



# Approach and Management of In-Office Emergencies for the General Pediatrician

Karen Yeager, DO, MS, FAAP, ABPM-CI

January 28, 2025

# About Me

- Texas Native
- Pediatric Residency and Emergency Medicine Fellowship at Phoenix Children's
- MS in Clinical Informatics - University of Washington
- Professionally split time between emergency medicine and informatics with a focus on data analytics
- Wife, Mom, Dog mom, baking enthusiast



# At the end of this presentation, participants should be able to:

- Prioritize and implement stabilizing care using commonly available formulary and supplies while awaiting emergency medical services
  - Location
  - Team
  - Equipment
- Evaluate clinic vulnerabilities and discuss possible strategies to implement improvements
  - Identify and Label Resources
  - Have a plan
  - Practice! Practice! Practice!
- Describe Common In-Office emergencies encountered by the general pediatrician
  - Respiratory Failure
  - Neurologic Emergency/seizure
  - Anaphylaxis
  - Syncope
  - Sepsis



# Literature and Best Practices



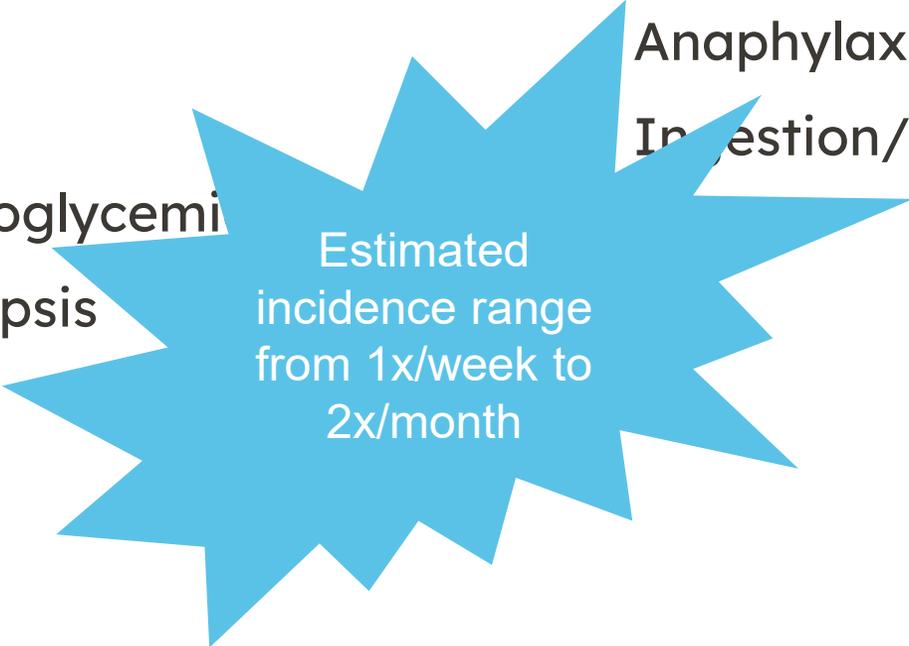
# What type of emergencies might you encounter?

- Common

- Respiratory distress
  - Asthma
  - Croup
  - Bronchiolitis
- Seizure
- Syncope
- Dehydration, +/- hypoglycemia
- Fever/Concern for Sepsis

- Rare

- DKA/new onset diabetic
- Cardiac emergency/arrest
- Suicidal patient (increasing)
- SNAT/abuse
- Anaphylaxis
- Ingestion/Overdose

