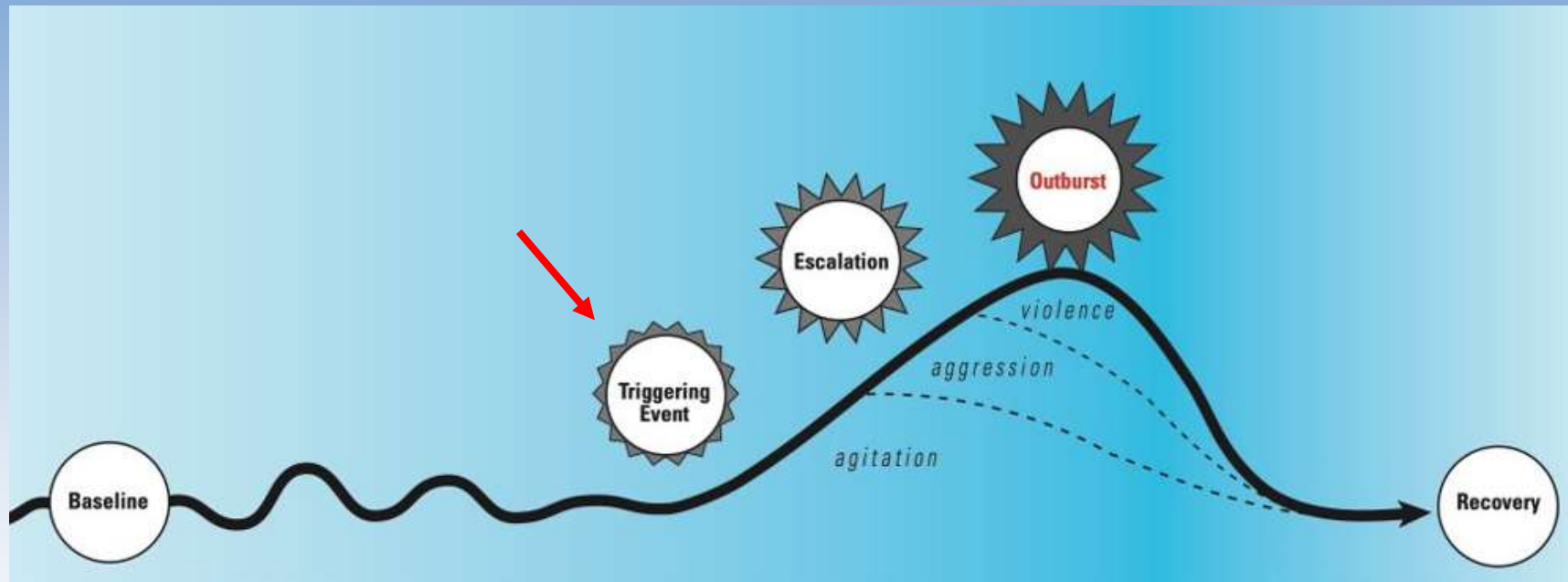


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Patient Triggers



Potential Triggers for Patients

- Feeling unheard
- Unmet needs
- Conflict with caregivers
- Receiving bad news
- Being bored
- Changes in routine
- Limit setting
- Medication change/conditions
- Being provoked by patients or staff





Assessing Behavior

- All behavior has meaning
- Behavior reflects emotions and needs
- Trauma affects ability to manage feelings and behaviors

Behavior is the language of trauma. Children will show you before they tell you that they are in distress” – Micere Keels



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How Do I Best Respond?

- Stay in control!
 - Positive Self Talk
- Provide *environmental* support
- Provide *emotional* support
- Decrease the level of stress



