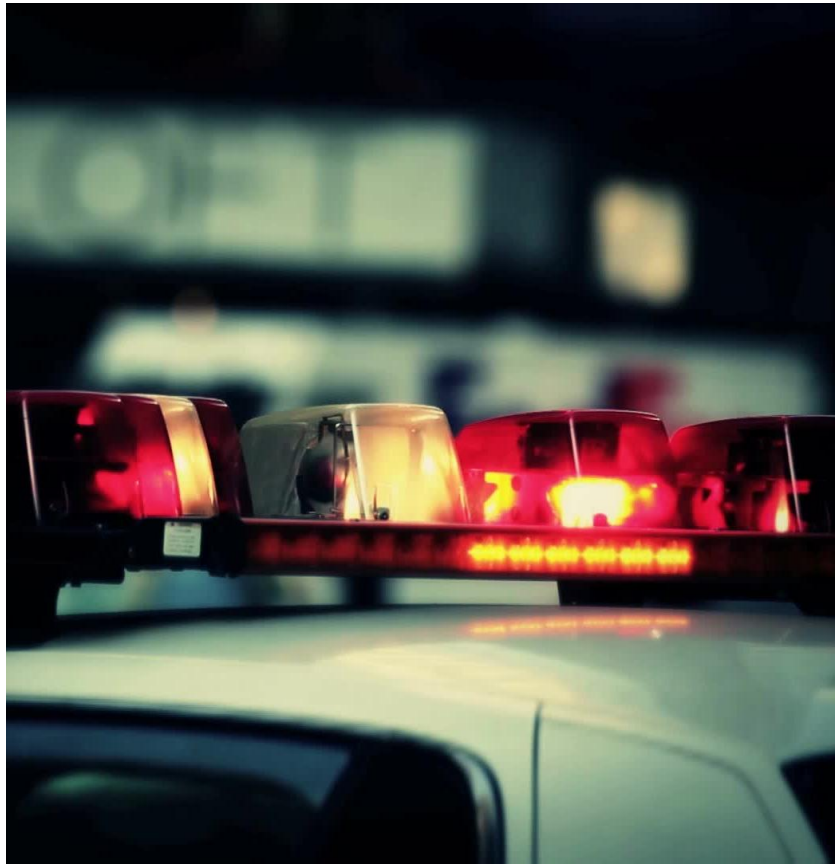
Case Based Learning Series

"Student Led Adult Learning"

Presenting Complaint

A 3-year-old male child was brought to our pediatric ED with

- fever x 1/7
- generalized jerky movements x 1/7



Primary Survey

- **Airway:** Secretions
- **Breathing:**RR=45 b/min,SPO2=88-90% on R/A
- **Circulation:** CRT<3s, warm peripheries, dry mucous membranes, PR = 140bpm, good volume and regular. BP;100/65 mmHg.
- **Disability: AVPU**=U. Had jerky body movements, ***PEARL,***RBS =4.6 mmol/L. No obvious focal neurological deficits.
- **Exposure :** T= 38.2°c, No rashes or obvious injuries noted no injuries.

