



PEDIATRIC POTPOURRI: AN OLD CLASSIC AND NEW TRENDS

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I have no financial interests or relationships to disclose.



THANK YOU FOR YOUR SUGGESTIONS!



- Febrile seizures
- E-bike injuries
- Near drowning
- Accidental THC ingestions
- Respiratory illnesses 2022



“SEIZURE” IN A TODDLER



“When I laid him down in his crib, he kind of went rigid and started shaking and crying.”



ACCIDENTAL CANNABIS INGESTION IN A TODDLER



Candy Companies Are Fighting Back Against Cannabis-Infused Knockoffs

Wrigley is the latest brand to file lawsuits attempting to end the sale of edibles like THC-laced Skittles and Starbursts.

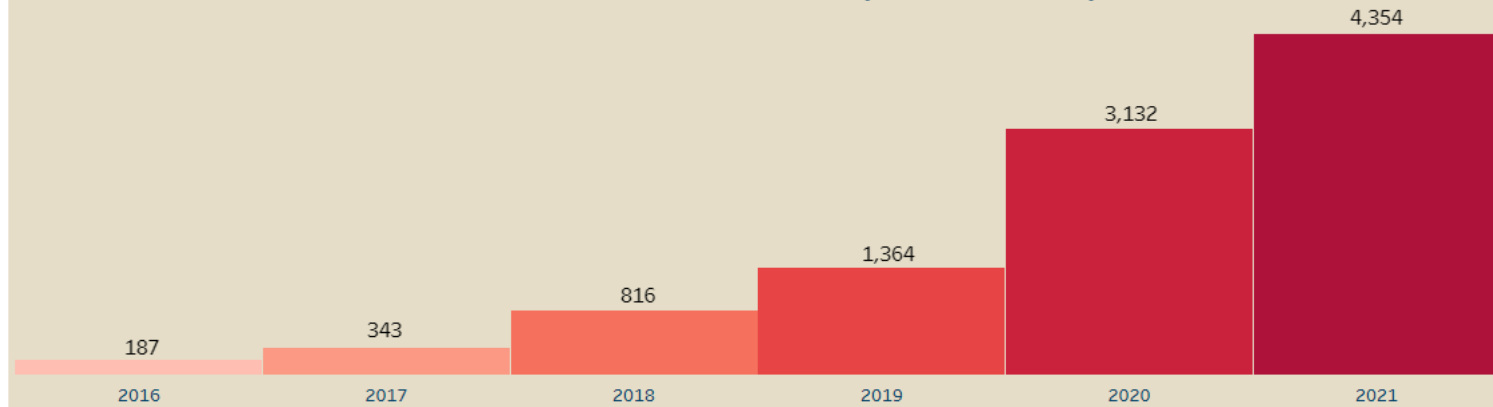
[Candy Companies Are Fighting Back Against Cannabis-Infused Knockoffs \(yahoo.com\)](https://www.yahoo.com/news/candy-companies-are-fighting-back-against-cannabis-infused-knockoffs-120000111.html)



ACCIDENTAL CANNABIS INGESTION IN A TODDLER

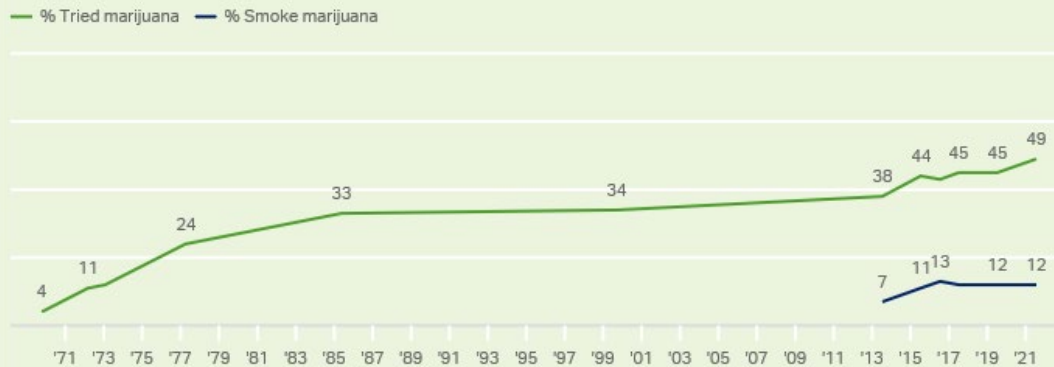


Recent Category Profile CANNABIS EDIBLES (Ages 0-12)



