

## Chapter 6

# Low Blood Sugar (Hypoglycemia or Insulin Reaction)



Anyone who has been given insulin can have low blood sugar (hypoglycemia or a “reaction”). **A true low blood sugar is a value less than 60 mg/dl (3.3 mmol/L).**

### Main Causes:

- 🐾 late or missed meals or snacks
- 🐾 extra exercise (the low may be “delayed” during the night)
- 🐾 too much insulin/wrong dose
- 🐾 taking bath, shower or hot tub too soon after injection (dangerous)
- 🐾 low blood sugar (for any reason, particularly at bedtime) and failing to do a follow-up blood sugar 15 to 30 minutes later, making sure the value has come up as a result of the treatment
- 🐾 illnesses, especially with vomiting

Remember that if a person has a low blood sugar and can't keep food down, low dose glucagon, one unit per year of age up to 15 units, can be given under the skin just like insulin - with an insulin syringe. The dose can be repeated every 20 minutes until the blood sugar is up. Once glucagon is mixed, it usually can continue to be used for about 24 hours before it gels.

### The signs of a low blood sugar can be different and may include:

- 🐾 hunger
- 🐾 feeling shaky, sweaty and/or weak
- 🐾 confusion
- 🐾 sleepiness (at unusual times)
- 🐾 behavioral/mood changes
- 🐾 double vision
- 🐾 the signs of nighttime lows may be the same, or may include waking up alert, crying, or having bad dreams

Low blood sugar comes on quickly. It must be treated immediately by the person (if able) or by someone who is nearby at the time. If not treated, loss of consciousness or seizures may occur. Different levels of reactions (mild, moderate, severe) and treatment for each level are shown in the table in this chapter.

**With a “mild” low blood sugar (reaction):**  
(also see table)

- give sugar (it’s best in liquid form) such as four ounces of juice or sugar pop or eight ounces of milk.
- when possible, a blood sugar test should be done.
- it takes **10 to 20** minutes for the blood sugar to rise after treatment.
- re-check the blood sugar after 10 to 20 minutes to make sure the level is above 70 mg/dl (3.9 mmol/L).
- if it is still below this level, the liquid sugar should be given again. Follow the steps above, again.
- wait another 10 to 15 minutes to repeat the blood sugar test.
- if the blood sugar is above 70 mg/dl (3.9 mmol/L), give solid food. The reason for waiting to give the solid food is that it may soak up the liquid sugar and slow the time for the sugar to get into the blood.
- the person should not return to activity until the blood sugar is above 70 mg/dl (3.9 mmol/L).
- if the low is at bedtime, it is best to repeat the blood sugar test, as above, and again during the night to make sure the level stays up.
- if a low blood sugar occurs when it is time for an insulin shot, always treat the low first. Make sure the blood sugar is back up before giving the shot.

**With a “moderate” reaction:**

- put half a tube of Insta-Glucose® or cake gel between the gums and cheeks. Rub the cheeks and stroke the throat to help with swallowing.

**With a “severe” reaction:**

- if a seizure or complete loss of consciousness occurs, it may be necessary to give a shot of **glucagon**. After mixing, give the following doses under the skin (just like insulin):


less than 6 years = 0.3 cc (30 units)

6-18 years = 0.5 cc (50 units)





greater than 18 years = 1.0 cc (100 units)

**Though the result of using glucagon is the opposite of insulin, it is NOT sugar.** It will make the blood sugar rise, usually in **10 to 20 minutes**.

