



## SECTION 11: CARE OF THE CHILD WITH DIABETES

### 11.3 Administration of Insulin

#### 11.3.2 To Administer Mixed Insulins in One Injection

##### Aim

To administer a quick acting (clear) insulin and an intermediate acting (cloudy) insulin, in one syringe so as to minimise the risk of complications.

##### Key Points

- **Do not inject insulin if the patient has a blood glucose level less than 4 mmol/L.**
- Insulin vials and/or insulin pens are *single patient* use only. The vial or pen must be labelled for the specific individual patient and include date and time opened.<sup>1</sup>
- When mixing rapid- or short-acting insulin with intermediate- or long-acting insulin, the clear rapid, or short-acting insulin should be drawn into the syringe first.<sup>2,3</sup>
- Long acting analogues (Lantus and Levemir) cannot be mixed with other insulins.<sup>2,4</sup>
- Store new (unopened) insulin in the refrigerator and remove 30 minutes prior to administration. Insulin injected at room temperature reduces the risk of local irritation and pain.<sup>4</sup>
- Insulin vials once opened can be kept at room temperature (below 25°C) but must be discarded 28 days after opening.<sup>5-7</sup> Humulin® cartridges, when stored at room temperature must be discarded 21 days after opening.<sup>8</sup>
- When the vial, cartridge and/or pen are no longer required by the patient they must be disposed of immediately.
- Self-administration of insulin using the injecting pen device is only available to the patient and/or parent who can demonstrate competence in the procedure during his/her hospital stay. If competence is not achieved, then a Registered Nurse must use hospital approved safety insulin syringe and needle. Refer to [PNPM 11.3.1](#) Administration of Single Dose Insulin.
- Where possible use needles  $\leq 6\text{mm}$  and inject at  $90^\circ$  angle to the skin.<sup>7</sup> If using an 8mm needle create a skin fold and inject at an angle of  $45^\circ$  to the skin.<sup>3,7,9</sup>

**Equipment**

Insulin syringe 0.5mL (1.0mL syringe may be needed if the dose is greater than 50 units.)

Vials/cartridges of prescribed insulin

Medication chart

Sharps Container

Diabetes Ward Monitoring Chart

**Procedure**

Use standard aseptic non touch technique for this procedure. Refer to ANTT® [Clinical Practice Framework](#).

Steps	Additional Information
<ul style="list-style-type: none"> <li>• Check expiry date of insulin.</li> </ul>	<p>As per manufacturing guidelines. Do not use if past the month and/or year.</p>
<ul style="list-style-type: none"> <li>• Rotate bottle of long acting, cloudy insulin between palms to re-suspend the insulin.<sup>7</sup></li> </ul>	<p>Never shake a bottle of insulin.<sup>2</sup> There is no need to roll or rotate rapid and/or short acting insulin.</p>
<ul style="list-style-type: none"> <li>• Clean rubber top of both bottles with alcohol swab.</li> </ul>	<p>Prevents contamination by the needle when passing through the rubber.</p>
<p><b>Long acting insulin (Cloudy)</b></p> <ul style="list-style-type: none"> <li>• Pull back plunger to draw air into syringe equal to volume of the cloudy insulin dose.</li> <li>• Put the needle through the cap of the cloudy insulin bottle and inject air.</li> <li>• Do not draw up cloudy insulin at this stage</li> <li>• Remove the needle.</li> </ul>	
<p><b>Short-acting insulin (Clear)</b></p> <ul style="list-style-type: none"> <li>• Pull back the plunger to draw air equal to the volume of the clear insulin dose.</li> <li>• Put the needle into the bottle of clear insulin and inject the air.</li> </ul>	


Steps	Additional Information
<ul style="list-style-type: none"> <li>• Leaving needle in bottle, invert bottle.</li> <li>• Draw back insulin to 5 units.</li> <li>• Push the volume back into the bottle to expel the air bubbles.</li> <li>• Holding the syringe at eye level, draw down correct dose of insulin.                             <ul style="list-style-type: none"> <li>– If air bubbles in syringe, push insulin back into bottle and redraw the insulin dose.</li> </ul> </li> <li>• Remove needle from the bottle.</li> </ul>	<p>Ensure the insulin level covers the tip of the needle.</p>
<p><b>Draw up the cloudy insulin:</b></p> <ul style="list-style-type: none"> <li>• Invert the bottle of cloudy insulin.</li> <li>• Push the needle into the bottle and slowly withdraw the prescribed dose.</li> <li>• Withdraw the needle from the bottle.</li> <li>• Check there are no bubbles in the syringe.</li> </ul>	<p>If the dose is overdrawn, discard all insulin and start again.</p> <p>The insulin is now ready for injection</p>
<ul style="list-style-type: none"> <li>• Administer the injection subcutaneously.</li> </ul>	

<p>Related policy, procedures and guidelines.</p>
<p><a href="#">PNPM 11.3.1</a> Administering Single Dose Insulin</p>
<p><a href="#">PNPM 2.5.5</a> Subcutaneous Injections</p>
<p><a href="#">PNPM 2.1.2</a> Checking and Administration of Medications.</p>

<p>Useful resources.</p>
<p><a href="#">Mixing Insulin</a> BD brochure. Step by Step Guide for Consumers</p>
<p><a href="#">Australasian Paediatric Endocrine Group. (APEG)</a> National evidence based clinical guidelines for type 1 diabetes in children, adolescents and adults</p>

**References:**

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