Poll 1

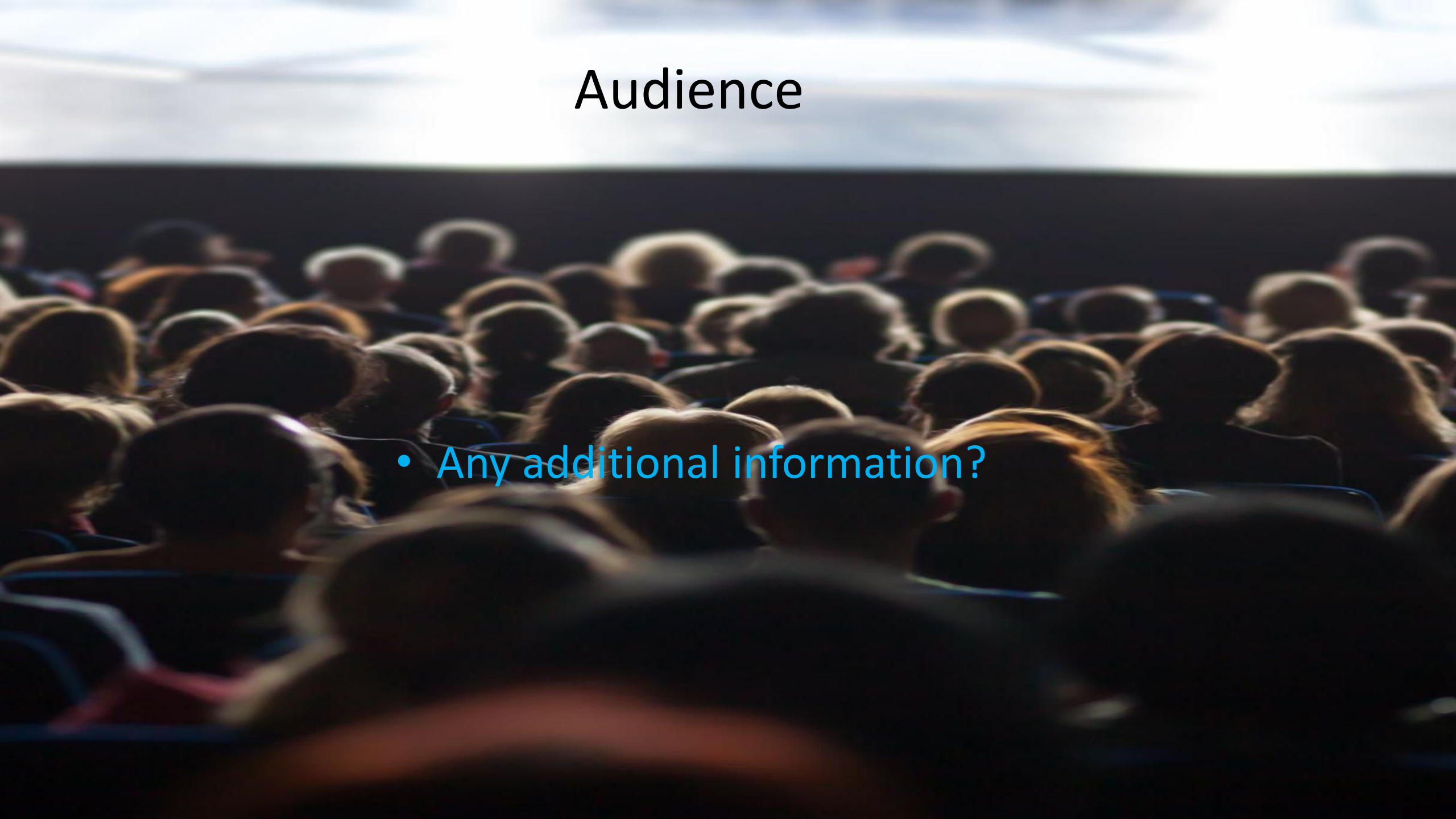
From the history and Primary Survey, what are the imminent emergencies?

Parameter	Emergent signs	Immediate intervention done
Airway	Threatened airway	Suctioning Head tilt and chin lift
Breathing	Tachypnea Hypoxia	Oxygen therapy via simple face mask at 5l/min
Circulation	Some dehydration	I.V access I.V fluids Blood samples for work up
Disability	Altered mental state Jerky body movements	Patient positioning (Left lateral) Anti-convulsants I.V D10
Exposure	Hyperthermia	Antipyretics

SAMPLE History

Signs & Symptoms	**3y/m brought in with 1/7 hx of high grade fevers associated with jerky body movements that started in the left and leg then progressed to the entire body.** **Equally had 4/7 hx of cough and developed DIB**
Allergies	No known allergies
Medications	unknown cough syrup at home.
Past Medical History (PMH)	Index admission, no known chronic illness
Last Meal	18 hours prior to admission
Events Leading to Presentation	Symptoms were of sudden onset

Audience



- Any additional information?

Expert

What are your initial thoughts?

What is you preparation and approach to this patient?

Expert opinion?

Any additional thoughts at this point?

Any additional info you would want to get?

ED Intervention

Airway:	**Suctioned secretions** **Placed the child in lateral position(recovery position)**
Breathing:	Gave oxygen 5L /minute via a simple face mask. continue monitoring SPO2.
Circulation:	• Secured iv access • withdrew blood samples for investigations(MRDT,CBC,) • maintenance fluids 48ml/hr. of 0.9%NS and 5% dextrose.in a ratio of 1:1 .
Disability:	• Gave rectal diazepam but the child responded after administering phenobarbitone loading dose of 20mg/kg and seizures stopped • Administered 5ml/kg of D10 bolus at a slow rate. After 1 hr. and 30 minutes of intervention, the child was responding to voice.AVPU=V
Exposure:	I.V Paracetamol Exposed the child for cooling Urine output was estimated to be >0.5ml/hr..