Emotional First Aid

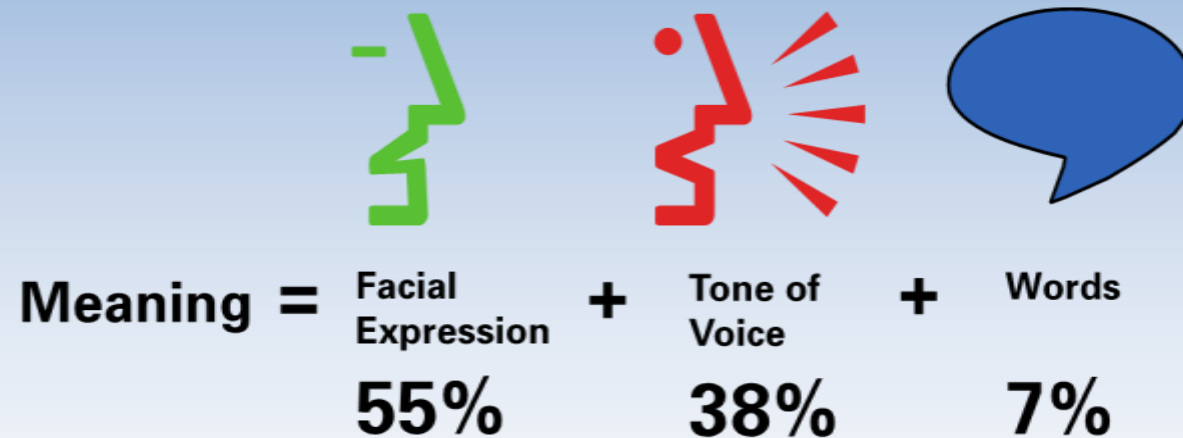


STRATEGIES	GOALS
Co-Regulate Emotions – be a calm presence	Provide immediate support to reduce emotional intensity
Maintain the relationship and lines of communication	Identify and resolve the underlying concerns causing distress
Plan and anticipate – be a coach	Return the child to the activity

"It's Not What You Say, It's How You Say It"



MEANING IN SPOKEN COMMUNICATION DURING TIMES OF CRISIS





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Importance of Body Language



Summarization

- Sum up feelings and content
- Allows the adult and child an opportunity to make sure they are on the same page
 - “It sounds like you....”
 - “Let me see if I got this right....”
 - “Stop me if I miss anything.....”



You enter a patient bedroom to remind them that dinner will be up in 5 minutes and ask them to begin cleaning up. The patient stands up and yells “I am sick of you always telling me what to do and having to follow these stupid rules! I just want to leave!”

1. “Well I am tired of telling you to clean up after yourself!”

2. “I hear that you are tired of being told what to do. What if we cleaned up your coloring sheet together?”

3. “What can I do to help you follow the rules better so that I don’t have to tell you what to do again?”



A patient was brought into your E.D. Once parents leave, they ask to call mom. After ending the phone call the patient begins escalating and says, “I hate my mom for bringing me here. I don’t need to be here! She’s stupid and just doesn’t get it!”

1. “Being here can be tough. I can see that you are frustrated by all of this.”

2. “At least you have a mom that clearly cares about you and just wants you to get better.”

3. “You really shouldn’t talk about your mom that way. Maybe next time you talk, you can try explaining to her how you’re feeling.”

