

PROTOCOL

Title: Edmonton Injector Protocol for Intermittent Subcutaneous InjectionDate Approved: February 2003Approved By: Clinical Practice Committee**A. PURPOSE:**

The Edmonton Injector (EI) is a reusable device utilized in the delivery of intermittent subcutaneous injections.

B. GENERAL INFORMATION:

The EI is designed to deliver medication subcutaneously. When properly assembled, staff, patients or family members will be able to administer a precise volume (dose) of medication. (e.g.: 0.5 mls, 1.0 mls etc.) Everything needed to inject the medication is conveniently carried in a cloth pouch. The EI provides accurate efficient medication administration at a low cost.

C. EQUIPMENT:

1. Winged infusion set without injection cap (25 gauge $\frac{3}{4}$).

Note: if allergy to metal needles or site problems requiring frequent needle changes, use silastic needle or small angiocath (27 gauge).

2. Transparent dressing or tape dressing.
3. 70% isopropyl alcohol or 0.5% chlorhexidine swab.

Note: in case of allergy to alcohol or chlorhexidine use povidone iodine.

4. Premixed medication mini-bag.
5. Edmonton Injector "pump tubing".
6. Standard 3 cc BD syringe.
7. Edmonton Injector device consisting of:
 - a. EI barrel protector.
 - b. EI screw cap.
 - c. EI dosage sleeves.
8. Cloth carrying bag (optional).

D. PROCEDURE

1. Wash hands.
2. Push the spike of the EI tubing into medication bag.
3. Slide the syringe plunger end into the slot of EI screw cap.
4. Place the desired number of sleeves over the syringe.

Note: Use the sleeve combination for the smallest volume needed. For example, if the breakthrough dose requires 0.5 mls and the regular dose requires 1.0 mls, use the sleeve combination for 0.5 mls and inject twice for the regular dose.

1 large sleeve will yield 2 mls.
2 large sleeves will yield 1 ml.
2 large sleeves and 1 small will yield 0.5 mls.

5. Place the syringe with the sleeves into the EI barrel protector and tighten the screw cap.
6. Connect the syringe tip to the stopcock portion of the EI tubing (make sure it is tightly connected).
7. Connect tubing to winged infusion set.
8. Remove the air from the bag and prime the tubing.
 - o Localize the air in the medication bag into the spike entry port by holding the bag upright.
 - o With the syringe/stopcock part of the tubing in one hand and the barrel protector in the other, pump the barrel back and forth to pump the air/solution from the bag to the tubing to prime.
 - o Prime to the end of the tubing if a subcutaneous site is already established. If needed, attach a butterfly needle and prime to the end of the needle.

E. SITE INITIATION:

1. Wash hands. Glove (non-sterile)
2. Choose and initiate site as per Intermittent Subcutaneous Injections Guideline.

F. ADMINISTRATION OF MEDICATION:

1. Fully pull syringe from EI barrel protector to withdraw accurate dosage from the medication bag.
2. Inject medication very slowly (over 1-5 minutes, dependent upon person's comfort) by pushing syringe back into the EI barrel protector.
3. Place EI and medication bag into cloth carrying bag if desired.

G. DOCUMENTATION:

1. Using the EI flow sheet or medication record, document the amount of medication used for priming and each dose administered. Record response / effectiveness of medication.
2. Document according to site specific policy and procedure. *See Appendix 1*

H. CLEANING THE EDMONTON INJECTOR:

1. Soak all aluminum pieces in 1:10 (bleach: tap water) solution for 24 hours.

I. OTHER CONSIDERATIONS:

1. There is no need to ever clamp the EI tubing. One-way valves ensure the medication flows only in one direction.
2. Air can be removed from the medication bag through the medication port using a sterile syringe and needle.

3. Very small air bubbles (<0.1 mls) in the tubing/syringe can be ignored. Large air bubbles should be removed by disconnecting the syringe; removing the air from the syringe and then reconnecting it while maintaining sterile technique.
4. Tightening the connection between the syringe and tubing can prevent air bubbles.
5. Change the s.c. site only when indicated, or as dictated by your site-specific policy.
6. Change the EI tubing with every new medication bag.
7. When showering or bathing, have the patient hang the EI bag in a dry area. Avoid disconnecting the EI set.
8. Morphine and Hydromorphone prepared solutions in NS or D5W mini-bags have a 30-day expiry date when refrigerated, and 14-day expiry when kept at room temperature. Oxycodone prepared in D5W has a 30-day expiry when kept at room temperature.

J. SAMPLE ORDER FOR EDMONTON INJECTOR:

The following example illustrates the medication orders for a patient who requires morphine 10 mg s.c. q4h ATC and 5 mg s.c. q1h prn. A 50 ml D5W mini-bag will be used.

Edmonton Injector: Morphine 500 mg in D5W to a total volume of 50 ml (concentration =10 mg / ml). Give morphine 10 mg (1 ml) s.c. q4h ATC and morphine 5 mg (0.5 ml) s.c. q1h prn for breakthrough pain.

Note:

ATC = around the clock

BTA = breakthrough analgesic

Total volume – is essential as the drug cannot be added to the mini-bag without first removing the volume of D5W which equals the volume of drug being added (otherwise concentration is not accurate).

K. PROBLEM SOLVING

EDMONTON INJECTOR leaks:

- Check all the connections, tighten if loose.

Difficulty trying to inject medication:

- Check to see if there is a kink in the tubing.

Air in line:

- One or two mls. Of air will NOT harm you because it is going under the skin.

Pain on injection:

- Inject more “slowly”
- Assess the site, does it need to be changed?

SUGGESTED READINGS

Bruera E, Velasco-Leiva A, Spachynski K, Fainsinger R, Miller MJ, MacEachern T. The use of the Edmonton Injector (EI) for parenteral opioid management of cancer pain: a study of 100 consecutive patients. J Pain Symptom management 1993; 8(8): 525-528.