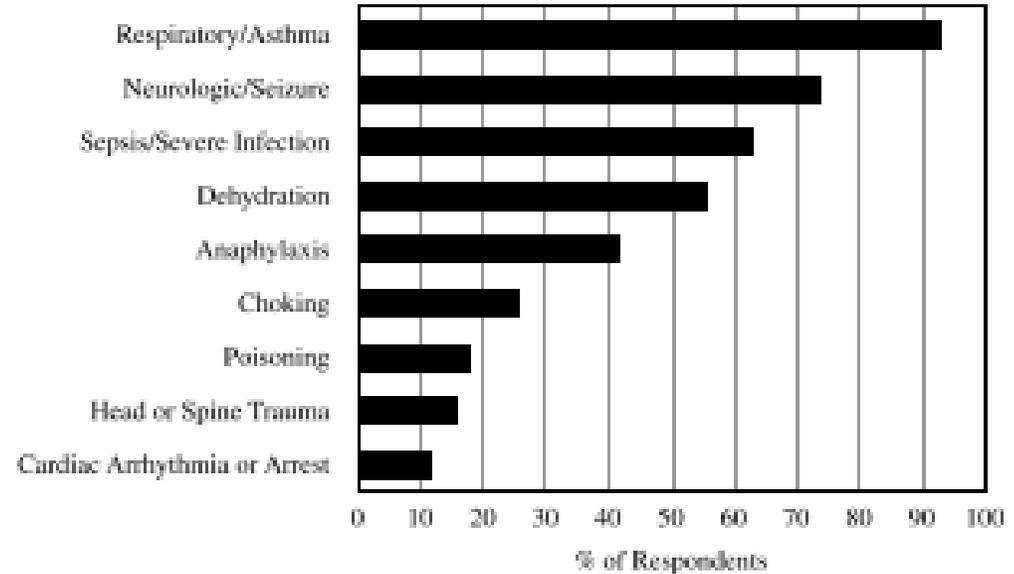


Estimated  
incidence range  
from 1x/week to  
2x/month



# Pendelton et al, 2015

- 75% referred a patient to the emergency department or hospital at least monthly. Current Pediatric Advanced Life Support (PALS) certification was maintained by 21%, and 42% had current Basic Life Support (BLS).

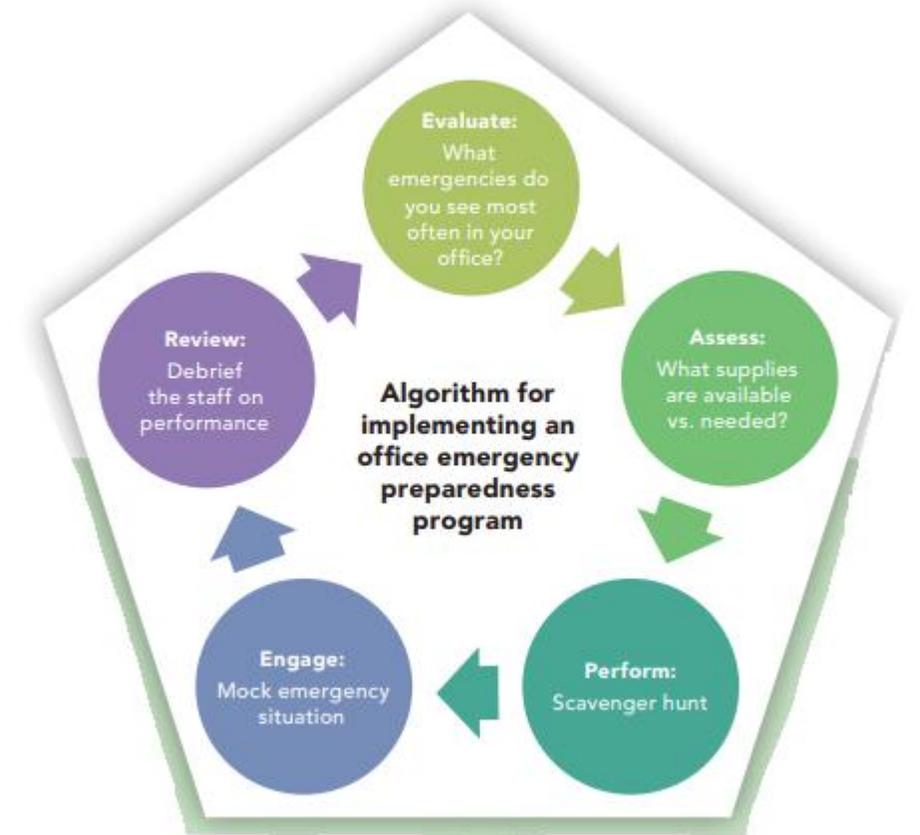


**FIGURE 1.** Types of office emergencies.



# Best Practices for Emergency Preparedness

- Office self assessment
- Emergency Response Plan
  - Equipment/medications
  - Optimize location, in office and for transport
  - Personnel preparedness
  - Debrief and post event review



# Office Self Assessment

- Type and frequency of most commonly encountered emergencies in the office setting will vary by
  - Clinic location, urban, rural
  - Patient demographics
  - Proximity and accessibility to emergency services, pediatric center
- AAP recommends a self assessment for individual office practices. Ex questions:

1. How often and what type of medical emergencies have occurred or might occur in your office?	2. What is the emergency preparedness of your staff at different times of the day as staff changes occur?
3. Have nonclinical staff been trained to recognize a potential or actual emergency and act accordingly even when clinical staff are not onsite?	4. Are there external resources that could be used during an office emergency?
5. Does your practice have a written protocol for response in an office emergency?	6. What emergency equipment and supplies (including oxygen, airway equipment, automated external defibrillator) do you have on site? Does your staff know where to access and how to use them?
7. What is your emergency dosage (tape-based/dosage book) and documentation strategy?	8. Do staff know how to access the emergency medical services (EMS) system and what is the EMS response time?
9. How far is your office from the nearest emergency department (ED)?	10. How do you and your staff maintain skills and readiness?