Trend in Marijuana Usage Among U.S. Adults, 1969-2021

Keeping in mind that all of your answers in this survey are confidential, have you, yourself ever happened to try marijuana? // Keeping in mind that all of your answers in this survey are confidential, do you, yourself, smoke marijuana?



[American Association of Poison Control Centers \(aapcc.org\)](https://www.aapcc.org)



[Nearly Half of U.S. Adults Have Tried Marijuana \(gallup.com\)](https://www.gallup.com)

Questions asked of separate randomly selected half samples since 2013

GALLUP



Presenting signs and symptoms

Limited Exposure

- Sleepiness
- Euphoria
- Irritability

- Tachycardia
- Hypertension
- Nausea/Vomiting
- Nystagmus
- Ataxia
- Slurred speech
- Dilated pupils

Large Overdoses

- Coma with apnea or depressed respirations
- Seizures

114 cases in a Systematic Review

- Mean age 25.2 months
- Mean length of stay was 27.1 hours
- 18% admitted to ICU
- 6% intubated

NEAR DROWNING



Toddler in floaties found in the jacuzzi

Teenager in a pool

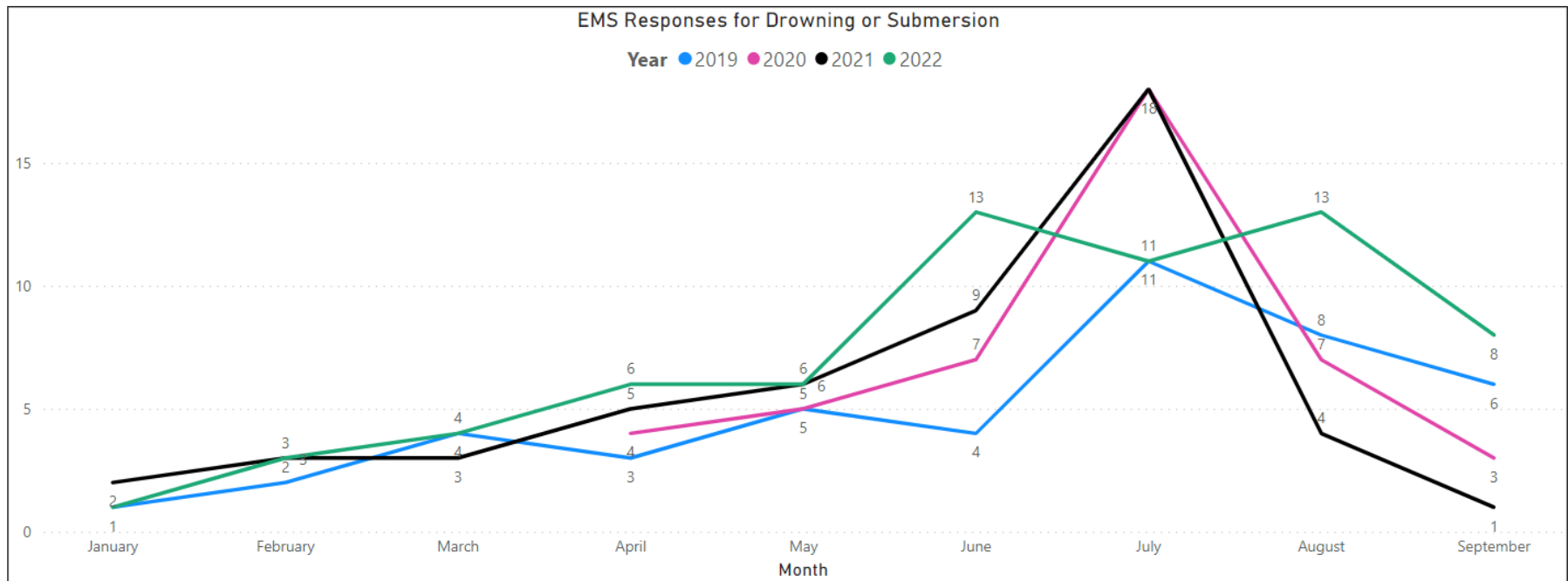
Infant in the bathtub with sibling

Toddler who just took off her swim vest





EMS Responses for Drowning or Submersion 2019-2022





HYPOXEMIA

Pulmonary
Neurologic
Cardiovascular

Acid-base & electrolytes
Renal
Coagulation

- Ventilation is the most important initial treatment.
- Rescue breath impact on neurologic outcome is uncertain.
- Cervical spinal cord injury is uncommon.



E-BIKE INJURIES



Prevention is key!

***6-Year-Old Hospitalized After Being Hit
By E-Bike on San Diego Beach***





NOT WELL DEFINED

- According [to the](#) U.S. Consumer Product Safety Commission, at least 41 Americans were killed and about 133,000 injured between 2017 and 2019 in incidents tied to e-scooters, e-bikes and hoverboards.
- USCPSC's National Electronic Injury Surveillance System 2000-2017:
 - Accounted for 0.13 per 10,000 injuries
 - 17.1% of e-bike accident victims suffered internal injuries vs 7.55% for powered scooters or pedal bikes
 - Males accounted for 83.3% of injuries
 - 3 times as likely to involve a collision with a pedestrian than a powered scooter or pedal bike

E-BIKE SAFETY



My son's tips for safely riding an e-bike:

