Recommended Emergency Kit (E-Kit) Medications

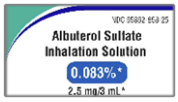
BACKGROUND

PharMerica provides a standard list of recommended E-Kit drugs to support clients in meeting this critical need.

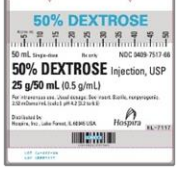
12 essential E-Kit medications are detailed below with clinical pearls for their emergency use in adults. These are general and abridged recommendations for educational purposes. Defer to product-specific prescribing info and facility-specific polices, procedures, and emergency protocols in practice.

ESSENTIAL E-KIT MEDICATIONS

1. **Albuterol 2.5mg/3mL nebulizer solution** (0.083% albuterol inhalation solution vial)
   Short-Acting Beta$_2$-Agonist for acute management of asthma, COPD, and bronchospasm due to anaphylaxis.
   - Critical rescue therapy, used to open constricted airways and improves respiration during troubled breathing.
   - **Dosing recommendation**: **(acute or severe bronchospasm) oral inhalation**: The nebulizer solution is generally recommended at a dose of 2.5 to 5mg inhaled every 20 minutes for 3 cycles. Repeat nebulizer treatments of 2.5 to 10mg are advised every 1-4 hours as needed, thereafter.
   - **Administration pointers:**
     - Adjust nebulizer to deliver dose over 10 minutes (unless nebulizer specifies other flow rate).
     - Stock reusable nebulizer with appropriate mask sizes to accommodate all potential residents.
     - Administer epinephrine first when treating anaphylaxis (do not use albuterol for initial/sole treatment); administer albuterol for residual respiratory symptoms unresponsive to epinephrine.
     - Nurse to provide resident oversight during treatment.
   - **Key monitoring parameters**: Respiratory function, vital signs (BP, HR).



2. **Dextrose 50%, 50mL injection**
   Concentrated carbohydrate IV injection used to rapidly correct low blood sugar.
   - For use as a hypoglycemic antidote in residents with severely low blood sugar (BG <70mg/dL), with IV access, and for whom oral glucose is inappropriate or unfeasible (e.g., NPO or unresponsive).
   - **Dosing recommendation**: **IV:** 10 to 25 g (20-50 mL of 50% solution); repeat as needed in severe cases. Immediately discontinue insulin therapy (if receiving). Repeat BG levels in 15 minutes and repeat dextrose administration as necessary; avoid overcorrection.
     - Due to irritant/vesicant risks, dilution is *required* for central vein administration (max concentration: 12.5%) and *recommended* for peripheral administration (in critical emergencies, concentrated dextrose solutions have been used peripherally).
   - **Administration pointers**:
     - For IV use only, recommended to push slowly over 1 to 3 minutes. NOT for SQ or IM use.
     - Peripheral vein administration: administer preferably through a small-bore needle into a large vein.
     - Once able to tolerate oral food, administer fast-acting and long-acting oral carbohydrates to resident as soon as possible after response to treatment.
   - Consult provider for dose adjustments to antidiabetic medications as needed.
   - **Key monitoring parameters**: BG levels, signs of hyperglycemia.
   - **Other monitoring parameters**: Serum electrolytes, acid-base balance.



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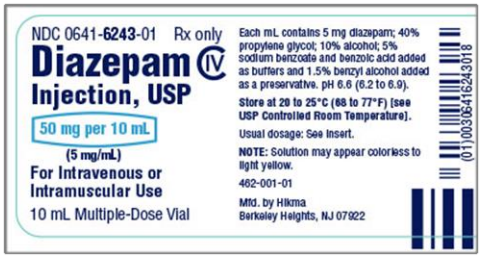
3. Diazepam 5 mg/mL injection (subject to state-specific controlled substance regulations)
A benzodiazepine with antiseizure activity, useful in E-Kits for adjunct management of status epilepticus.

- **Dosing recommendation**: (status epilepticus) **IV**: 5 to 10mg as a single dose given at a maximum infusion rate of 5 mg/minute; may repeat dose in 3-5 minutes if seizures continue; a nonbenzodiazepine antiseizure agent should follow to prevent seizure recurrence, even if seizures have ceased.
    - If necessary, therapy with diazepam may be repeated in 2 to 4 hours; however, residual active metabolites may persist, and readministration should be made with this consideration.
    - Extreme caution must be exercised with individuals with chronic lung disease or unstable CV status.
    - Max dose: 30mg.
- **Administration pointers**:
    - inject the IV solution slowly (5mg/minute) to reduce the possibility of venous thrombosis, phlebitis, local irritation, swelling, and vascular impairment.
    - Do not use small veins; take extreme care to avoid intra-arterial administration or extravasation.
    - Per PI, if IV administration is impossible, the IM route *may* be used (deep IM injection). Due to need for quick absorption/action, this route is NOT preferred.
        - Alternative options include nasal sprays (Valtoco®) and rectal gels (Diastat® AcuDial™).
- **Key monitoring parameters:** Vital signs (HR, RR, BP); mental status
    - Be cognizant of post-administration effects such as profound sedation, confusion, and dizziness, which increase fall risks (of particular concern in older residents).



