



EpiPen 0.5 mg Autoinjector Shortage

There is only one supplier for epinephrine autoinjectors in Canada at this time¹:

DIN	Manufacturer	Product	Active Ingredient	Strength
00509558	Pfizer Canada	EpiPen	epinephrine	0.3 mg/0.3 ml
00578657	Pfizer Canada	EpiPen Jr	epinephrine	0.15 mg/0.3 ml

Suppliers of epinephrine 1 mg/ml ampules¹:

DIN	Manufacturer	Product	Active Ingredient	Strength
02435810	Teligent OU	Epinephrine Injection	epinephrine	1 mg/ml ampule
00155357	Erfa Canada Ltd (McKesson)	Adrenalin Chloride 1:1000	epinephrine	1 mg/ml ampule

Management of shortage

Autoinjectors:

- Advise patients to use the product they currently have on hand even if it is expiring. EpiPens expire on the last day of the month indicated on the product packaging. Health Canada advises anyone having a reaction to USE THEIR EXPIRED PRODUCT and immediately call 911.²
- EpiPen Jr. is currently still available. Adults and older children can use two EpiPen Jr autoinjectors.² (Disadvantages: two injections, doubling of the cost.³)

Manual injections:

Pharmacists can assemble anaphylactic kits for patients to take home to keep on hand until the shortage of autoinjectors resolves.⁴

Option 1: Anaphylactic kit containing epinephrine ampules

- 2 – 1 cc syringes and 2 needles
 - Needle gauge and length:
 - Infants < 18 months, 25 – 27 G, 5/8 – 1¼ inch
 - Children > 18 months up to 18 years, 23 – 25 G, 5/8 to 1¼ inch
 - Adult 23 – 25 G, 1 to 1¼ inch
- 2 - extra needles
- 2 ampules of epinephrine 1 mg/ml
- Alcohol swabs, cotton balls, gauze pads
- Small sharps container (Optional)
- Case to hold contents of kit (e.g., pencil case, eyeglass case)

- Printed information on how to fill syringe, where and how to administer injection.⁵ (Example on Page 3))
- Video directions for patient on filling syringe, where and how to administer injection are available at <https://youtu.be/mD9blX1pn3M>

Option 2: Anaphylactic kit containing prefilled epinephrine syringes (Repackaging from manufacturer's container to a syringe is ISO Class 5 Compounding – use of a laminar flow hood or compounding aseptic isolator is required⁶).

- Prepare 2 – 1 cc syringes containing epinephrine 0.3 mg with needles attached*
 - Needle gauge and length:
 - Infants < 18 months, 25 – 27 G, 5/8 – 1¼ inch
 - Children > 18 months up to 18 years, 23 – 25 G, 5/8 to 1¼ inch
 - Adult 23 – 25 G, 1 to 1¼ inch
- 2 extra needles
- Alcohol swabs, cotton balls
- Small sharps container (Optional)
- Case to hold prefilled syringes, etc. (e.g., pencil case, eyeglass case)
- Printed directions on how to administer injection, safe disposal of needles, syringes, etc.
- Storage instructions: room temperature, protect from light, expiry date up to 3 months from preparation date^{7,8,9}


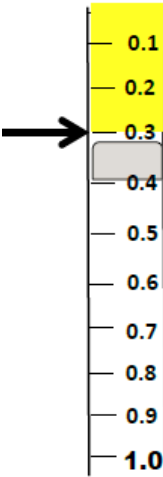
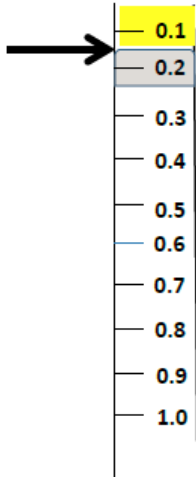