# Preparing your Clinic: Emergency Response Plan

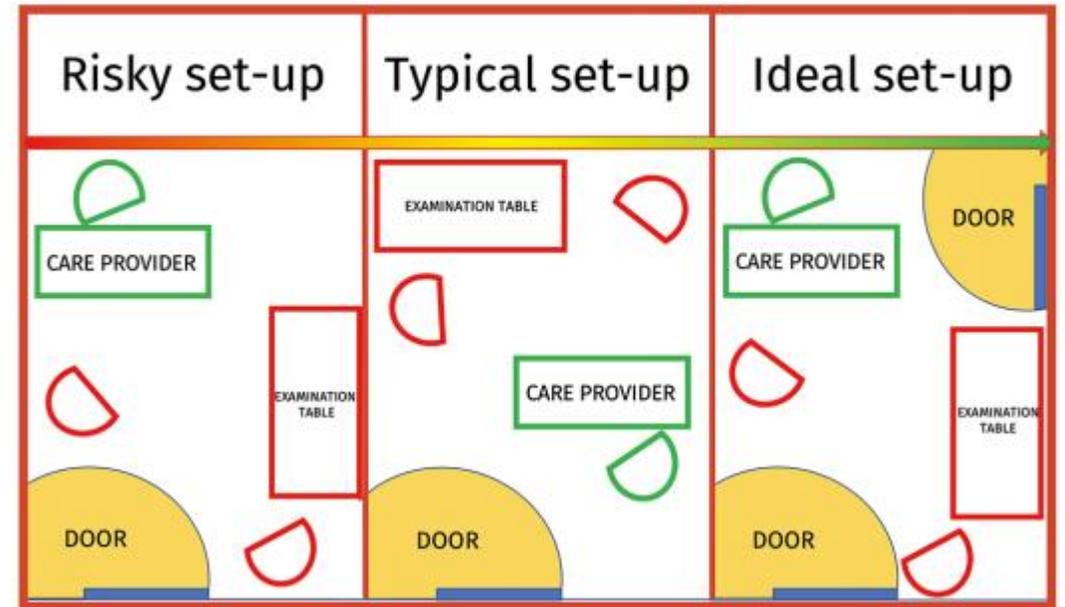




# Location Location Location

- Patient Room Set up
- In case of emergency, do you move the patient to a treatment area?
  - Optimize patient positioning and access for staff and EMS
  - Clear Signage for meds, equipment, visual reminders
- Clinic Factors
  - EMS accessibility
  - Designate staff to meet and direct EMS

Figure 1. Office set-up



# Personnel Preparedness

- Identify team members (ex: Provider, MA, nurse, front office staff)
  - Will this be affected by shift variations (e.g. time of day or day of week)
  - Plan process for notification and response
- Training
  - BLS, q2 years
  - Mock codes/simulations
  - Frequency of training
- Arranging Transfer
  - information of local EMS providers and EDs
  - BLS vs. ALS



# Transport: ALS vs. BLS

- Two-tiers of medical care in the prehospital setting:

- First Tier: Basic Life Support (BLS)

- Emergency Medical Responder (EMR) or First Responder (FR)
    - Emergency Medical Technician-Basic (EMT-B)



- Second Tier: Advanced Life Support (ALS)

- Advanced Emergency Medical Technicians (EMT-I, EMT-85, EMT-99)
    - Paramedics (EMT-P)



# Pearls for Optimizing 911 Call

- Who is making the call, what information is conveyed
  - Pt age/sex
  - Chief Complaint
  - VS
  - Interventions given
  - Pertinent PE findings
  - Any special instructions on getting to office or accessing patient. “My front office staff will meet you in the lobby and escort you up to 5<sup>th</sup> floor”