- Don't pick up young children
- Don't be distracted by mobile devices
- Limit to one passenger if not built for two
- Wear a helmet
- Drivers should be at least 12 years old

Recipe for danger:

- No license or registration required.
- No age limits unless Class 3 (>28 mph)
- Not allowed on trails unless adjacent to road
- Twice the potential speed of pedal bike

SAFER STREETS TOGETHER

E-bike Rules

City of Carlsbad

	Pedal bike	Class 1	Class 2	Class 3
Pedal assist		●	●	●
Throttle			●	
Max speed	Speed limit	20 mph	20 mph	28 mph
Minimum age	None	None	None	16
Driver's license	No	No	No	No
Helmet required	Under 18	Under 18	Under 18	All ages
Helmet recommended	All ages	All ages	All ages	All ages
Allowed on sidewalks	No	No	No	No
Allowed on trails	Yes	Yes	Yes	No

All e-bikes

Passengers
Only allowed on bikes specifically made for additional riders
Must have a seat for passengers
Often have footrests for the passenger

Where to ride
Ride in the same direction as traffic
Use bike lanes when available
Do not ride on sidewalks on crosswalks

Signs & signals
Obey all traffic signs and signals
Come to a complete stop at signs
Look before turning

Safety
Ride with care
Reduce speed when needed
Be aware of all other road users

This "sharrow" means the lane is too narrow for bikes and cars to travel side by side. Ride toward the middle of the lane and avoid unsafe passing.

If there are no marked bike lanes or sharrows present, bicyclists have a right to share the road.

carlsbadca.gov/saferstreets

EDUCATE, EDUCATE, EDUCATE



E-bike Class Offerings

[Ebike Education – San Diego County Bicycle Coalition \(sdbikecoalition.org\)](https://sdbikecoalition.org)

Walk, Ride, and Roll to School Education Services

[iCommute \(icommutesd.com\)](https://icommutesd.com)

Vision Zero Strategy

[Safety | Bicycling | City of San Diego Official Website](https://www.sandiego.gov/safety/bicycling)

Encinitas City Cycling and Safety Skills Classes

[Electric Bikes \(encinitasca.gov\)](https://www.encinitasca.gov/electric-bikes)



“I rode a scooter or bike for so many years, I thought it would be exactly the same.”

“SEIZURE” IN A TODDLER



“His arm went limp and his smile looks funny.”