Secondary survey

- **Head and Neck:** Soft, no jugular distension or hepatojugular reflex and no lymphadenopathy.
- **Chest:**prechordium was mildly hyperactive, mild intercostal and subcostal retractions.bilateral fine crackles on auscultation.
- **Abdomen:**normal fullness,not distended,moving with respiration,soft and non tender on palpation and no organomegally
- **Extremities: warm** extremities, no cyanosis, no pallor, capillary refill time <3 sec,no injuries or wounds.
- **Neurological: post** ictal sleep and drowsiness which took about 30 minutes but gradually improved, no signs of meningism (neck stiffness negative)
- **Skin:**warm,flushed,no petechiae or purpura.
- **Nutritional status: good** nutritional status ,no signs of malnutrition.

Poll 2

What are your Differential diagnoses for this patient?

Differential diagnoses

Differential diagnosis	Rationale
Complex febrile seizures in status epilepticus	Fevers Jerky body movements 3 episodes in 24 hours each lasting about 8 minutes LOC in post ictal phase
Pneumonia	Fevers Cough DIB Hypoxia
Malaria	Fevers Convulsions
Meningitis/Encephalitis	Fevers Convulsions
Acute G/E with some dehydration	

Labs and imaging

Labs

1. MRDT
2. CBC
3. CSF ANALYSIS

Imaging

1. Chest x-ray
2. CT-scan;not done
3. EEG; not done.

- MRDT;negative
- CBC;

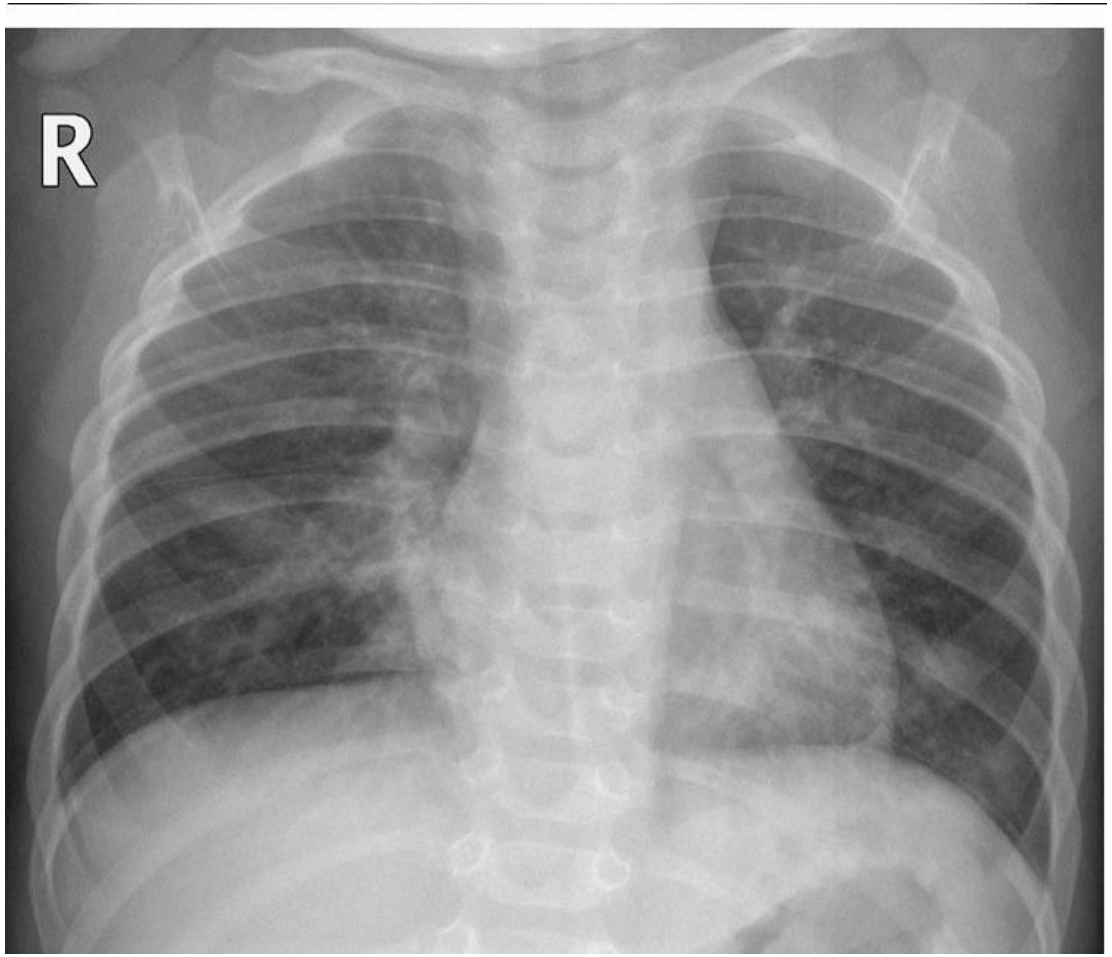
WBC(4.00-11.00)	9.5
NEU#(1.50-7.00)	2.0
LYM#(1.00-3.70)	(H)5.0
NEU%(40.0-75.0)	50.0
LYM%(21.0-40.0)	(H)60.0
HB(12.0-18.0)	13.5
PLT(150-400)	157

