

Insulin



Insulin

Session Outline

1. Types
2. Actions
3. Administration
4. Syringe disposal
5. Important points on dosage
7. Sliding scale insulin
8. Insulin pens



Short Acting Insulin

Neutral: Actrapid, Humulin R

- ◆ onset in 30 minutes
- ◆ peaks at 2 hours
- ◆ lasts 6-8 hours

Insulin Lispro: Humalog / NovoRapid

- ◆ human analogue
- ◆ onset in 0-30 mins
- ◆ peaks in 1-3 hrs and lasts 4-6 hrs



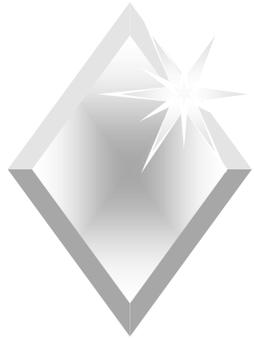
Intermediate Acting Insulin

Isophane: protophane, Humulin NPH

- ◆ human insulin (cloudy)
- ◆ onset in 2-4 hrs
- ◆ peaks from 4-12 hrs and works 22-24 hrs

Lente: Monotard, Humulin L

- ◆ human insulin (cloudy)
- ◆ onset in 3-4 hrs
- ◆ peaks from 6-10 hrs and works 22-24 hrs



Long Acting Insulin

Ultralente: Ultratard, Humulin UL

- ◆ human (cloudy)
- ◆ insulin zinc suspension crystalline
- ◆ onset at 4-6 hrs
- ◆ peaks at 6-20 and lasts for up to 24 hrs



Premixed Insulin

Neutral plus Isophane mixed:

- Mixtard 30/70, 20/80, 50/50,
- Humulin 20/80, 30/70, 50/50
 - ◆ human (cloudy)
 - ◆ mixture of intermediate and short
 - ◆ onset in 1-2 hrs
 - ◆ peaks at 4-12 hours and lasts up to 24 hours
- Mix 25 (²⁵/₇₅)
 - ◆ human analogue
 - ◆ mixture of intermediate and short
 - ◆ onset 0-30 minutes
 - ◆ peaks at 4-12 hours and lasts up to 24 hours



Insulin Action

The actions of insulin are to:

- ◆ Facilitate movement of glucose into the cells.
- ◆ Stimulate cells to take up glucose from the blood.
- ◆ Stimulate the storage of glucose, amino acids, and fatty acids.
- ◆ Stimulate glycogen formation and storage in the liver.



Insulin Administration

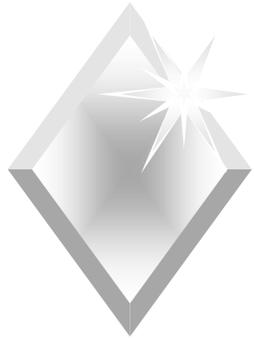
Nurses' responsibilities:

- ◆ Check medication order
- ◆ Check the correct insulin type and dose
- ◆ Ensure correct patient and time
- ◆ Supervise administration technique
- ◆ Consult diabetes nurse as needed
- ◆ Documentation



Insulin Administration

- ◆ **Sites:** abdomen (preferable), thigh or buttocks (keep to one site)
- ◆ **Timing:** depends on type of insulin
- ◆ **Storage:** unopened in the refrigerator. Insulin in use in cool, dark place $<25^{\circ}$.
- ◆ **Expiry:** use within 4 weeks of opening. Discard after expiry date.
- ◆ **Supply:** prescription only



Syringe Disposal

- ◆ Take care at all times
- ◆ Store supplies carefully
- ◆ Use a sharps container
- ◆ Do not recap your needles/lancets
- ◆ For local arrangements about safe disposal of containers check: council, public hospital or community health centre



Dosage

- ◆ Insulin types and dosages vary
- ◆ Usual insulin dose should be maintained if person is nauseated
- ◆ Dosage may be decreased if hypos occur, increased activity or decreased food
- ◆ Dosage may be increased during illness, inactivity or increased food



Sliding Scale Insulin

Indications:

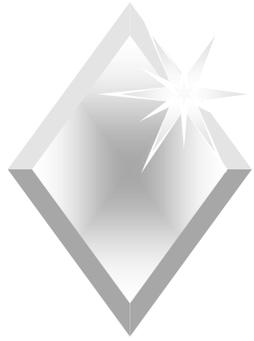
- ◆ Major surgery
- ◆ Poorly controlled diabetes
- ◆ Unwell and fasting
- ◆ Commenced long acting insulin
- ◆ Deciding dosage of long term insulin



Sliding Scale Insulin

Management:

1. Give $\frac{1}{2}$ an hour before meals and check BGL immediately prior to insulin dose.
2. If fasting no insulin should be given unless Dextrose IVT insitu.
3. No 0200 insulin unless Dextrose IVT insitu.
4. Check with MO if 2100 dose is required. Supper must be given.
5. Use short acting insulin only.



Post Quiz

1. Insulin types are classified by how fast they start to work and how long their effects last.
 - A. True
 - B. False

2. Which of the following are correct statements about insulin?
 - A. Insulin should be stored in the refrigerator
 - B. Insulin should be used within 4 weeks of opening the bottle .
 - C. Insulin should be discarded after the expiration date is reached.
 - D. All of the above are correct.

3. Which of the following are proper sites for insulin administration?
 - A. Abdomen
 - B. Thigh
 - C. Buttocks
 - D. All of the above.

4. Which of the following are true regarding insulin administration?
 - A. Recapping needles is allowed.
 - B. Needles and syringes may be disposed of in the trash.
 - C. Sharps containers are not needed for disposal of insulin syringes and needles.
 - D. All of the above are false.

5. Which of the following items should a nurse verify prior to administering insulin to a patient?
 - A. Right type of insulin
 - B. Correct dosage
 - C. Correct patient
 - D. All of the above

6. Which of the following are indications for the use of sliding scale insulin?
 - A. Major surgery, poorly controlled diabetes.
 - B. Well controlled patients who can judge how much insulin they require.
 - C. Sliding scale insulin is used for the very young or very old patient when they are well controlled with other forms of insulin but don't want to take injections regularly.