“SEIZURE” IN A TODDLER



- 3 year old male
- Headache and neck stiffness
- Fever
- Sudden onset pain and severe right arm weakness and a droopy smile

Had a fever, cough and rhinorrhea five days earlier but had been improving.

	Estimated frequency
Age <21 years	80-90%
Prodromal fever or viral illness	85-95%
Neurological onset to nadir <10 days	100%
Headache or neck stiffness at onset	12-60%
Asymmetric onset of weakness	65-95%
Limb weakness	85-95%
Upper limb weakness	60-85%
Flaccidity or hyporeflexia of affected limbs	95-100%
Neck, face, extraocular, or bulbar weakness	20-60%
Trunk weakness	30-70%
Requirement for mechanical ventilation	10-40%
Bladder or bowel dysfunction	5-40%
Non-specific sensory symptoms (eg, paresthesia)	10-20%
Cardiovascular autonomic dysfunction	<10%
CSF pleocytosis (with testing <5 days after	85-95%
Grey-matter predominant spinal cord lesion(s) on MRI	95-100%
Brainstem lesion(s) on MRI	35-45%
Cerebral deep grey matter lesion(s) on MRI	<5%

SEVERE RESPIRATORY ILLNESSES ASSOCIATED WITH RHINOVIRUSES AND ENTEROVIRUSES



CAHAN San Diego: Severe Respiratory Illnesses and Acute Flaccid Myelitis Associated with Enterovirus-D68

- Increase in pediatric hospitalizations in patients with severe respiratory illness testing positive for rhinovirus and/or enterovirus.
- Higher proportion of EV-D68 positivity in children who are RV/EV positive compared to previous years.
- Although it primarily causes acute respiratory illness, EV-D68 has been associated with acute flaccid myelitis (AFM).
- Clinical care for EV-D68 is supportive.
- Strongly consider AFM in patients with acute flaccid limb weakness, especially after respiratory illness or fever, and between the months of August and November 2022.





Shyam M. Sivasankar, MD @shyam_in_scrubs

The kids are not alright... I was informed by one of my colleagues who tried to transfer a patient last night that there are no Pedi Med/Surg OR PICU beds in Austin, Waco, San Antonio, Houston, or Dallas...

