Glucose is the body's basic carbohydrate fuel and is required for cellular metabolism. It produces most of the body's quick energy. Its storage and release is regulated by insulin, which stimulates glucose entry into cells from the bloodstream, and glucagon, which mobilizes stored glucose back into the blood stream.

Indications and Administration

1. Measured blood sugar <70 with altered mental status.
    a. **Adult** - 0.5g/kg IV in a secure vein. May give PO if patient awake and able to swallow.
    b. **Pediatric –** 0.5g/kg IV in a secure vein. If patient <8, dilute D_{50} with equivalent volume NS to make D_{25}. For patients <1, dilute D_{50} with 4 volumes of NS to make D_{10}. May give PO if patient awake and able to swallow.

Notes

1. Therapy with D_{50} is based on in-field rapid glucose determination.
2. D_{50} can be very irritating to intravascular tissue. If there are no contraindications to doing so, give D_{50} with plenty of fluid to reduce the possibility of causing vasculitis.
3. Extravasation of dextrose can cause necrosis of tissue. IV should be secure and free return of blood into the syringe or tubing should be checked 2-3 times during administration. If extravasation does occur, elevate extremity and report infiltration to the receiving physician.
4. 50% Dextrose had been thought to be relatively free of side effects. Studies have shown glucose administration may worsen neurologic outcome in patients at risk for cerebral ischemia, such as those with stroke, impending arrest, hypotension or head trauma. D_{50} should be reserved for those patients in whom hypoglycemia is determined.
5. One bolus should be sufficient to raise the blood sugar 50-100 mg/dL and will be adequate for prehospital care.
6. Effect can be delayed in elderly people with poor circulation, CHF and a-fib.

7. Occasionally, patients who have normally elevated blood sugar will present with hypoglycemia symptoms when their blood sugar is at near normal levels. If a patient has a history and symptoms suggestive of hypoglycemia, don't withhold D_{50} because their BGL isn't below 70. However, symptoms of hypoglycemia with BGL over 100 is extremely unlikely.