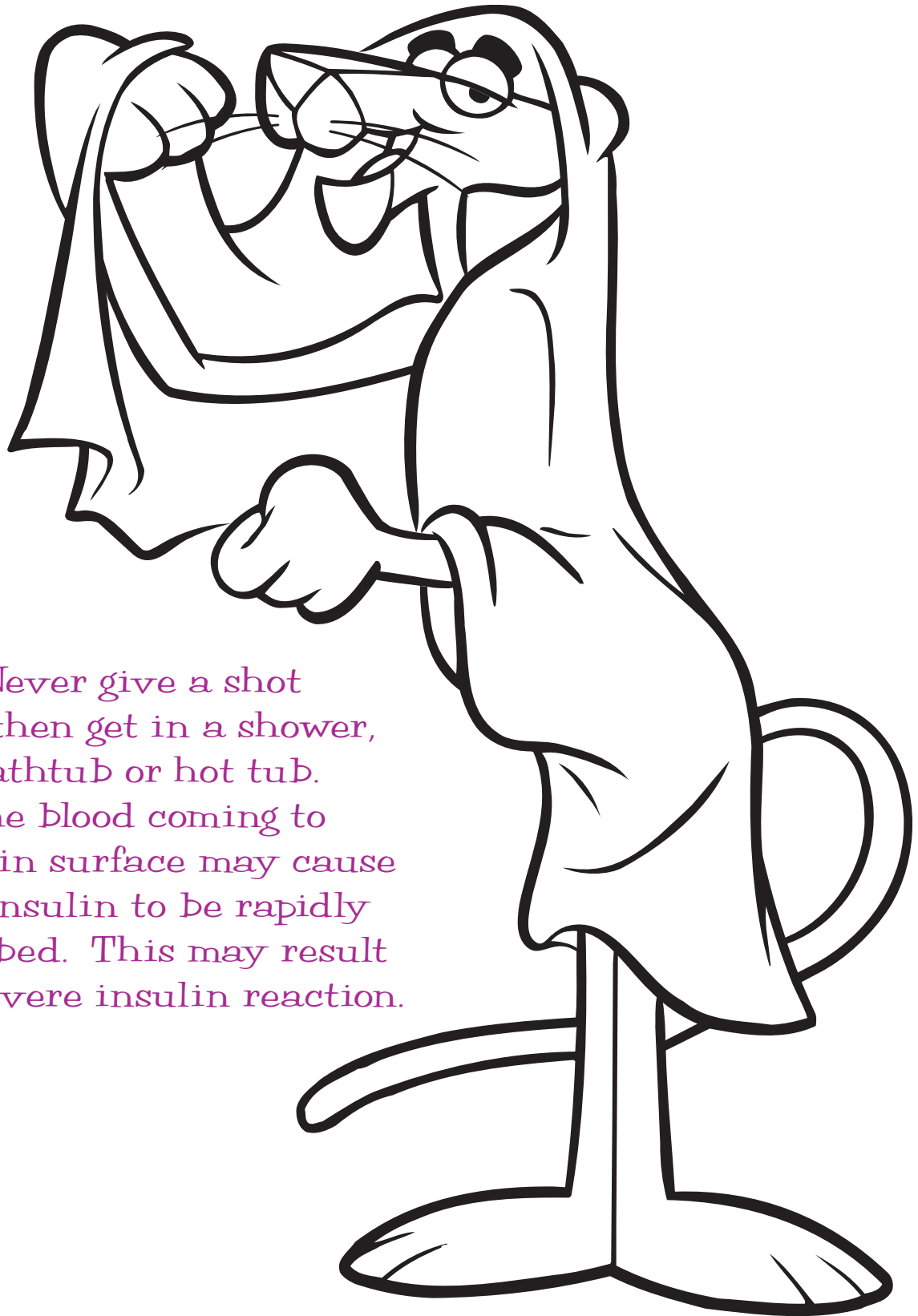
*Giving glucagon:*

-  after mixing, it can be given with an insulin syringe just like insulin.

*Amount of glucagon to give:*

-  preschoolers can be given a full 30 unit syringe.
-  preteens can be given a full 50 unit syringe.
-  teens and adults can be given a full 100 unit syringe.
-  if the person does not respond in 10 to 20 minutes the paramedics (911) should be called.

Your doctor or nurse should be called prior to the next insulin shot, as the amount of insulin you give may need to be changed.