September 20th 2022

584 Retweets 1,897 Likes

Parainfluenza

Enterovirus

Pertussis/
Parapertussis

Rhinovirus

Adenovirus

Human
Metapneumovirus

RSV

Influenza

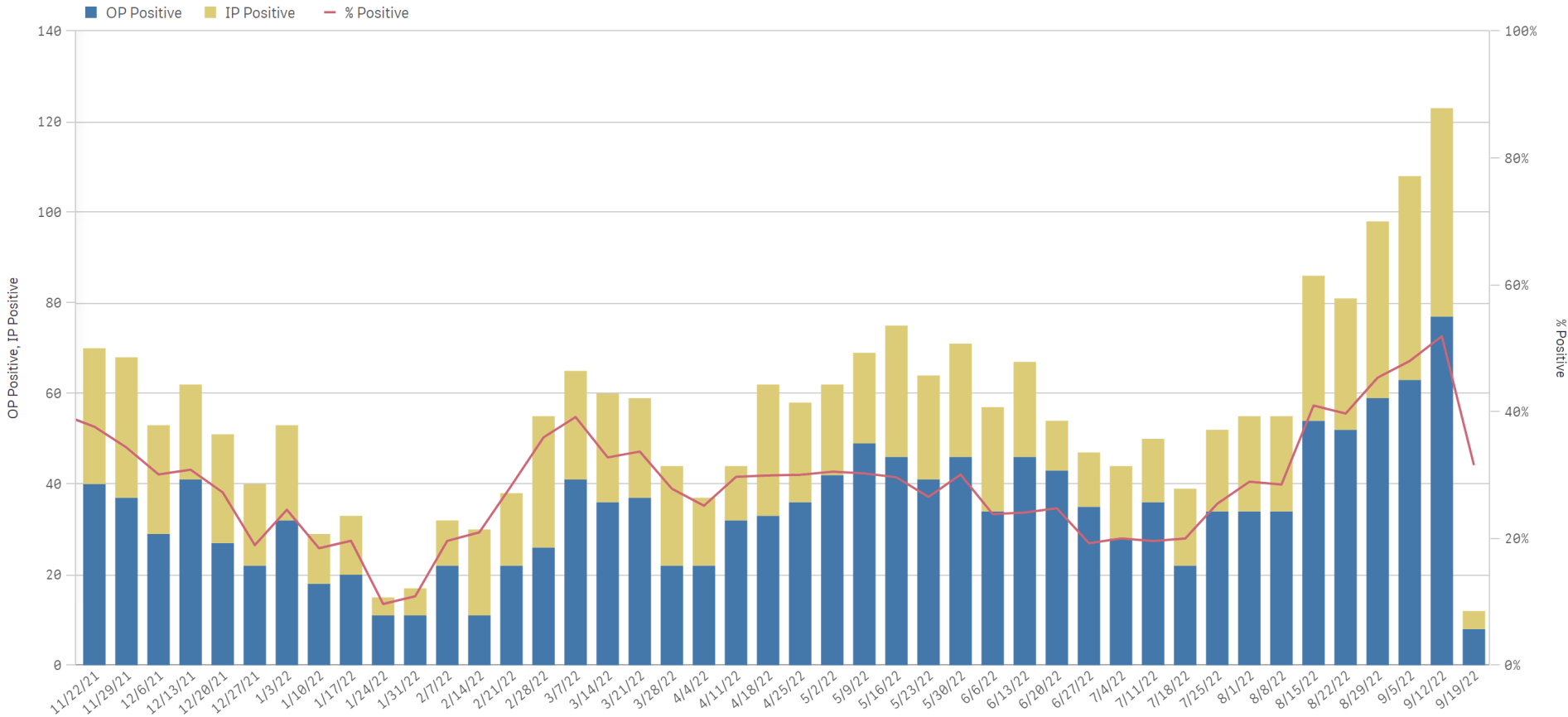
Coronavirus

- COVID-19
- Other