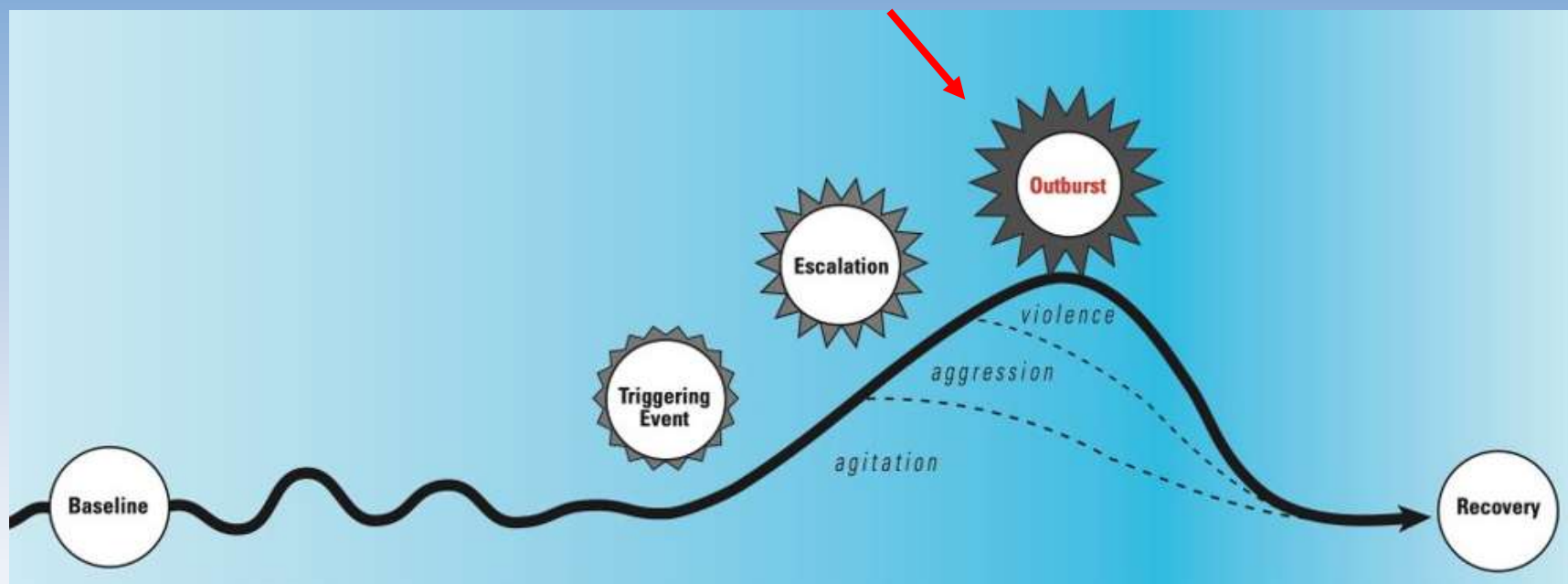


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Outburst!



Co-Regulating With A Child in Crisis

When intervening with a patient in crisis, quick responses and action is required for staff and patient safety.

- 3 Check Points:



What to THINK



What to DO



What to SAY



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What to THINK

- What, What, How, How.
- Positive Self Talk
- Remember:
 - Safety is always top priority!
 - Be proactive – your relationship matters!
 - Don't take it personal – *this child is in crisis, you just happen to be in the way.*



What to DO

- What are some low-level interventions you can do to help a child de-escalate?
- We want our patients to catch our calm
 - Take a deep breath
 - Utilize silence
 - If safe, step out
 - Body Language!
- Avoid Power Struggles!



Risk Versus Risk

Some considerations to make while assessing safety:

- Physical position/space
- Clothing
- Instinct
- Patient baseline
- Patient acuity



*Our patient needs help, we need to help them the best
we safely can!*





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Elements of Potentially Violent Situation



Recap: Keep Yourself SAFE

Situational
and **S**elf-
Awareness

- Be alert!
- Consider non-verbals, body language, environment, etc.

Anger =
Distance x2

- Always keep a safe distance from an escalated person

Find Help

- Grab a wing person; use available NCH resources

Empathize

- Remain calm; validate; consider the other's experience/perspective

Debriefing with the Child

- The child may not want to talk to you right away
- This may be a delicate and volatile time for the patient
- Both staff and child might not be immediately ready to discuss what happened
- How do we navigate these situations?





What do we do AFTER the crisis?

- Keep the child engaged in preferred activities
- Create a routine and/or schedule
- Create expectations for the child
 - How do expectations differ from rules?
- Make a referral?



Making a Referral



Inpatient Process – “Official” Communication

1. Call **614-938-0013**, option 3 (or check Ohio Bed Board) Daily to see if we are accepting OSH referrals – we will make sure this is up to date by 9am and updated at 4pm if there is a change
2. If no beds are available, then call next day (or can call after 4pm to see if this has changed)
3. If yes beds are available (YCSU or Inpatient), then we need the clinical information and the NCH referral form faxed to 614-722-9376 – We do not maintain a wait list for OSH referrals. If an incomplete referral is received, we will reach out to attempt to get the rest but if unsuccessful we will discard the information securely after 24 hours and a new referral will need to be sent in
4. All complete referrals received by 12:30 will be reviewed by the covering psychiatrist in the PCD