CSF ANALYSIS;

Cells/mm3[0-5]	6,slightly increased
Glucose (mg/dL)[45-85]	50
Protein (mg/dL)[15-45]	49
Opening pressure (mm H2O)[70-180]	85

Image

- Chest X-ray



Expert opinion

What are your differentials at this point

What is your management plan?

Working diagnoses

I. **complex febrile status epilepticus** in view of ;

- Age 3 years and male gender
- Family history of seizure disorder
- High grade fever of 38.2°c
- focal onset
- Recurrence within 24 hours ;3 episodes
- Convulsion lasting 8-10 minutes.
- No full return of consciousness between the 2nd and 3rd episode.

II. **severe viral pneumonia** in view of;

- Fever
- Flue like illness with dry cough
- Difficulty in breathing
- Bilateral fine crackles
- Lympocytosis
- Perihillar infiltrates on chest x ray.

Poll 3

What are the best emergency care plans for this patient?

management plan;

- **<u>Most of our management goals had already been achieved; i.e</u>**

i. Initial stabilization(ABCDE)

ii. Acute seizure management

iii. Investigations

iv. Specific therapy.

❖ viral pneumonia was managed supportively with oxygen,antipyretics,hydration and nutritional support.

Hospital course

- **Day 1**. ED intervention

Day 2-3;

- No further seizures observed,
- oxygen gradually weaned off as respiratory status improved(spo2 maintained at >95% on room air).
- the child was afebrile by day 3,good oral intake noted and iv fluids stopped.
- neurological exam remained normal after post ictal recovery.

Day 4;

- the child had improved clinically ,no fever, no respiratory distress,neuorological exam normal.
- the grand mother and the uncle to the child were counseled on seizure first aid and danger signs. The child was discharged with antipyretics, advised on hydration and scheduled pediatric OPD follow up in 1-2 weeks.

Take home

Febrile seizures;

are generalized seizures, typically in children between the ages of 6 months and 5 years.

accepted criteria.

- A convulsion associated with an elevated temperature more than 38 degrees celicius
- A child younger than 6 years of age
- No central nervous system infection or inflammation
- No acute systemic metabolic abnormality that may produce convulsions
- No history of previous afebrile seizures

Classification

Simple/typical	Complex/atypical
Most common type(80-85%)	Less common(15%)
Occurs less than 15 minutes	Duration greater than 15 minutes
Doesn’t re occur within 24 hours	More than 1 episode in 24 hrs.
No loss of consciousness	Loss of consciousness and strong family history.

Causes of Febrile Seizures

INFECTION

Febrile seizures may be associated with fever brought by bacterial or viral infections.

- Human herpesvirus-6 (also known as Roseola)
- Influenza

IMMUNIZATION

Specific vaccine preparations and the age at which they are administered have increased the risk of febrile seizures. However, **the fever, not the vaccine, causes a seizure.**

- Tetanus-diphtheria-pertusis (Tdap) vaccine
- Measles-mumps-rubella (MMR) vaccine

RISK FACTORS

Multiple risk factors likely cause febrile seizures.