RHINOVIRUS/ENTEROVIRUS IN SD



Human Rhinovirus/Enterovirus - Data as of 9/19/2022



DIFFICULTY BREATHING 2022



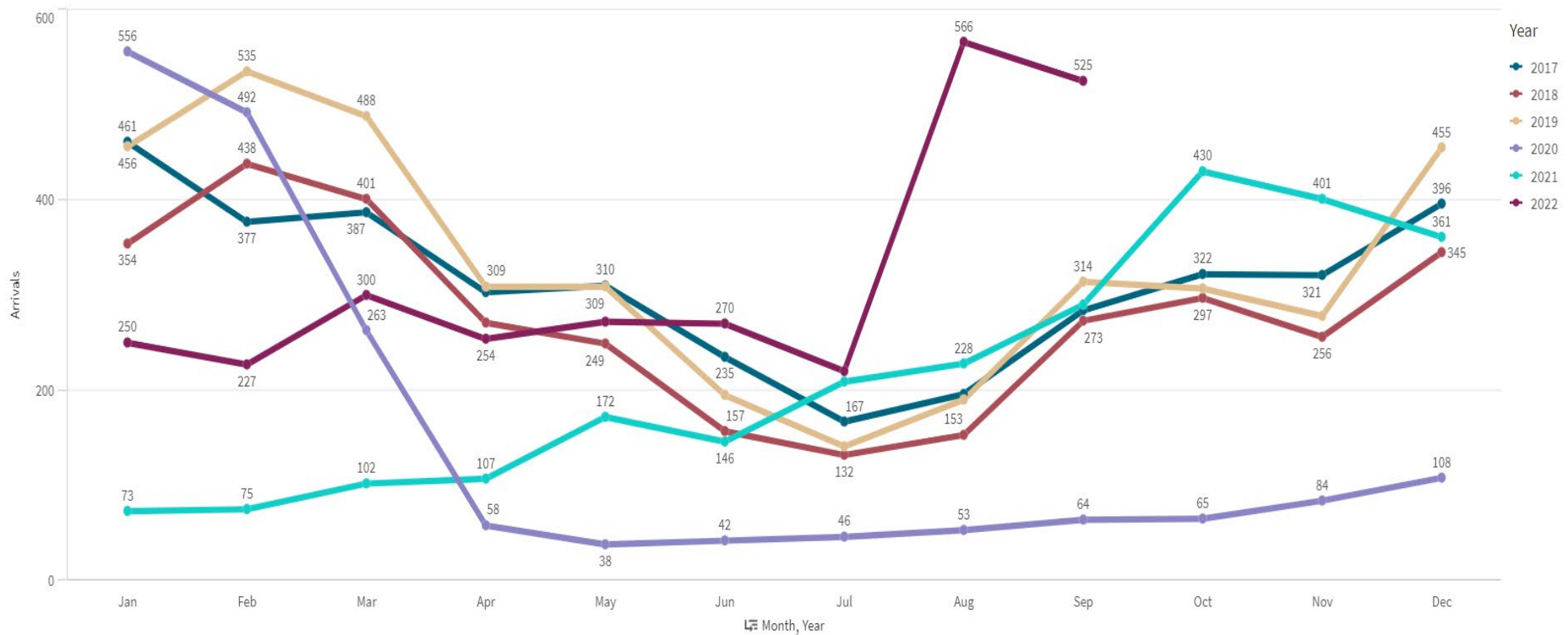
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DIFFICULTY BREATHING