# Resources for simulations

- Sanseau E, Reid J, Stone K, Burns R, Uspal N. Pediatric Simulation Cases for Primary Care Providers: Asthma, Anaphylaxis, Seizure in the Office. *MedEdPORTAL*. 2018;14:10762. [https://doi.org/10.15766/mep\\_2374-8265.10762](https://doi.org/10.15766/mep_2374-8265.10762)
  - Has simulation cases with checklists, powerpoint slides, handouts, and debriefing scripts



- BLS course through American Heart Association
  - no longer sponsored by PC currently



# External Resources

- Transferring Patients to PC Emergency Department
  - Connected Care: 602-933-3627
  - Can also connect to a PEM fellow or attending for advice if needed
- [AAP Policy: Preparation for emergencies in the offices of pediatricians and pediatric primary care providers, 2007](#)
- [AZDHS EMS Triage and Treatment Protocols:](#)



# You survived the office emergency, now what?

- Debrief
  - Hot debrief vs. cold debrief
  - Support for staff
- Review and Improve
  - Did things happen the way you planned?
  - If not, why not?
  - Where are the gaps?
  - What to do next time
  - Does the plan need to be modified?
  - Disseminate findings to group, and **PRACTICE!**



# Debrief tools

## STOP for 5 Minutes

**Leader** - Thank the full team and ask 'Is everyone ok?' 'Does this case meet debrief criteria?'  
If **YES** then continue to Hot Debrief outline as below and first stating :

- We are now going to have a 5 minute team debrief
- The purpose of the debrief is to improve the quality of patient care, it is not a blaming session
- Your participation is welcomed but not compulsory
- All information discussed during this debrief is confidential

**S** Summarise the case

**T** Things that went well

**O** Opportunities to improve

**P** Points to action and responsibilities

## T.A.K.E S.T.O.C.K HOT DEBRIEF TOOL

Does this event meet the criteria for a hot debrief?  
Unexpected death  Paediatric Standby  Distressing event   
Staff request  Unexpected Outcome

- T**ake an instruction sheet
- A**sk "Is everyone OK?"
- K**now if anyone needs a break
- E**quipment issues?
- S**ummarise the event
- T**hings that went well
- O**pportunities to learn
- C**old debrief necessary?
- K**now who is present

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The TAKE STOCK tool is an adaptation of the STOP5 model created by Edinburgh EM and the Scottish Centre for Simulation and Clinical Human Factors  
<https://edinburghemergencymedicine.squarespace.com/blog/2018/11/17/stop-5-stop-for-5-minutes-our-bespoke-hot-debrief-model>



