Steps for Safe and Efficient Insulin Use

**Aim**

These protocols aim to provide the necessary guidance to enable insulin to be initiated safely and effectively

**Objectives**

1. To provide an evidence based procedure for initiating insulin
2. To ensure the patient is able to self-inject independently, safely and effectively
3. To provide education and support for the patient, their family, providers and staff to deliver consistent care to people with diabetes
4. To promote an empowering education program for all people with diabetes so that they are able to manage their condition

**Guidelines for Education and Training**

1. Education in insulin therapy, including reasons for insulin treatment, contraindications, complications and appropriate aftercare
2. Education on use of the equipment used in the procedure and its safe disposal
3. An understanding of different insulin’s, their action and safe dose adjustments
Stepwise Approach to Insulin Education

- Discuss the process of starting insulin with the patient; encourage the patient to have a family member present if they so desire
- Allow the patient to ask questions and discuss, reassure about any fears they may have regarding insulin injections
- Advise the patient that you will explain each step of the procedure, take into account the patient's ability
- Have the patient perform a blood glucose reading with their glucometer in the office and record on the glucose log sheet
- Demonstrate to the patient the use of device that has been prescribed for the delivery of insulin
- Demonstrate to the patient the correct technique for subcutaneous injection
- Have patient redemonstrate the steps above
- Support and assist patient in self-injecting insulin now
- Discuss possible injection sites and injection rotation
- Use patient literature to explain the above
- Discuss correct disposal of sharps
- Discuss storage of insulin and device used
- Discuss times of meals and insulin injections, emphasize the importance of a regular schedule for eating and insulin administration
- Discuss and give patient information about hypoglycemia, prompt recognition and treatment of
- Provide written information re insulin doses
- Discuss hyperglycemia, sick day rules and provide written information
- Discuss driving and implications now that patient has commenced insulin therapy
- Have patient redemonstrate insulin and blood glucose monitoring technique as many times as needed for them to be comfortable with self-care
- Discuss action of insulin and dose adjustment
- Review with patient what oral hypoglycemic agents to be stopped / taken
- Patient can state insulin regimen, doses, times
- Patient can state how to contact you for questions
- Patient can state how to treat hypoglycemia
- Patient can state what to take with them when going out (glucometer, glucose tablets, insulin)
Flow Sheet for Teaching Insulin Use

- **Hands.** Wash hands with warm, soapy water using plenty of friction. Ask the patient to sing Happy Birthday while they wash their hands to ensure adequate hand washing.

- **Clean the site.** Make sure the injection site is cleansed with soap and water or an alcohol pad. The area should be dry before injecting.

- **Inserting the needle.** Faster is better, inserting slowly will cause more pain. Try inserting the needle almost like you would toss a dart.

- **Needle angle.** For adults or those with good fatty tissue, insert at a 90° angle. Thin adults and children may need to inject at a 45° angle. Try to get the needle all the way into fatty tissue below the skin, but not so deep that it hits the muscle below.

- **Injecting the insulin.** Push the syringe plunger all the way in with a slow steady motion or firmly press the insulin pen injection button. Wait ten seconds before removing the needle.

- **Remove the needle by pulling straight out.** Twisting or shifting the needle's position will cause pain. You may gently press on the injection site with your finger for a couple seconds. Do not rub or massage the skin where the insulin is injected; it can affect how fast the insulin is absorbed and acts within the body.

- **Dispose of** the syringe in a hard plastic container.

**Patient Information**

**Rotating Injection Sites**

Injecting in the same place much of the time can cause hard lumps or extra fat deposits to develop. These lumps are not only unsightly; they can also change the way insulin is absorbed, making it more difficult to keep your blood glucose on target.

Follow these two rules for proper site rotation:

- Same general location at the same time each day.
- Rotate within each injection site.
Same Time, Same General Location

Insulin is absorbed at different speeds depending on where you inject, so it's best to consistently use the same part of the body for each of your daily injections. If you have picked the thigh for your evening injection, then continue to use the thigh for all of your evening injections.

