Sample Practice Scenario:

Infant presenting with a cyanotic episode at home

Goals:

1) Recognize normal vital signs and how they vary by age in pediatric patients
2) Understand how to perform proper measurement of vital signs in children
3) Recognize appropriate components of a history and physical exam when evaluating an infant after a BRUE

Scenario:

The patient is a 3-month old girl who presents to the ED via EMS after a "blue" episode at home. Parents report that she had finished a bottle about 15 minutes prior. She was sitting in her swing when she suddenly seemed to turn purple to blue in color. She was awake the whole time but did not appear to be breathing. Parents deny any shaking movements or loss of muscle tone. Parents estimate the episode lasted 50 seconds, after which baby started breathing. The parents called 911. EMS reports no subsequent episodes or other events en route.

VS by EMS: Temp: 37.0C axillary HR: 175 (while crying) BP: 95/70 RR: 25 SpO2 100% on room air
Weight: Pink per Breslow Tape

Critical Performance Steps Checklist (with instructor answers in pink)

- Obtain vital signs
  -Wait until child is as calm as possible; perform vital signs/assessments while being held by parent/caregiver
  -For infants, count respiratory rate over 1 minute
  -Ensure use of appropriately sized BP cuff
  -Rectal temperatures preferred in infants, especially <2mo
  -Ensure proper pulse oximetry placement (in small infants, wrist or foot preferred over finger/tone, if possible)
  -If patient was febrile at the time of vital signs, treat fever and reassess all VS once fever has resolved (if able)
  -Weights in infants should be obtained in minimal clothing (diaper only if possible)
  -Repeat VS while calm: Temp 37.1 rectal HR 140 BP 75/55 RR 42 SpO2 100% on room air; Weight 6kg
- Perform initial assessment
  -Baby awake, alert, taking a bottle
  -No murmur, cap refill 2 seconds throughout, pink
  -Lungs clear bilaterally, no flaring, grunting or retractions

-Normal muscle tone, appropriately reactive and interactive for age

- Take a detailed history

-Parents again describe event as above
-No prior history of a similar event
-No recent illnesses or sick contacts
-Baby usually bottle feeds well with no history of reflux or emesis with feeds
-Normal growth and development, no concerns raised at regular pediatric visits
-No history of difficulty breathing or noisy breathing
-No immediate social concerns raised during visit
-PMHx: Born at 39 weeks via NSVD, no prior hospitalizations, no surgeries.
- FH: no history pulmonary disease, cardiac disease, sudden cardiac death, seizures
-Allergies/Imm: NKDA, up to date on vaccines

- Management in ED

-Meets criteria for low-risk BRUE; follow algorithm

end scenario

Instructor Debrief

- Discuss the importance of recognizing normal vital signs by age in pediatric patients
- Review the appropriate techniques to measure vital signs in children; crying, fear, pain and fever can make VS temporarily out of normal range
- Review algorithm for assessing an infant presenting after a BRUE
- Ensure participants have methods to select drug doses and equipment sizes safely if event recurs and patient decompensates

Reference:

Age	Normal blood pressure range (mm Hg)	Normal heart rate (beats per minute)	Normal respiratory rate (breaths per minute)
0 to 3 months	65–85/45–55	110–160	30–60
3 to 6 months	70–90/50–65	100–150	30–45
6 to 12 months	80–100/55–65	90–130	25–40
1 to 3 years	90–105/55–70	80–125	20–30

Age	Normal blood pressure range (mm Hg)	Normal heart rate (beats per minute)	Normal respiratory rate (breaths per minute)
3 to 6 years	95–110/60–75	70–115	20–25
6 to 12 years	100–120/60–75	60–100	14–22
12 to 18 years	100–120/70–80	60–100	12–18

*Source: Cleveland Clinic