4. Diphenhydramine 50mg/mL injection
Antihistamine used as second-line treatment (after epinephrine) in the adjunct management of anaphylaxis.

- **Dosing recommendation**: **(Anaphylaxis) IV**: 25 to 50mg IV x 1, then every 4-6 hours as needed. Max daily dose: 400mg. For IV or deep IM injection only – do NOT administer SQ (local necrosis risk).
- **Key monitoring parameters:** Vital signs (respiration), mental alertness (sedation and fall risk associated with its high anticholinergic potential).
- **Misc**: do NOT use diphenhydramine for initial or sole treatment of anaphylaxis because H_1 antihistamines do not relieve upper or lower airway obstruction, hypotension, or shock. Indicated as adjunct to epinephrine and other standard measures after the acute symptoms have been controlled.

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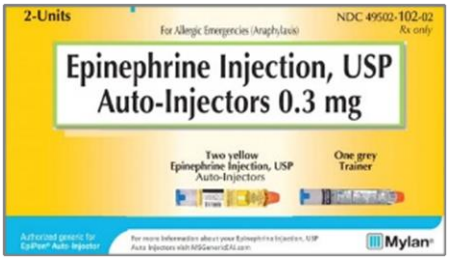
5. Epinephrine auto-injector

First line therapy for immediate response to severe allergic reactions, including anaphylaxis.

- Acts as alpha and beta-adrenergic agonist to decrease swelling and increase respiratory and cardiac function.
- **The most important single medication in every E-Kit!** Ensure sufficient number of auto-injectors are stocked for resident emergencies (i.e., at least 2, so that a repeat dose can be given for a single emergency if needed).
- Epinephrine auto-injectors are available under different names as branded and non-branded products from multiple manufacturers (e.g., *Auvi-Q*, *EpiPen*, *EpiPen Jr.*, *epinephrine injection USP autoinjector*).
- Epinephrine auto-injectors also come as multiple strengths of 1mg/mL injectors:
    - 0.3mg strengths for adults and children/adolescents ≥30kg,
    - 0.15mg strengths for children 15kg to <30kg; 0.1mg strengths for children 7.5kg to <15kg.
- Stock appropriate selections to accommodate the range of residents they serve.
- Review the included epinephrine auto-injector(s) package insert(s) for manufacturer specific dosing and administration guidance with all relevant staff.
- **General dosing and administration recommendations**:
    - Initiate facility protocol for medical emergencies (e.g., call 911) immediately, and repeat epinephrine dose every 5 to 15 minutes, as needed, if EMS has not yet arrived.
    - Administer epinephrine as soon as possible after first sign of anaphylaxis.
    - Select the appropriate dosage strength autoinjector and inject 1 dose IM at a 90-degree angle into the injection site (e.g., anterolateral aspect of the thigh), through clothing if necessary.
    - Continue to hold injector in with pressure as directed by product package insert (e.g., 3 sec; hold times vary by device [2-10sec]; follow product instructions and use minimal time necessary to avoid risk of injury). For EpiPen, holding the device against the leg followed by removing the cap and then compressing has been recommended.
    - Monitor for resolution of anaphylaxis symptoms (e.g., return of normal breathing).
    - If needed, perform 1 repeat IM dose in 5 minutes (or sooner if clinically indicated).
    - Never reinsert needles. Do not administer repeated injections at the same site. Do not inject into the buttocks or into digits, hands, or feet. Adrenalin, Auvi-Q, EpiPen, and EpiPen Jr should only be injected into the anterolateral aspect of the thigh.
- **Key monitoring parameters**: **vital signs** (HR, BP, RR), **injection site reactions** (rare cases of serious skin and soft tissue injections have been reported following epinephrine injection), **potential adverse reactions** (anxiety, restlessness, tremor, sweating, palpitations, nausea/vomiting, headache).
- **Misc**: residents who receive epinephrine in response to anaphylaxis should be medically followed, as this rescue therapy may produce significate adverse reactions such as aggravating angina pectoris or producing ventricular arrhythmias.