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Selections

Arrivals Overview

Arrival YOY Arrivals by Week and Day Historical Arrivals vs LWBS



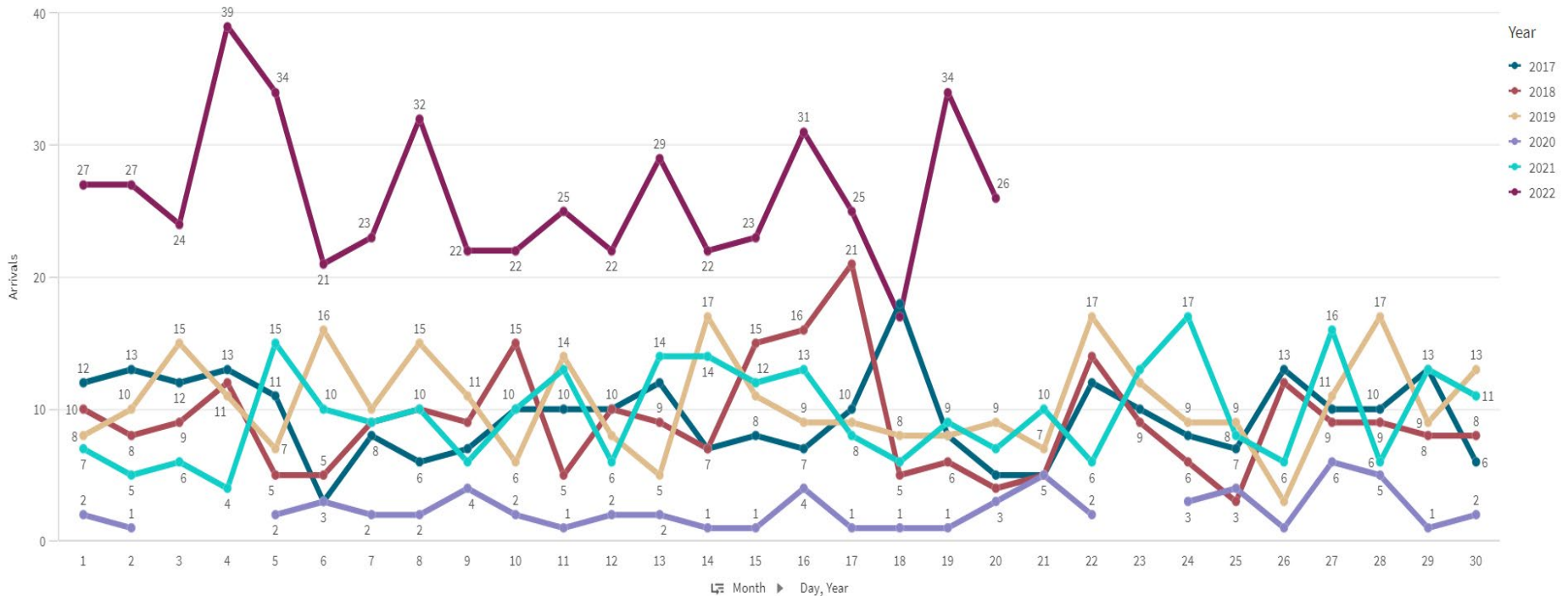
DIFFICULTY BREATHING SEP '22



ACUTY_ABBR 2 CHIEF_COMPLA... DIFFICULTY BREATHING Month Sep Selections

Arrivals Overview

Arrival YOY Arrivals by Week and Day Historical Arrivals vs LWBS



“SEIZURE” IN A TODDLER



“Eyes rolled back and body was shaking”



FEBRILE SEIZURES



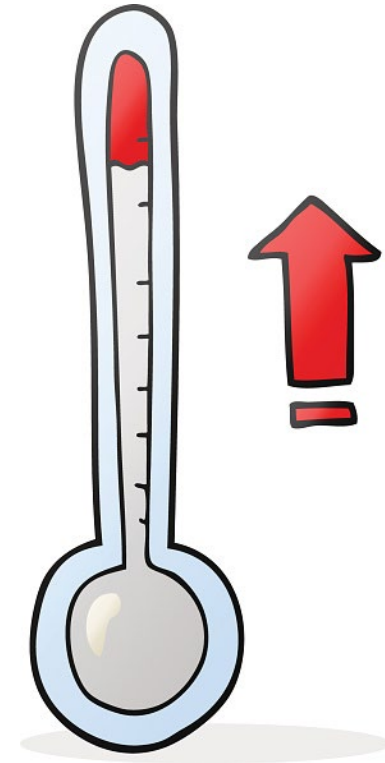
- Febrile seizures are the most common neurologic disorder of infants and young children.
- Occur in 2-4% of children younger than five years of age.

-
- 6 months to 5 years of age (12-18 months average)
 - Temperature $> 38^{\circ}\text{C}$
 - No history of previous afebrile seizures
 - Absence of CNS infection/inflammation or acute metabolic abnormality



Risk factors:

- High fever
- Infection (esp. HHV-6)
- Immunization (esp. MMR)
- Genetic predisposition
- Prenatal exposure to nicotine
- Iron deficiency
- Allergic rhinitis

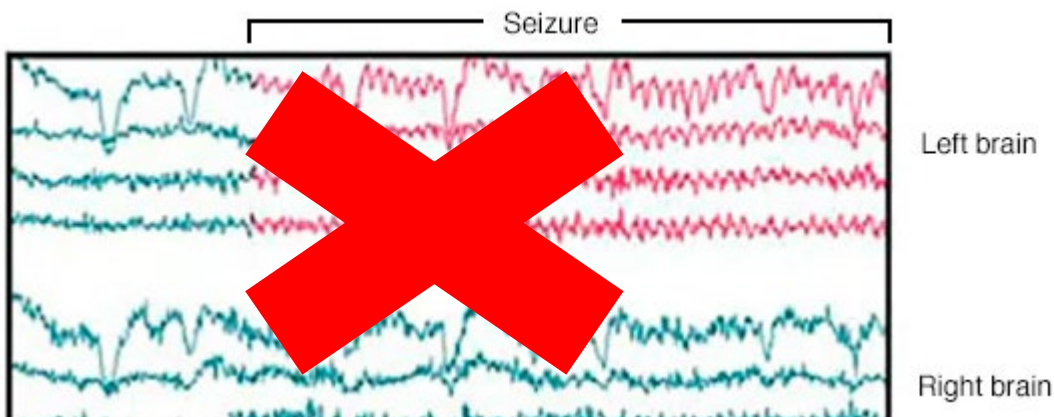


Although the issue is debated, the maximum height of a fever, rather than the rate of rise, may be the main determinant of risk in febrile seizures. Seizure threshold is lower in infants.