# Common Office Emergencies



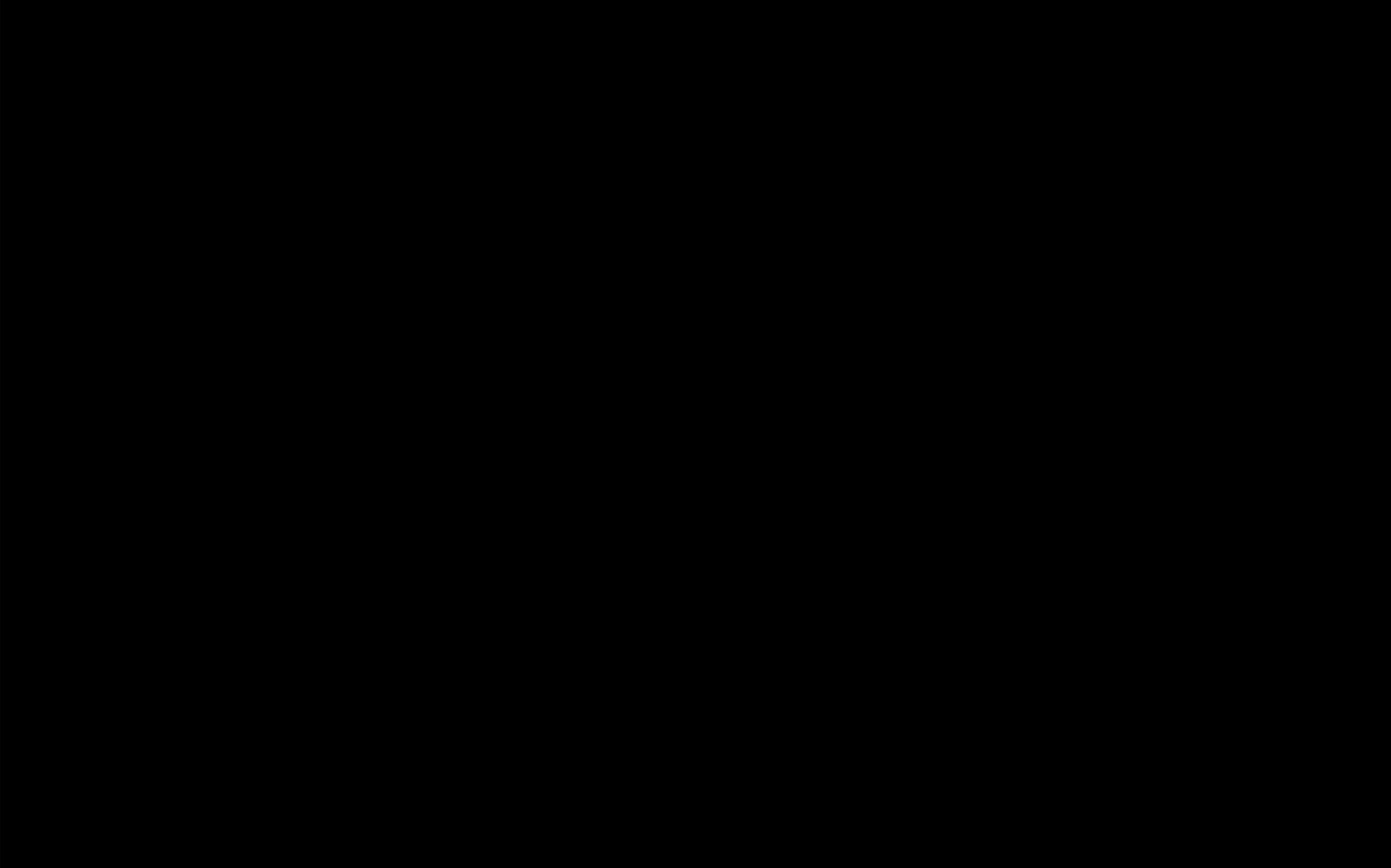
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# Case 1

- 2 mo M presents for their WCC. Parent note 2-3 days of progressive increased work of breathing and copious nasal/oral secretions. Now with poor feeding, 1 wet diaper in last 24 hours, increased fatigue.
  - VS: Temp: 37.6, RR 65, sats 86% on RA, HR 190, BP 90/50
  - Next slide is video of what he looks like







**2 m/o M presents for their WCC. Parent notes 2-3 days of progressive increased work of breathing and copious nasal/oral secretions. Now with poor feeding, 1 wet diaper in last 24 hours, increased fatigue. Your first course of action is:**

# Respiratory Failure

- Clinical signs:
  - Tachypnea
  - accessory muscle use (e.g. retractions, nasal flaring, head bobbing)
  - Stridor at rest
  - Hypoxia/central cyanosis
  - Lethargy
- Examples: Bronchiolitis, Croup with stridor at rest, Asthma with acute exacerbation
- Immediate Action Plan
  - Airway
  - Arrange Transfer
  - Provide life saving treatments as able



# Respiratory Failure Office Management Pearls

- You can do a LOT with resources available in clinic
  - Positioning of the patient (out of carseat, in bed with shoulder roll, or sitting up well in parents lap, head tilt chin lift)
  - Suctioning – this is clearing mechanical obstruction
  - Meds: Albuterol, racemic epi, dexamethasone all on formulary for PCP
  - Supplemental oxygen through nonrebreather or NC
- Process
  - Do you keep patient in room? Move to a treatment room?
  - Knowing where your equipment is: Oxygen, Suction, Meds
- Disposition
  - Transfer any hypoxic patient or receiving active treatment by Ambulance
  - Is there a role for UC disposition?



**MR. SOPA**

- **M**- Adjust **M**ask in the face
- **R**- Reposition the head to open airway
  - Re-attempt to ventilate...if not effective then
- **S**- Suction mouth then nose
- **O**- Open mouth and lift jaw forward
  - Re-attempt to ventilate...if not effective then
- **P**- Gradually increase **P**ressure every few breaths until visible chest rise is noted
  - **Max Pip 40cmH<sub>2</sub>O**
  - If still not effective then...
- **A**- Artificial **A**irway (ETT or LMA)