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6. Glucagon 1mg injection

A hypoglycemic antidote used to correct severe hypoglycemia (BG <70mg/dL) in residents for whom oral glucose is inappropriate or unfeasible (e.g., NPO or unresponsive) and for whom IV dextrose is inappropriate or unfeasible (e.g., no IV access).

- Glucagon injections are available under different names from multiple manufacturers (e.g., *GlucaGen HypoKit*, *Gvoke HypoPen*, *Gvoke Kit, Glucagon Emergency 1mg SDV*), with product-specific instructions.
- Review the product package insert(s) for specific dosing and administration guidance with all relevant staff.
- **General dosing recommendation**: (Adults) administer 1mg into the appropriate delivery site, per package instructions. If no response after 15 minutes, administer an additional dose of glucagon (using a new product) while waiting for emergency assistance. Administer in accordance with the printed instructions on the foil pouch label, carton, or the Instructions for Use for the product selected for inclusion in the E-Kit.
- **Administration pointers:**
    - If resident is unconscious, place in lateral recumbent position (turn on left side) to prevent vomiting/choking when consciousness returns. Nausea and vomiting are known side effect.
    - Work on obtaining IV access after administration to use IV dextrose if needed.
    - Once able to tolerate oral food, administer fast-acting and long-acting oral carbohydrates to resident as soon as possible after response to treatment.
    - **GlucaGen HypoKit or Glucagon Emergency**: Recommended adult dose is 1mg injected IM or SQ into the upper arm, thigh, or buttocks, or IV administration under medical supervision.
    - **Gvoke products** are **SQ only**. Recommended adult dose is 1mg administered SQ in the lower abdomen, outer thigh, or outer upper arm.
- **Key monitoring parameters**: BG levels, signs of hyperglycemia, vital signs (BP, HR), injection site reactions. Consult provider for dose adjustments to antihyperglycemic/antidiabetic medications as needed.

7. Glucocorticoid injection (dexamethasone; methylprednisolone)

Corticosteroids, useful in some emergencies due to their anti-inflammatory and immunosuppressive effects.

- Glucocorticoids are specifically useful in medical emergencies involving acute flareups of reactive airway disease (e.g., severe asthma exacerbation). They are commonly given in the presence of anaphylaxis, despite questionable evidence of efficacy.
- They are most beneficial for residents with severe symptoms requiring hospitalization or for those with known asthma and significant bronchospasm that persists after other anaphylaxis symptoms have abated.
- Be aware that various glucocorticoid injections may be chosen for placement in the E-Kit (e.g., *dexamethasone*, *methylprednisolone*), each with specific instructions for use.
- Acute, emergency, and life-threatening situations may warrant administration of dosages exceeding usual dosages.
- Defer to product package inserts and establish facility protocol for use of E-Kit glucocorticoid injections, with established recommended dosing ranges.

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8. Glucose oral tablet/gel

Oral carbohydrate used to reverse mild to moderate hypoglycemia in individuals able to tolerate oral products.

- First-line antihypoglycemic option, use when resident with low blood sugar is alert and able to swallow.
- Follow manufacturer's administration guidelines for selected tablet/gel product stocked in E-Kit.
- After administration, repeat BG levels in 15 minutes. If no improvement, can administer a 2nd dose.
- Once blood glucose level begins to normalize (>70mg/dL), administer fast-acting and long-acting oral carbohydrates to resident.

9. Mephyton 5mg tablet

Vitamin K_1 (phytonadione), included in E-Kits to reverse anticoagulation due to Vitamin K-dependent anticoagulants (e.g., warfarin).

- Dose and route depend on the severity of bleeding and/or INR. Establish facility protocol for responding to active bleeds (e.g., administration of vitamin K in combination with clotting factors).
- **General dosing recommendation:** (Nonurgent reversal) **PO** initial dose: 2.5 to 10 mg, depending on the INR. Administer as a single dose. Measure INR after 12 to 48 hours and administer another dose as needed.
- **Administration Pointers:** Administration of oral tablets is recommended to reduce INR in ~24 to 48 hours. Avoid other routes (SQ administration not recommended due to unpredictable absorption; IM administration risks hematoma formation). Hold anticoagulant during reversal and consult provider for dose adjustments.
- High doses of vitamin K (e.g., >10 to 15 mg) may cause warfarin resistance for ≥1 week; if anticoagulation is needed, an alternative agent may be necessary.