Making a Referral



Inpatient Process – “Official” Communication

5. A call will be made once disposition is determined by the psychiatrist, no matter what the disposition is
 - a. If accepted then on this call the next steps/items needed will be discussed
 - b. If declined, since no wait list is maintained, the referral will be closed out and any attempt to re-refer will have to have a new referral sent in as above (Example- Only YCSU beds are available and referral sent in but the patient is determined to not be a candidate for this YCSU, outpatient in a bed, unit. Tomorrow an inpatient bed is available so a new referral should be sent in if attempting to refer to/patient is more appropriate for, the inpatient bed)
6. Feel free to follow up or call daily regarding bed availability

Outreach Numbers



Partner and Provider Line: 614-938-PLAN (7526)

Outpatient Services: 614-355-8080

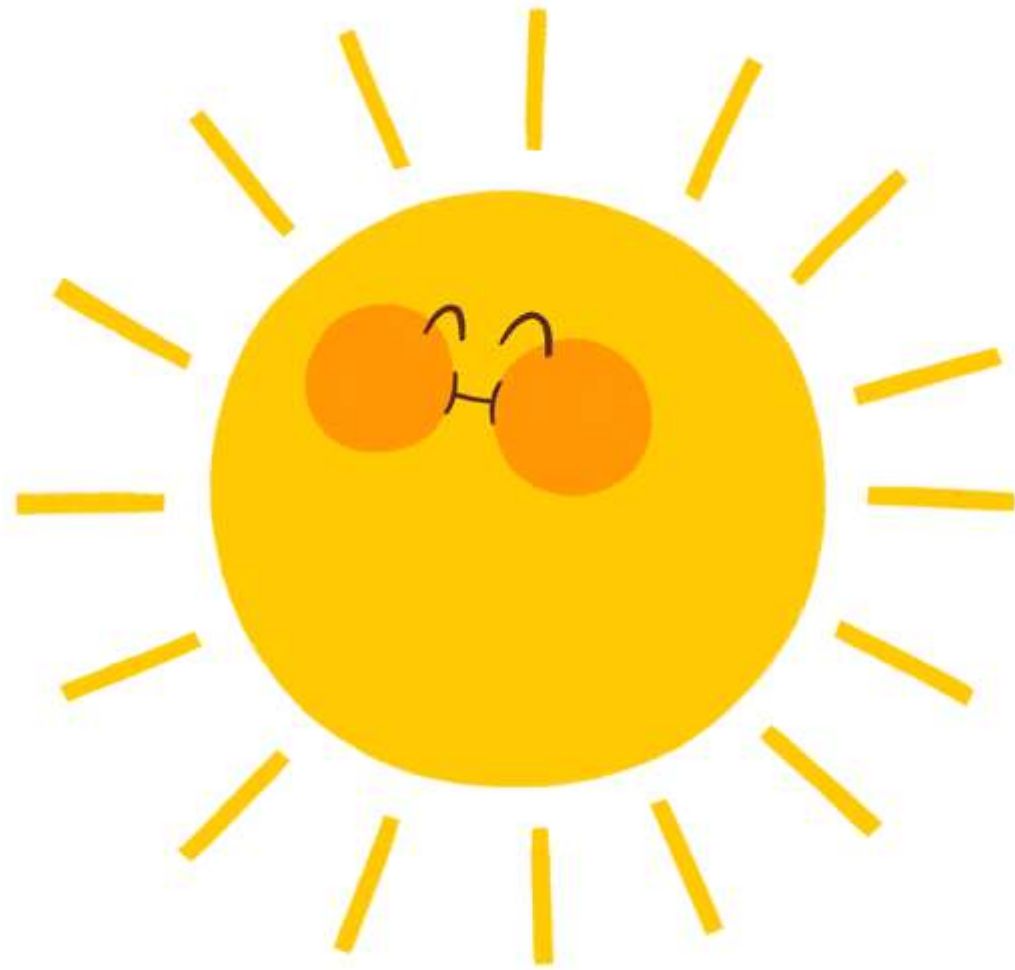
- *Linkage to Clinician, patient getting discharged needing services*

Statewide Youth MRSS Call Line: 1-888-418-MRSS (6777)

Hopewell Health Care Crisis Line: 740-593-3344

888-475-8484

Washington County Local Crisis Line: 740-373-8240



HAVE A NICE DAY! If





Q&A



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Final Evaluation



Poll Everywhere

[PollEV.com/shellybrackman358](https://pollev.com/shellybrackman358)

Thank You for Attending