## Case 2

- 3 year old M patient presents to the clinic for 3 days fever, vomiting, and URI. Patient has a past medical history of epilepsy. They are compliant with home medications including Keppra, but mother notes he has had frequent vomiting after meds and meals. While obtaining VS, MA calls you over to say patient is having a seizure.
- VS: HR 156, Temp: 38.5, Sats: 93% RR: unable to obtain BP: not done
- Patient with active generalized tonic clonic movements, foaming at the mouth and has perioral cyanosis
- What is your next best step in management?
  - A. Call 911 and prepare for transfer to the ED.
  - B. Ask mother to administer home rescue clonazepam wafer
  - C. Give supplemental oxygen via nonrebreather
  - D. Begin CPR





# What is your next best step in management?

# Seizure Office Management Pearls

- EMS has IM and IV benzodiazepines, so calling emergency services is high priority
- ABCs still can make a difference – positioning, supplemental oxygen
- Ensure patient safety
  - If placing on a bed, keep from falling off, or hitting head
  - Suction prn for airway clearance/prevent aspiration
- Recommend parents bring home meds to office visits
  - Good for med review, also can have rescue med administered by parent



# Disposition

## Seizure disposition

Admit from ER to inpatient ward if unstable patient (cardiorespiratory or neurologic status not at baseline), concern for underlying infection, disabling parental anxiety, lack of safety plan home

If simple febrile seizure, provide reassurance and return precautions

If complex, arrange for neurology follow-up

Arrange for PCP follow-up



# Case 3

- Jimmy is an 18-month-old boy. Today he was being seen in your office for a painful left ear. He recently completed treatment for an ear infection with Augmentin and today was discovered to have a recurrence. Jimmy's mother has trouble giving him oral medications so it was decided to treat him with IM ceftriaxone. About 5 minutes after receiving the antibiotic, the nurse calls you into the room because Jimmy isn't looking so well. He appears to be in moderate respiratory distress.
  - VS: RR 50. Sats 91% on RA. HR 140, temp 37.5. BP90/50. Wt. 12 kg. He has diffuse wheezing on exam with urticarial rash
- **Next best step in management:**
  - **A. Call 911**
  - **B. Administer 0.15 mg Epipen in thigh via autoinjector**
  - **C. Administer 0.3 mg Epipen in thigh via autoinjector**
  - **D. Give albuterol and reassess.**





# What is the next best step in management:

# Clinical criteria

## Clinical Criteria for Anaphylaxis

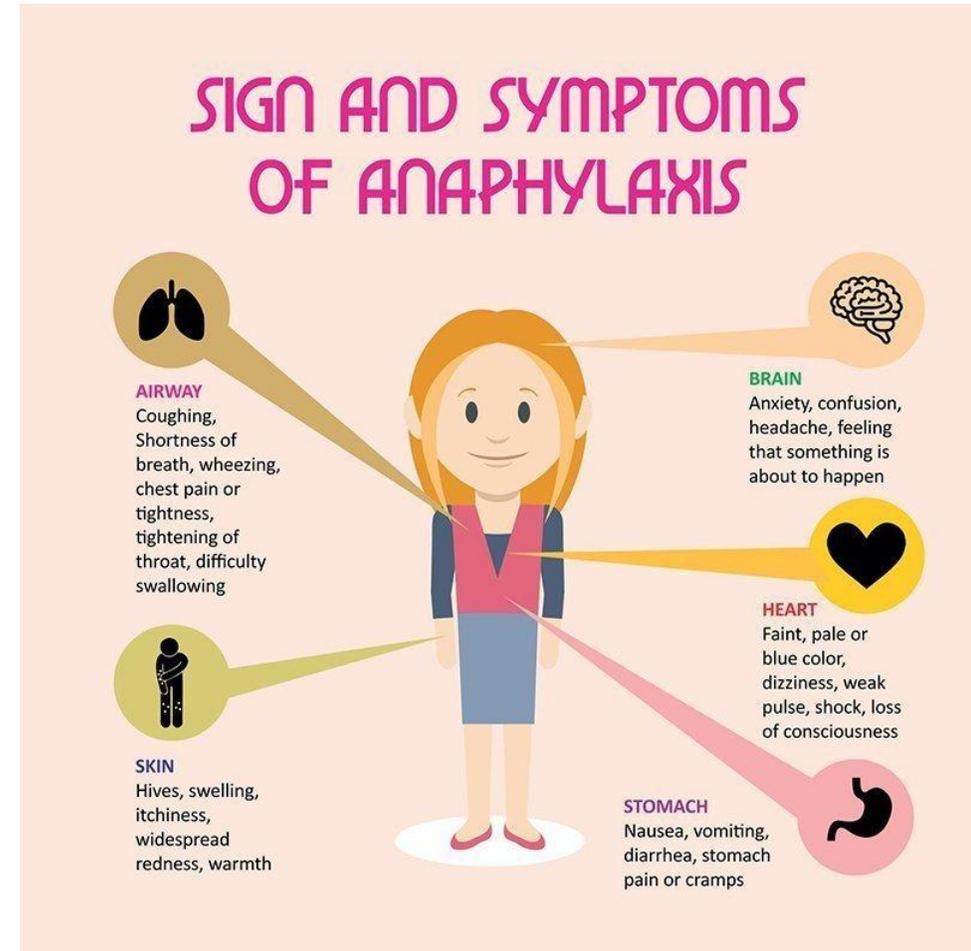
1. Acute onset (minutes - hours) **and** involvement of the skin and/or mucosal tissue (hives/urticaria, pruritus, flushing, swollen lips, tongue, or uvula) **plus**:
  - Respiratory compromise (dyspnea, wheeze, stridor)  
*OR*
  - Reduced blood pressure *OR*
  - Associated symptoms of organ dysfunction (hypotonia, syncope, incontinence)
2. Two or more occurring rapidly after exposure to a likely allergen:
  - Involvement of skin and/or mucosal tissue
  - Respiratory compromise
  - Reduced blood pressure or associated symptoms
  - Persistent GI symptoms (cramps, vomiting)
3. Anaphylaxis should be suspected when patients are exposed to a known allergen and develop hypotension