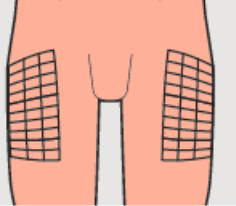
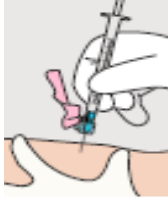
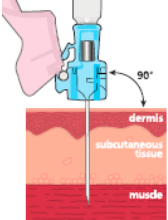


*Go to <https://www.youtube.com/watch?v=rMrJ4MKpHRw> for a demonstration of filling a syringe from an ampule of epinephrine. Note: in a non-emergency situation, use of a filter needle is recommended to prevent particulate matter from entering the syringe. Attach the filter needle to the syringe first to draw the epinephrine out of the ampule. Replace the filter needle with the safety needle prior to providing to the patient.

**Prepared by K.Jensen MSc, BSP; reviewed by C.Bell BSP
medSask, February 1, 2018**

References:

1. EpiPen. Drug Product Database. Health Canada website. Available at <https://health-products.canada.ca/dpd-bdpp/index-eng.jsp>
2. Shortage of EpiPen (0.3 mg) auto-injector in Canada. Health Canada website. Available at <http://healthycanadians.gc.ca/recall-alert-rappel-avis/hc-sc/2018/65748a-eng.php>.
3. PharmaClik. McKesson Canada. Available at <https://clients.mckesson.ca/> (Username and password required)
4. Epinephrine kit. Saskatchewan Immunization Guide. Available at <https://www.ehealthsask.ca/services/manuals/Documents/sim-chapter12.pdf>
5. Principles of Injection Technique – Becton Dickinson.
6. Model Standards for Pharmacy Compounding of Non-hazardous Sterile Preparations. Available at <http://napra.ca/general-practice-resources/model-standards-pharmacy-compounding-non-hazardous-sterile-preparations>
7. Kerddonfak et al. The stability and sterility of epinephrine prefilled syringe. Asian Pac J Allergy Immunol. 2010;28:53-7
8. Rawas-Qalaji et al. Long-term stability of epinephrine dispensed in unsealed syringes for the first-aid treatment of anaphylaxis. Ann Allergy Asthma Immunol. 2009;102:500-3
9. Pepper et al. The High Cost of Epinephrine Autoinjectors and Possible Alternatives. J Allergy Clin Immunol Pract 2017;5:665-8

EPINEPHRINE INJECTION FOR ANAPHYLAXIS

Exposure to allergy trigger	Food, insects, medication, etc.		
Alarm symptoms	Difficulty breathing, swelling around mouth and throat, faintness, hives		
1. Break epinephrine ampule 	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>Adult = 0.3 cc</p>  </div> <div style="text-align: center;"> <p>Peds < 8 yrs = 0.15 cc</p>  </div> </div>		
2. Pull into needle slowly 			
3. Stab needle like a dart into large muscle on side of thigh and push plunger down to inject the epinephrine Can inject through clothing			
4. Call 911 immediately after giving the injection			
5. Watch for response	Can inject a second dose in opposite thigh after 5 to 10 minutes if no improvement	Possible side effects: heart throbbing, fast heart rate, flushing, and headache Not harmful	
6. If unconscious <div style="display: flex; justify-content: space-between; align-items: center; padding: 10px;"> <div style="width: 45%; text-align: center;"> <p>Breathing</p>  <p>Put person in recovery position</p> <ul style="list-style-type: none"> - Hand supports head - Knee stops body from rolling onto stomach </div> <div style="width: 45%; text-align: center;"> <p>Not Breathing</p>  <p>Give compressions until help arrives</p> <ul style="list-style-type: none"> Push hard and fast in center of chest to the beat of <i>Stayin' Alive</i> </div> </div>			

Adapted from https://uwaterloo.ca/pharmacy/sites/ca.pharmacy/files/uploads/files/naloxone_infographic_accessible.pdf;
<https://www.dhs.wisconsin.gov/ems/training/epinephrinemanualdrawuptraining.pdf>; BD Principles of Injection Techniques