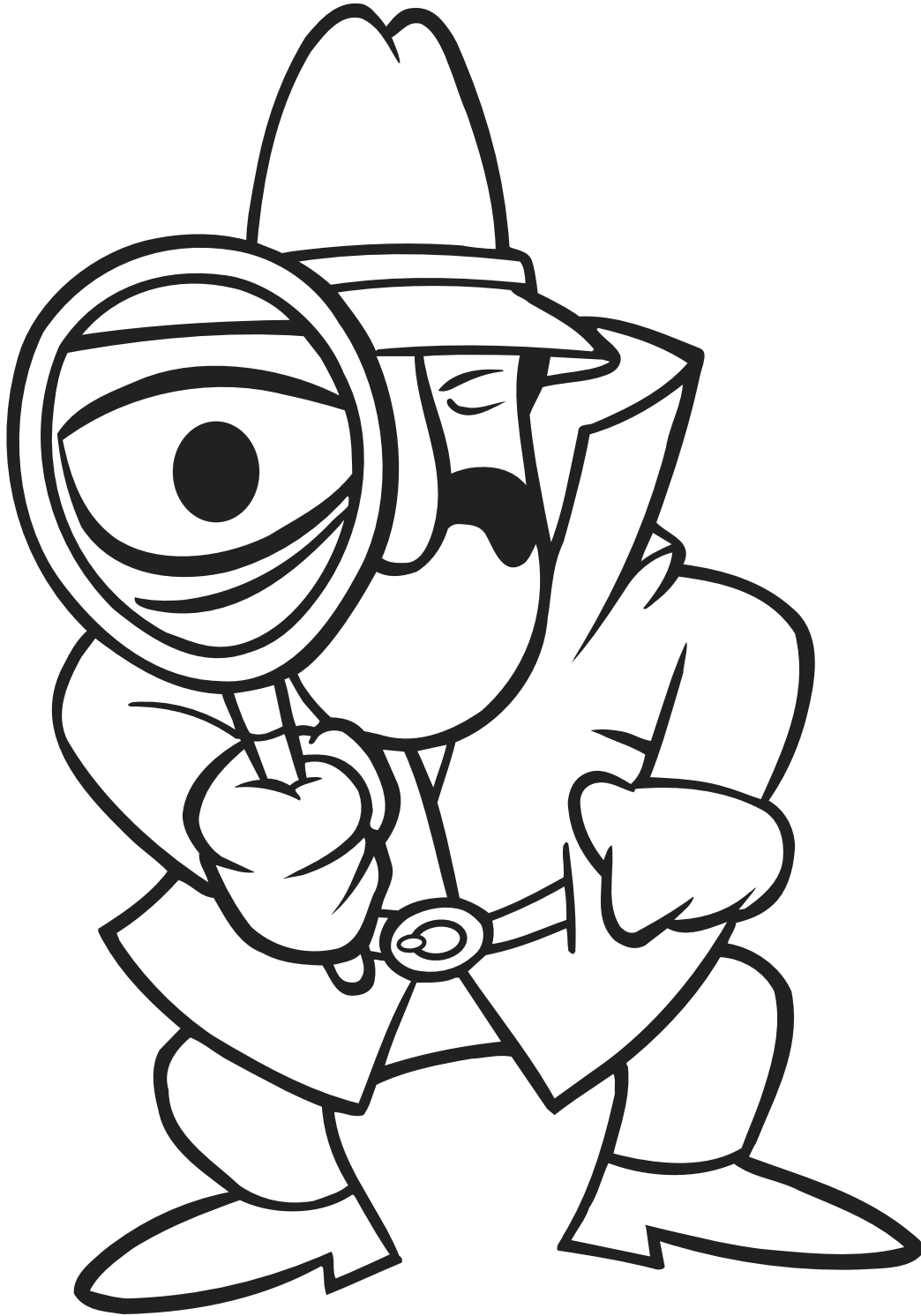
Never give a shot  
and then get in a shower,  
bathtub or hot tub.  
The blood coming to  
the skin surface may cause  
the insulin to be rapidly  
absorbed. This may result  
in a severe insulin reaction.

Table

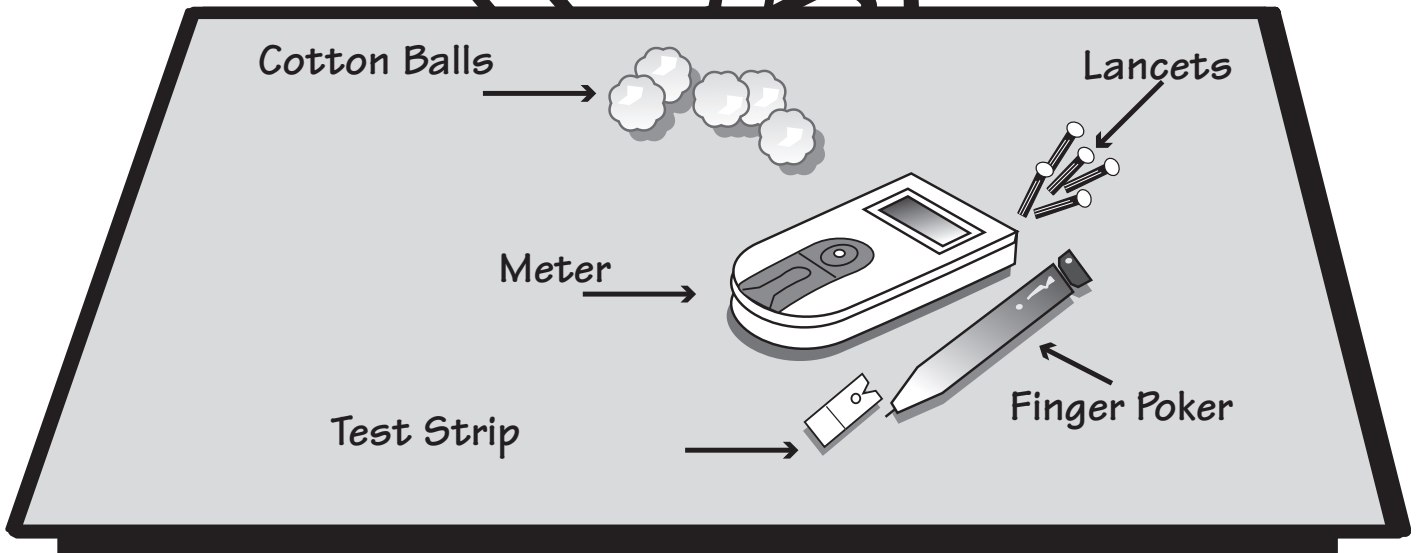
## Hypoglycemia: Treatment of Low Blood Sugar (B.S.)