Citation: Sampson HA, Munoz-Furlong A, Campbell RL, et al: Second symposium on the definition of anaphylaxis: a summary report- Second National Institute of Allergy and Infectious Diseases/Food Allergy and Anaphylaxis Network Symposium. J Allergy Clin Immunol 117: 391, 2006.



# Anaphylaxis Office Management Pearls

- First line treatment is Epinephrine IM
  - Lower incidence of medication error and adverse side effects when given via autoinjector in the thigh.
  - Wt. cut off: 30kg – less than, give 0.15 mg.
- Adjuncts (do NOT replace Epi)
  - Albuterol
  - Dexamethasone
  - Benadryl
- Monitor airway and BP closely while awaiting emergency services
  - Newer literature is favoring a shorter obs, but we are happy to take these patients.



## Case 4

- 9 year old male with 4 days of fever, cough, sore throat. Mother initially thought patient had viral illness, but today, increased lethargy, poor PO intake, decreased UOP, and acting confused.
  - VS: Temp 39.5, HR 160, RR 40, BP 75/40, sats 95% on RA.
  - Pt ill appearing, brisk, bounding pulses, flash cap refill.
- What is your next best step in management.
  - A. Give Tylenol and test for flu and strep
  - B. Activate emergency action plan, including calling emergency services
  - C. Obtain blood culture and give IV Ceftriaxone
  - D. reassure mother that patient has a viral illness.