10. Naloxone 0.4mg/mL injection

Opioid antagonist, included in E-Kits as antidote agent to reverse opioid overdoses.

- The 0.4mg/mL (1 mL) preparation is recommended for inclusion in E-Kits.
- **General dosing recommendation** (**IV** route preferred; **IM/SQ** routes appropriate if no IV access):
  - **IV/IM/SQ**: (initial) 0.4 to 2mg; may repeat with escalating doses every 2 to 3 minutes, as needed, if desired degree of counteraction (i.e., respiratory function improvement) is not obtained.
  - Needing ≥1 dose of naloxone is common to adequately reverse an opioid overdose.
  - Residents with significant toxicity (e.g., respiratory or cardiorespiratory arrest) may require an initial dose at the higher end of the dosing range.
  - If no response is observed after 10mg of naloxone have been administered, the diagnosis of opioid-induced toxicity should be questioned.
  - After successful reversal, dose(s) may still need to be administered at a longer interval (i.e., 20 to 60 minutes) depending on the type/duration of the opioid. Resident should be monitored after administration until no longer at risk of secondary overdose (e.g., at least 4 hours).
- **Administration pointers**:
  - If administering **IM**, use appropriate needle/syringe based on resident size (e.g., 23-25 gauge and 1-1.5 inch IM needle). Inject at 90° angle into the anterolateral aspect of the thigh, administering through clothing if necessary.

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11. Nitroglycerin 0.4mg sublingual tablet

A nitrate vasodilator, included in E-Kits as an antianginal agent for emergencies involving acute chest pain.

- **General dosing recommendation**: (At the onset of an attack) **SL**: administer one 0.4mg tablet under the tongue. One additional tablet may be administered every 5 minutes as needed.
  - No more than 3 total tablets are recommended within a 15-minute period.
  - If chest pain persists or worsens 3-5 minutes after the 1st dose, call 911.
- **Administration pointers:**
  - Instruct resident to allow tablet to dissolve without swallowing.
  - For residents with dry mouth, a small sip of water prior to placing the tablet under the tongue may help maintain mucosal hydration and aid dissolution of the tablet.
  - Administer nitroglycerin sublingual tablets at rest, preferably in the sitting position.
- **Notable drug-drug interactions/contraindications:**
  - Do not use nitroglycerin in patients who are taking PDE-5 Inhibitors, such as avanafil, sildenafil, tadalafil, vardenafil hydrochloride. Concomitant use can cause severe hypotension, syncope, or myocardial ischemia.

12. SPS 15g/60ml oral suspension (AKA Kayexalate [discontinued])

Potassium-binding agent, included in E-Kits for the emergency reversal of hyperkalemia.

- **General dosing recommendation**: (Oral route preferred) 15 to 30g once; may repeat up to 4 times per day as needed based upon serum potassium levels. Maximum daily dose: 60g/day. The intensity and duration of therapy depend upon the severity and resistance of hyperkalemia.
- **Administration Pointers:**
  - Store at Controlled Room Temperature (68˚-77˚F [excursions permitted to 59˚-86˚F).
  - Shake the suspension well prior to administration.
  - Administer orally or via NG tube with resident in an upright position at least 3 hours before or 3 hours after other medications.
    - Do NOT hold SPS when critical hyperkalemia is encountered (rather, maintenance/routine medications should be held for the recommended separating of medications).
  - Do NOT administer with juices high in potassium (e.g., orange juice) and hold high-potassium foods.
  - Do NOT administer with sorbitol (increases risks of intestinal necrosis).
  - Do NOT administer to the following residents due to the potential increased risk of intestinal necrosis: Postoperative residents, residents with an ileus, with constipation or at risk of becoming constipated, with a large or small bowel obstruction, or with underlying bowel disease (i.e., use only in patients who have normal bowel function).
- **Key monitoring parameters: Serum electrolytes** (K^+, Na^+, Ca^{2+}, Mg^{2+}); signs/symptoms of **fluid overload** in patients sensitive to sodium intake (e.g., heart failure, hypertension, edema); **constipation**; **ECG** may be appropriate in select patients.

BG: *Blood Glucose* | **BP**: *Blood Pressure* | **HR**: *Heart Rate* | **RR**: *Respiratory Rate*
IM: *Intramuscular* | **IV**: *Intravenous* | **SQ**: *Subcutaneous* | **PO**: *By Mouth* | **NPO**: *Nothing by Mouth* | **CV**: Cardiovascular
K^+: *Potassium* | **Na^+**: *Sodium* | **Ca^{2+}**: *Calcium* | **Mg^{2+}**: *Magnesium*