*Always check blood sugar level!*

Low Blood Sugar Category	MILD	MODERATE	SEVERE
Alertness	<b><u>ALERT</u></b>	<b><u>NOT ALERT</u></b> Unable to drink safely (choking risk) Needs help from another person	<b><u>UNRESPONSIVE</u></b> Loss of consciousness Seizure Needs constant adult help (position of safety) <i>Give nothing by mouth (extreme choking risk)</i>
Symptoms	Mood Changes Shaky, Sweaty Hungry Fatigue, Weak Pale	Lack of Focus Headache Confused Disoriented 'Out of Control' (bite, kick) <i>Can't</i> Self-treat	Loss of Consciousness Seizure
Actions to take	<ul style="list-style-type: none"> <li>✓ Check B.S.</li> <li>✓ Give 2-8 oz sugary fluid (amount age dependent)</li> <li>✓ Recheck B.S. in 10-15 min.</li> <li>✓ B.S. &lt; 70 mg/dl (&lt; 3.9 mmol/L), repeat sugary fluid and recheck in 10-20 min.</li> <li>✓ B.S. &gt; 70 mg/dl (&gt; 3.9 mmol/L), (give a solid snack)</li> </ul>	<ul style="list-style-type: none"> <li>✓ <i>Place in position of safety</i></li> <li>✓ Check B.S.</li> <li>✓ If on insulin pump, may disconnect or suspend until fully recovered from low blood sugar (<b>awake and alert</b>)</li> <li>✓ Give Insta-Glucose or cake decorating gel - put between gums and cheek and rub in.</li> <li>✓ Look for person to 'wake up'</li> <li>✓ Recheck B.S. in 10-20 min.</li> <li>✓ <i>Once alert</i> – follow "actions" under 'Mild' column</li> </ul> <p>(Can use low dose glucagon: [1 unit per year of age], if very disoriented or out of control)</p>	<ul style="list-style-type: none"> <li>✓ <i>Place in position of safety</i></li> <li>✓ Check B.S.</li> <li>✓ If on insulin pump, disconnect or suspend until fully recovered from low blood sugar (<b>awake and alert</b>)</li> <li>✓ Glucagon: <i>can be given with an insulin syringe</i> like insulin Below 5 years : <b>30 units</b> 5-16 years: <b>50 units</b> Over 16 years: <b>100 units (all of dose)</b></li> <li>✓ If giving 50 or 100 unit doses, may use syringe in box &amp; inject through clothing.</li> <li>✓ <b>Check B.S. every 10-15 min. until &gt; 80 mg/dl (4.5 mmol/L)</b></li> <li>✓ <b><u>If no response, may need to call 911</u></b></li> <li>✓ <b>Check B.S. every hour x 4-5 hours</b></li> <li>✓ High risk for more lows x 24 hours <i>(need to ↑ food intake and ↓ insulin doses)</i></li> </ul>
Recovery time	10-20 minutes	20-45 minutes	→ Call RN / MD ← and report the episode Effects can last 2-12 hours



It is important for adults to keep an eye on younger children for signs of low sugar.



Test your blood sugars  
four or more times each day.