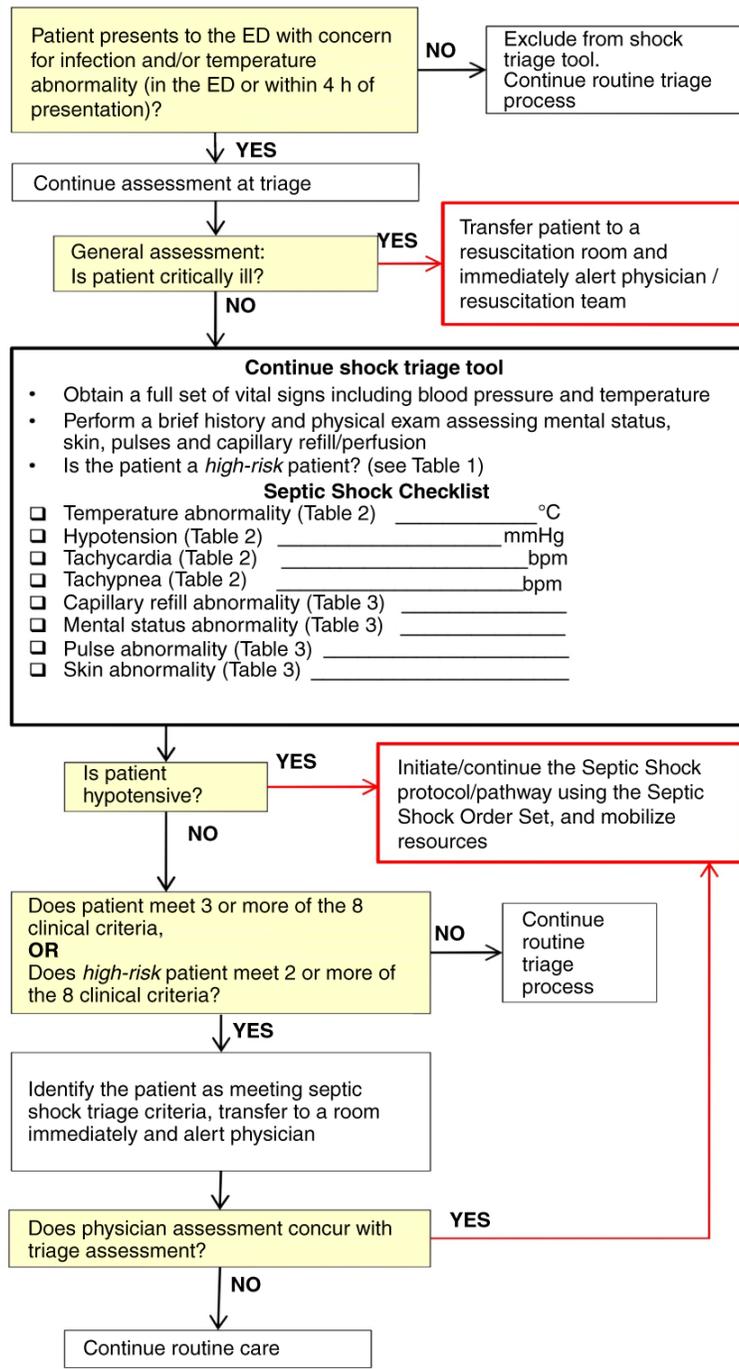
# What is your next best step in management?

# Sepsis Office Management Pearls

- Only factors shown to reduce mortality in sepsis is timely antibiotics and fluid resuscitation
- Great to administer broad spectrum antibiotics after obtaining Blood cultures
  - Do NOT delay transfer to higher level of care for this however
- Sepsis can be difficult to differentiate from the well child who is acutely febrile, but maintaining a low index of suspicion is key.



# PEDIATRIC SEPTIC SHOCK COLLABORATIVE TRIAGE TRIGGER TOOL



**Table 1. High risk conditions**

- Malignancy
- Asplenia (including SCD)
- Bone marrow transplant
- Central or indwelling line/catheter
- Solid organ transplant
- Severe MR/CP
- Immunodeficiency, immunocompromise or immunosuppression

**Table 2. Vital signs (PALS)**

Age	Heart rate	Resp rate	Systolic BP	Temp (°C)
0 d – 1 m	> 205	> 60	< 60	< 36 or >38
≥ 1 m – 3 m	> 205	> 60	< 70	< 36 or >38
≥ 3 m – 1 r	> 190	> 60	< 70	< 36 or >38.5
≥ 1 y – 2 y	> 190	> 40	< 70 + (age in yr × 2)	< 36 or >38.5
≥ 2 y – 4 y	> 140	> 40	< 70 + (age in yr × 2)	< 36 or >38.5
≥ 4 y – 6 y	> 140	> 34	< 70 + (age in yr × 2)	< 36 or >38.5
≥ 6 y – 10 y	> 140	> 30	< 70 + (age in yr × 2)	< 36 or >38.5
≥ 10 y – 13 y	> 100	> 30	< 90	< 36 or >38.5
> 13 y	> 100	> 16	< 90	< 36 or >38.5

**Table 3. Exam abnormalities**

	Cold shock	Warm shock	Non-specific
<b>Pulses (central vs. peripheral)</b>	Decreased or weak	Bounding	
<b>Capillary refill (central vs. peripheral)</b>	≥ 3 s	Flash (< 1 s)	
<b>Skin</b>	Mottled, cool	Flushed, ruddy, erythroderma (other than face)	Petechiae below the nipple, any purpura
<b>Mental status</b>			Decreased, irritability, confusion, inappropriate crying or drowsiness, poor interaction with parents, lethargy, diminished arousability, obtunded



# Take Aways

- Receiving ED is NOT expecting you to definitively care for emergencies in the office
- Importance of optimizing your space and accessibility to resources
- Process implementation and regular practice will prevent stress and mistakes
- Connected Care - We are here and happy to help!
  - Connected Care: 602-933-3627



# References

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Questions?