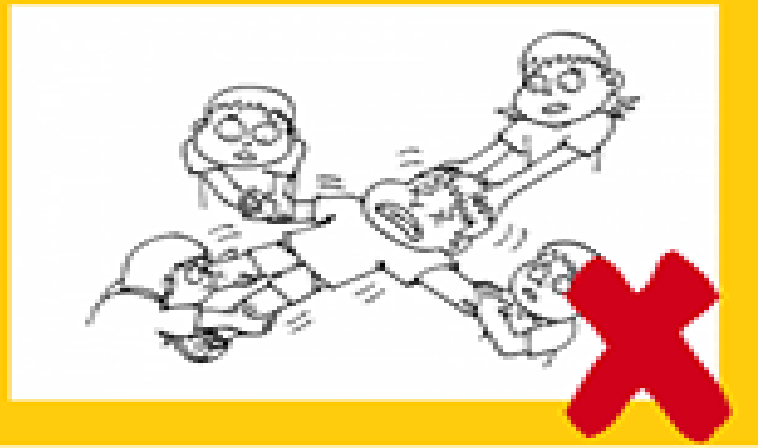
- Exposure to smoke and stress in utero
- Being in NICU for more than 28 days
- Neurodevelopmental delay
- First-degree relatives with febrile seizures
- Genetic disorders

How to recognize a seizure.

- unexplained falling;sudden fall
- body stiffening
- jerking or twitching
- staring spells and confusion
- loss of awareness
- loss of control;especially of bladder and bowel
- unusual sensations

If your child has a seizure...

WHAT TO DO



1. Keep Calm!
2. Ensure the area around your child is clear of dangerous, sharp objects.
3. Loosen any tight clothing.
4. Turn your child on his/her side, so that saliva/vomit can drain out of the mouth.
5. You may tilt the head slightly upward to keep the airway open.
6. Stay with your child after the seizure, until they are awake.
7. Take your child to a doctor after the seizure to check the cause of fever, especially if your child is less than 18 months old or this is the first seizure.

DO NOT:

1. Put anything in your child's mouth.
2. Try to restrain their movements.
3. Try to feed medicines/water by mouth during the seizure.

CALL AMBULANCE IF:

1. The seizure lasts more than 5 minutes
2. Your child remains drowsy for more than 30 minutes after the seizure is over
3. More than 1 seizure occurs within a day
4. Appears irritable or confused

investigations

- BS,CBC,electrolytes
- blood culture
- lumbar puncture
- EEG
- Brain CT/MRI

management

- Emergency treatment
  - ❖ ABC management
  - ❖ Give oxygen
  - ❖ Give dextrose 10%
- Treatment of active seizure- IV Benzodiazepine(rectal diazepam)
- Fever control(makes child comfortable)
- Definitive treatment of the cause of seizure
- Treat the complications and follow up care

prophylaxis

- Any risk for Febrile Seizures or recurrent Febrile Seizures – intermittent prophylaxis: Oral Benzodiazepine, 3-5 days(Diazepam/ Clobazam)- till 5 years of age

complications of febrile seizures.

- febrile status epilepticus
- epilepsy
- fractures if there were falls
- burns.
- Brain injury