FEBRILE SEIZURES - SIMPLE



- Generalized
- <15 minutes (usually <5 minutes)
- Not recurring within 24 hours
- Usually tonic-clonic
- Brief post-ictal
- Benign
- Recur in 1/3 of children
- Slightly higher rate of future epilepsy
- Unlikely to need diagnostic testing



FEBRILE SEIZURES - COMPLEX



- Focal onset
- Prolonged (>15 minutes)
- Multiple events within 24 hours
- Typically, the first febrile seizure
- Often younger or with developmental delay
- 20% of febrile seizures
- Higher risk of future epilepsy

	Simple Febrile Seizure	Complex Febrile Seizure
Age	6mos to 5yrs	Any
Frequency	Single seizure in 24hrs	Multiple seizures in 24hrs
Nature	Generalized	Focal or generalized
Duration	Lasting < 15 min	Can be prolonged
Recovery	Post- ictal with return to baseline and normal neurological exam	Post- ictal, may not fully return to normal if multiple seizures

FEBRILE STATUS EPILEPTICUS



- Febrile status epilepticus is continuous seizures or intermittent seizures without neurologic recovery. Persistently open and deviated eyes is an ongoing focal seizure even without other motor activity.
- In up to one-third of cases of FSE, the actual seizure duration is underestimated in the emergency department. Closed eyes and a deep breath are good indicators of the end of the seizure.
- Lumbar puncture should be more carefully considered in these patients.





1. When there are meningeal signs or symptoms or other features suggestive of meningitis or intracranial infection.
2. In infants 6-12 months if immunization status for Hib or *Streptococcus pneumoniae* is deficient or undetermined.
3. If patient is on antibiotics, which may mask signs and symptoms of meningitis.

Other considerations:

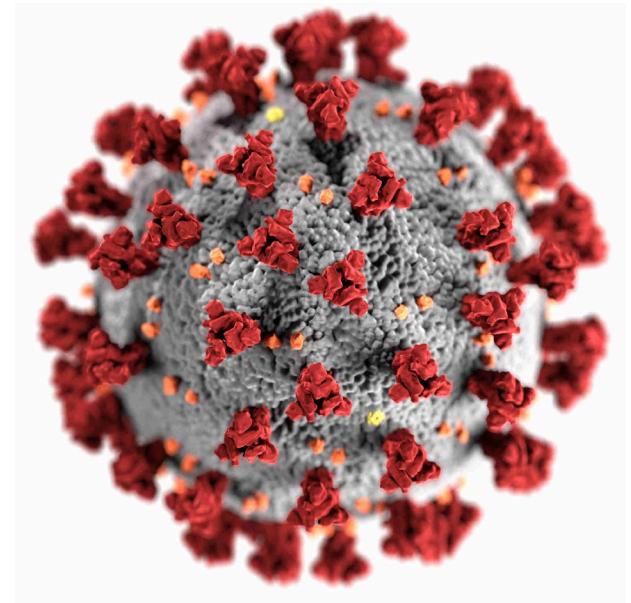
- Febrile seizure on the second day of illness
- Febrile status epilepticus





Evaluation of Febrile Seizure Diagnoses Associated With COVID-19 - PubMed (nih.gov)

- Retrospective study – EHR data
- 8,854 pediatric patients 0-5 years of age diagnosed with COVID-19
- 44 (0.5%) also diagnosed with febrile seizures
 - 68% simple, 32% complex
 - median age of 18 months
 - 25% hospitalized
 - 9.1% in ICU



IN CONCLUSION...



- “Seizure” is not a clear term for guardians.
- THC edibles appeal to children and acute intoxication may look different in toddlers than teens.
- Ventilation is key for drowning survival and outcome.
- We all have a role in e-bike injury prevention.
- Limb weakness may represent acute flaccid myelitis – further evaluation is imperative.
- There’s no seasonality in 2022 for respiratory illnesses.
- Most febrile seizures do not require additional work-up.





THANK YOU!

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