

Insulin Administration General Information

- A. Insulin is a hormone constructed of proteins that is normally produced by the pancreas. Synthetically manufactured insulin is produced for people with diabetes who lack this hormone. Several days without insulin can cause a life-threatening condition of ketoacidosis, coma and eventually death.
- B. The number of insulin units to be given is ordered by the physician or nurse practitioner. The amount or dose of insulin will depend on several factors: body size, blood glucose levels, meal plan, and exercise. A sliding scale may be used, i.e. the number of insulin units to be given is based on the blood glucose reading (refer to Procedure for Blood Glucose Testing).
- C. Insulin can be affected by extremes in temperature, which can denature the protein and decrease or eliminate its effect. Insulin remains stable at temperatures between 40 – 75 degrees. Once insulin is opened, the date should be written on the vial. Opened insulin should be stored in the refrigerator and used for 1 month. Extra vials should be stored in the refrigerator to assure temperature consistency. Unopened vials that are stored properly are good until the expiration date. Refer to manufacturer's instructions to ensure proper storage.
- D. Insulin doses are measured in "units". There are 10 milliliters in one vial of insulin, which is equivalent to 1000 units. One unit of insulin can alter a blood glucose level therefore it **is imperative that the ordered dosage be EXACT!**
- E. Insulin injections are given subcutaneously (area between the skin and the muscle). Sites should be rotated to avoid scar tissue or fatty cell growth under the skin.
- F. School staff members (teachers, recess monitors, health aides, ancillary staff, bus drivers, substitutes, etc.) who are responsible for the student with diabetes need to be educated regarding hypo/hyperglycemia treatment. Hypoglycemia is most likely to occur at insulin peak action times (refer to "Insulin Action Times" handout).
- G. Regular or Humalog are short acting insulins and are used for meal coverage or "spot dosing" and correction doses (doses given in order to decrease an elevated blood glucose). If an extra dose of short acting insulin is given, the blood glucose should be checked approximately 30 minutes - 2 hours later with parent approval. Correction or spot doses should not be given closer than 2 hours apart.
- H. Insulin delivery methods include a syringe, an insulin pen, an insulin pump, or several tools that can be used to assist with injection and/or delivery (refer to the **Insulin Delivery Systems**, Section III, G). The steps in this procedure are written for syringe use however, various tools can be adapted into this procedure. Separate procedures have been written for the insulin pen and pump.
- I. **The nurse must be notified if additional medication is being used by the student.** Other medications and drugs can increase or decrease the effect of insulin. Insulin drug interactions can include:
- Metoprolol, propranolol, **hyperglycemia or hypoglycemia may occur.** Use together cautiously.
 - Alcohol, corticosteroids, dextrothyroxine, estrogens, glucagon, rifampin, thiazide, diuretics and thyroxine, decrease insulin response. Monitor blood glucose.
 - Anabolic steroids, clofibrate, guanethidine, alofenate, MAO inhibitors, phenylbutazone salicyates, mulfonamides, oral anticoagulants; **increase insulin response.** Monitor blood glucose.

In the event of a disaster, if a credentialed school nurse is not available, the administration of insulin by others would be considered prudent and permissible by law. It is strongly recommended that the parent/guardian/careproviders discuss their individual situation with school personnel so that guidelines and precautions can be addressed in advance (refer to Disaster Preparedness for Students with Diabetes, Section III, F). This procedure can be copied and placed in a baggie with the insulin supply for use during a disaster.