



**NORTHWEST
COMMUNITY
EMERGENCY
MEDICAL
SERVICES
SYSTEM**

Continuing Education – July 2022
Pharmacology Routes & Dosing
Student Activity Worksheet
Drug Calculations Exercise

Scenario 1: EMS responds to a 6yr. old child at school having an allergic reaction. The child is awake, anxious, and appears tired with labored breathing. You note hives and facial edema. An Epi Jr pen was administered PTA. Child weighs **36 lb / 16kg**.

Pulse is noted to be weak, fast; skin is cool to touch. Lung sounds diminished in all lung fields. Pulse ox is 85% on room air.

1. What is the minimum acceptable SBP for this child?
2. What is the first medication that should be given? Specify drug, dose, volume, and route.
3. What medication should be given as soon as venous access is obtained? Specify drug, dose, volume, route, and max.
4. Pt begins to vomit a moderate amount of liquid and is suctioned. What medication may help to prevent repeat vomiting and risk of airway contamination/obstruction? Specify drug, dose, volume, route and rate of administration.
5. Are there any other meds this patient should receive? Specify drug, dose, volume, route and max.

Scenario 2: EMS responds to a park district gym for a child having an asthma attack. The 10 y/o pt is sitting on the bleachers, in obvious resp distress, tripod position, able to speak only 2-3 words at a time, with retractions. Pts inhaler was empty when he attempted to use.

Exam: HR 136 w/ strong pulses, RR 32, SpO₂ 88% on RA, ETCO₂ 27 and shark fin waveform. Lung sounds diminished to absent bilaterally. The patient gasps “please hurry – I’m getting really tired”. His weight is **95 lb (43 kg)**.

1. What level of severity is this patient in at this time?
2. How much oxygen, and by what device, would you provide initially?
3. What is the **first medication** that should be given? Specify drug, dose, volume, route, and max.
4. What med is given immediately after Epi is administered?
5. The patient becomes fatigued and is now struggling to breathe. SpO₂ 89%, ETCO₂ is 25, HR 140. Patient eye opening to pressure. No change in his breath sounds. What **two** actions should be taken immediately?
(1)
(2)
6. Patient becomes difficult to ventilate w/ BVM. SpO₂ 90% and ETCO₂ 27. HR is bradycardic. While preparing for an advanced airway the patient moans attempts to pull away from the BVM mask. An IV is in place. What sedative is indicated prior to advanced airway? Specify drug, dose, volume, route and max dose.
7. Following i-gel placement, ease of ventilation improves. While sedated, the pt appears restless and is tachycardic. What medication is indicated? As an alternative to additional ketamine, what medication is indicated? Specify drug, dose, volume, route, and max dose

Scenario 3: EMS responds to a home for a 3 yr old with a fever. Upon entry to child's bedroom, responders note generalized tonic-clonic seizure activity. Mom states pt has had a fever, sore throat, and cough for 2 days. Pt was seen by pediatrician one day prior, with instructions to administer Tylenol for fever and encourage fluids. Child has no PMH, meds or allergies. Tylenol was last given 3 hrs ago for temp 100.4 °F. Weight was **30 lb (14 kg)**. What medication should be given at this time? Specify drug, dose, route, volume and max. No IV access is established yet.

Seizure activity stops. Patient is unconscious (GCS 3) :pt is pale, and breathing is shallow and slow. Bronchial breath sounds are noted on the left, clear on the right. EMS begins manual ventilation via BVM with good compliance. SpO₂ 90%, ETCO₂ 25. Mottling noted on her extremities. Pulses are weak at 154, cap refill 4-5 sec. SBP is 68. IO is in place. What is indicated next?

Transport is begun and a sepsis alert is called. If SBP does not rise to minimum target from IVF, what is indicated?

Scenario 4: EMS responds to a multifamily residence for a child not breathing. Scene cleared by PD. Residence is cluttered and dirty; EMS notes drug paraphernalia on end table. Mother is crying and reports child was found on the floor unresponsive when mother woke up from a nap. A "neighbor" is attempting CPR. Patient is 2 ½ year old, unresponsive with agonal breathing 4/min, with a slow, weak pulse. Mom denies recent trauma or illness. No allergies. Weight per Broselow is **20 lb / 9 kg**.

EMS begins O₂ 15L/BVM. The patient is easy to ventilate. Initial RA SpO₂ is 84% and ETCO₂ is 70 with a square waveform. Lungs are clear. Initial ECG showed sinus bradycardia, 48-50. Pupils are 1-2 mm, round and equal. Glucose is 98. What do you suspect, and what intervention is indicated?