Inject your mealtime bolus doses into the abdomen for faster absorption to cover your meal.

Long-acting insulin should be injected into the thigh or buttocks for slower absorption.

If you use PreMix insulin or mix two types of insulin in one shot, you can inject into the abdomen, arm, thigh, or buttocks.

Rotate Within an Injection Site

To avoid developing hard lumps and fat deposits, it is important to inject in different spots within a general part of the body. Change sides within an area. For example, if you inject your evening insulin in the thigh, try using the right thigh one evening, and the left thigh the next evening.

Smart Tips for Site Rotation

Over time, you and your provider will learn which injection sites give you the best blood glucose control at different times of day.

- Do not inject close to the belly button. The tissue there is tougher, so the insulin absorption will not be as consistent.
- For the same reason, do not inject close to moles or scars
- If you inject in the upper arm, use only the outer back area (where the most fat is). It is hard to pinch the upper arm when you are injecting yourself. Try pressing your upper arm against a wall or door.
- If you inject in the thigh, inject in the part of the thigh that hangs over when you are sitting on a toilet seat--stay away from the inner thighs and the front of the thigh.
- Do not inject in an area that will be exercised soon. Exercising increases blood flow, which causes long-acting insulin to be absorbed at a faster rate.
- Do not become a creature of habit! It might seem easier to find a spot that does not hurt and inject there all of the time. However, the result could be unpleasant swelling and lumps.
- Move to a new injection site every week or two.
• Rotate the sides (right, left) of your body where you inject within your injection sites.
• Cold insulin right from the refrigerator can cause stinging when injected. It is fine to let your pen, or syringe warm up for 5 minutes, or, even the bottle of insulin for 5-10 minutes.

**Storage and Handling Insulin**

Always read the instructions that come with your insulin. Insulin, either open or unopened, generally lasts from two weeks to one month when stored at room temperature (59 to 86°F). Insulin is considered open if its seal has been punctured. If you remove the cap but don't puncture the seal, the insulin is still considered unopened.

If stored in a refrigerator, unopened insulins are good until the expiration date printed on the bottle. Opened insulins that are stored in a refrigerator should be used within one month of being opened. Many people store their unopened insulins in the refrigerator and keep open bottles at room temperature because they find it uncomfortable to inject cold insulin.

With insulin pens, storage life ranges from ten days to one month. Check the chart below for shelf life details on popular brands.

**VIALS OF INSULIN** can be stored 28-30 days at Room Temperature (59 – 86 degrees F).

**Table. INSULIN PENS can be at Room Temperature** (59 – 86 degrees F).

<table>
<thead>
<tr>
<th>Insulin</th>
<th>Time (days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Novolin R (Regular)</td>
<td>28</td>
</tr>
<tr>
<td>Novolin N (NPH)</td>
<td>14</td>
</tr>
<tr>
<td>Premix 70/30 NPH/R</td>
<td>10</td>
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<tr>
<td><strong>Rapid acting</strong></td>
<td></td>
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<tr>
<td>Novolog</td>
<td>28</td>
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<tr>
<td>Humalog</td>
<td>28</td>
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<tr>
<td><strong>Basals</strong></td>
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<tr>
<td>Lantus</td>
<td>28</td>
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<tr>
<td>Levemir</td>
<td>42</td>
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<tr>
<td><strong>Premix NPH/Rapid Acting</strong></td>
<td></td>
</tr>
<tr>
<td>75/25 Humalog Kwik Pen</td>
<td>10</td>
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<tr>
<td>75/25 Humalog Vial</td>
<td>28</td>
</tr>
<tr>
<td>Novolog 70/30 Flex Pen</td>
<td>14</td>
</tr>
<tr>
<td>Novolog 70/30 Vial</td>
<td>28</td>
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