REGION 11 CHICAGO EMS SYSTEM PROTOCOL	Title: BRUE (Brief Resolved Unexplained Event)
	Section: Pediatrics
	Approved: EMS Medical Directors Consortium
	Effective: June 1, 2023

BRUE (BRIEF RESOLVED UNEXPLAINED EVENT) – BLS/ALS

I. PATIENT CARE GOALS

1. Recognize patient characteristics and symptoms consistent with a BRUE.

2. Promptly identify and intervene for patients who require escalation of care.

3. Transport suspected BRUE cases to hospitals with EDAP (Emergency Department Approved for Pediatrics) designation.

II. PATIENT PRESENTATION

A. Inclusion Criteria

1. Suspected BRUE: An event in an infant less than 1-year-old reported by a bystander as sudden, brief (less than 1 minute), unexplained, and completely resolved upon EMS arrival that includes one or more of the following:

    a. Breathing change (absent, decreased, or irregular)
    b. Color change (central cyanosis or pallor)
    c. Marked change in muscle tone (increase or decrease in muscle tone)
    d. Altered level of responsiveness (including irritability)

2. Patients with **high-risk criteria include:**

    a. Less than 2 months of age
    b. History of prematurity (less than or equal to 32 weeks gestation)
    c. More than one BRUE, now or in the past
    d. Event duration greater than 1 minute
    e. CPR or resuscitation by caregivers or trained rescuers

B. Exclusion Criteria

1. Any signs or symptoms suggestive of underlying or acute illness or injury present upon EMS evaluation, such as:

    a. Abnormal vital signs for age (including fever)
    b. Vomiting
    c. Signs of trauma
    d. Noisy or labored breathing

2. Identifiable cause for the event which may be determined at the hospital, include:

    a. Gastric reflux (spitting up)

b. Swallowing dysfunction
c. Nasal congestion or excessive secretions from the nose and/or mouth
d. Periodic breathing of the newborn
e. Breath-holding spell
f. Change in tone associated with choking, gagging, crying, feeding
g. Seizure (e.g. eye deviation, nystagmus, tonic-clonic activity)
h. Hypoglycemia
i. Episode with significant past medical history (e.g., congenital heart disease, pulmonary disease, VP shunt, or seizure disorder)

3. History or exam concerning for child abuse or neglect.

4. Color change that involved only redness (i.e., in the face) or isolated hands/feet cyanosis.

III. PATIENT MANAGEMENT

A. Assessment

1. History

a. History of circumstances and symptoms before, during, and after the event, including duration, interventions done, as well as patient color, tone, breathing, feeding, position, location, activity, and level of consciousness.
b. Other concurrent symptoms (e.g., fever, congestion, cough, rhinorrhea, vomiting, diarrhea, rash, labored breathing, fussy, less active, poor sleep, poor feeding).
c. Prior history of BRUE (ever, including past 24 hours).
d. Past medical history (e.g., prematurity, prenatal/birth complications, gastric reflux, congenital heart disease, developmental delay, airway abnormalities, breathing problems, prior hospitalizations, surgeries, or injuries).
e. Family history of sudden unexplained death or cardiac arrhythmia in other children or young adults.
f. Social history: those living at home, recent household stressors, exposures to toxins/drugs, sick contacts.
g. Considerations for possible child abuse (i.e., multiple/changing versions of the story or reported mechanism of injury does not seem plausible, especially for child's developmental stage).

2. Exam

a. Full set of vital signs (pulse, blood pressure, respiratory rate, pulse oximetry, neurologic status assessment).
b. General assessment:

i. Signs of respiratory distress or increased work of breathing (e.g., tachypnea, grunting or other abnormal breath sounds, nasal flaring, retracting, or head bobbing).
ii. Color, both central and peripheral (pallor, cyanosis, redness, or normal), capillary refill.
iii. Mental status (alert, tired, lethargic, unresponsive, or irritable).

c. Head to toe exam, including:
i. Physical exam for signs of trauma or neglect.
ii. Pupillary response and anterior fontanelle.

B. Treatment and Interventions

1. Monitoring (all patients with possible BRUE):

a. Continuous cardiac monitor
b. Continuous pulse oximetry
c. Serial observations during transport for change in condition
d. Check blood glucose and treat hypoglycemia (glucose < 60 mg/dL)

2. Airway

a. Give supplemental oxygen for signs of respiratory distress or hypoxemia - escalate from a nasal cannula to a simple face mask to a non-rebreather mask as needed (Airway Management Protocol).
b. Suction excessive secretions from the nose and/or mouth (using bulb syringe or suction catheter).

3. Utility of IV placement and fluids

a. Routine IVs are not necessary on all suspected BRUE patients.
b. IVs should be placed only for clinical concerns of shock or to administer IV medications.

4. Transport the patient to the closest, appropriate hospital with EDAP (Emergency Department Approved for Pediatrics) designation even if they appear well or have returned to their baseline.

C. Patient Safety Considerations

1. Regardless of the patient's well appearance, all infants with a history of signs or symptoms suggestive of BRUE should be transported for further evaluation.

a. By definition, infants who are not completely well-appearing at EMS evaluation do not meet the definition of possible BRUE and should be treated and transported as appropriate.

2. Destination considerations:

    a. All patients should be transported to the closest, appropriate hospital with EDAP (Emergency Department Approved for Pediatrics) designation after contacting Online Medical Control.

IV. NOTES/EDUCATIONAL PEARLS

A. Key Considerations

1. BRUE is a group of symptoms, not a disease process.

2. If the infant is not completely well upon EMS arrival, this excludes possible BRUE event:

    a. Treat and transport as per Region 11 EMS Protocols.

3. Avoid using “BRUE”, “SIDS”, or “near-miss SIDS” terminology with parent/guardian.

4. EMS providers play a unique and important role in obtaining an accurate history soon after the event and in observing, documenting, and reporting environmental, scene and social indicators that may point to an alternate diagnosis.

5. High-risk patients with a possible BRUE have worse outcomes and require emergency department (ED) or inpatient testing, intervention, and/or follow-up.

6. The determination of a BRUE is made only after hospital evaluation, not in the field.

7. All patients with suspected BRUE should be transported to an ED.

8. Contact online medical control if parent/guardian is refusing medical care and/or transport, especially if any high-risk criteria are present.