Expert

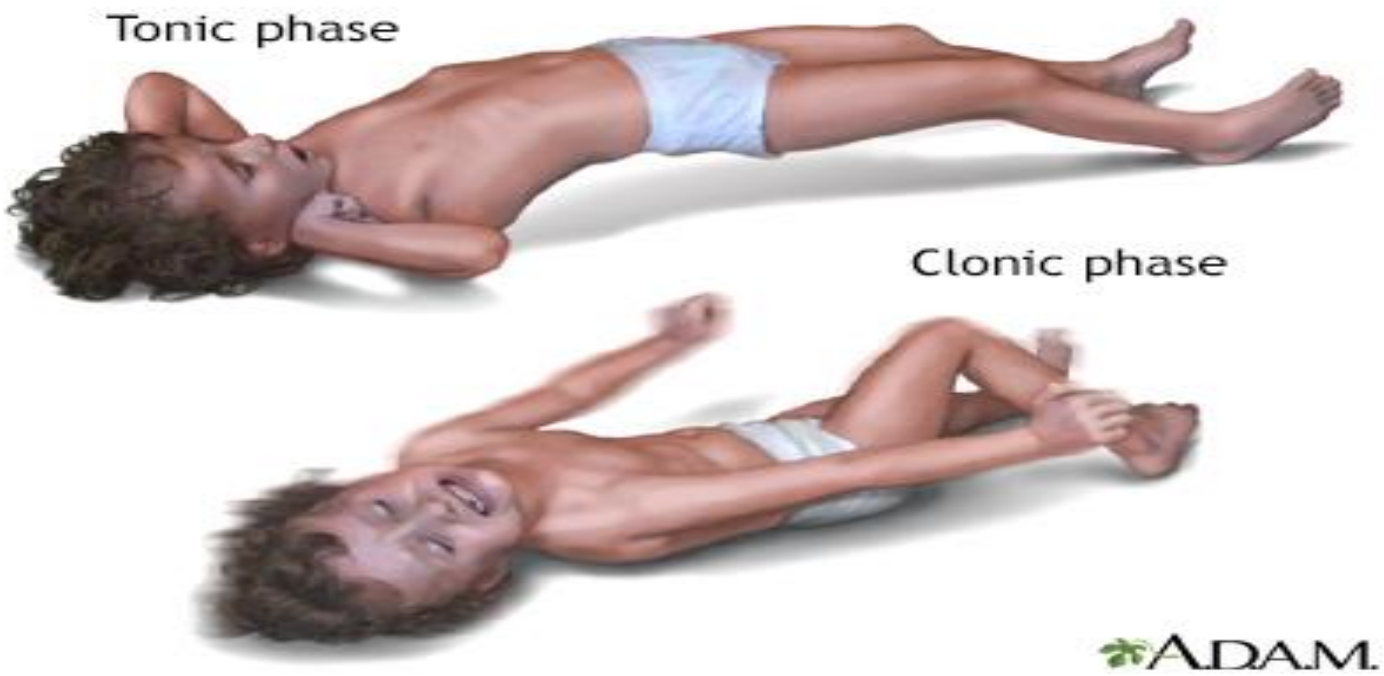
Pearls and pitfalls

EDUCATION:

- Highlights
- QR code with resources

THANKS FOR LISTENING AND PARTICIPATING.

ANY QUESTIONS?



CPC -Case-Based Discussion Wall of Fame

TOPIC	PRESENTER	EXPERT	MODERATOR	MENTOR	DIAGNOSIS
Altered Mental Status	Dr. Jimmy Atyera	Dr. Kenneth Bagonza	Dr. Daniel Olinga		Atrial Fibrillation
I Can't Breathe	Regan Kakande MBChB V	Dr. Doreen Okong	Dr. Anna Kaguna	Dr. Daniel Olinga	Tension Pneumothorax
My Neck is Stuck	Dr. Emmanuel Mbaruk	Dr. Joseph Kalanzi	Dr. Anna Kaguna	Dr. Tracy Walczynski	Tetanus
It keeps dripping	Hennrietta Lunkuse MBChB V	Dr. Ambrose Okello	Dr. Anna Kaguna	Dr. Robert Wangoda	Rectal Polyp
I'm yellowing and can't pee	Doreen Ndagire Sanga MBChB IV	Dr. Linda Nalugya	Dr. Anna Kaguna	Dr. Deo Edemaga	Hepatorenal syndrome
I fell off a boda-boda	Tithi Tripathi, MBCHB IV Jane Nalunkuuma EMT II	Dr. Prisca Kizito	Dr. Danioel Olinga	Dr. Doreen Okong Andrew Okiror	Lung Re-expansion syndrome
Breathless, Yet Breathing Deep	Rebecca Asiimire Winfred Kingfred Wangechi EMT II	Pius Opejo	Dr. Anna Kaguuna		Diabetic Ketoaciodosis
My Body is paining	Maria N. Namujja, MBChB V Melvin Bongozana EMT II	Dr. Joseph Emuron	Dr. Anna Kaguna	Dr. Baturaki Amon	Acute Kidney Injury
I feel them crawling	Patience Kwagala MBChB V Evy Obare, BSc. Paramedical	Dr. Gumisiriza Nolbert	Dr. Jimmy Atyera		Alcohol Withdrawal Syndrome
Baby has a fever	Nyesigamukama Hamson MBChB V Banura Deborah Kirabo	Dr. Jaimini Popet	Dr. Daniel Olinga	Dr. Kaina Vincent	Complex febrile convulsions
CPC Secretariat: Emmanuel Okumu , Andrew Twineamatsiko, Bonaventure Ahaisibwe , Jimmy Atyera, Daniel Olinga, Anna Kaguna					