

## **injections.**

Techniques to minimize the pain associated with these injections include changing the needle if it pierced a rubber stopper on a vial, using 26- to 30-gauge needles (only to inject the solution), and injecting small volumes ( $\leq 0.5$  ml). The angle of the needle for the subcutaneous injection is typically 90 degrees. In children with little subcutaneous tissue, some practitioners insert the needle at a 45-degree angle. However, the benefit of using the 45-degree angle rather than the 90-degree angle remains controversial.

Although subcutaneous injections can be given anywhere there is subcutaneous tissue, common sites include the center third of the lateral aspect of the upper arm, the abdomen, and the center third of the anterior thigh. Some practitioners believe it is not necessary to aspirate before injecting subcutaneously; for example, this is an accepted practice in the administration of insulin. Automatic injector devices do not aspirate before injecting.

When giving an intradermal injection into the volar surface of the forearm, the nurse should avoid the medial side of the arm, where the skin is more sensitive.

## **Nursing Tip**

Families often need to learn injection techniques to administer medications, such as insulin, at home. Begin teaching as early as possible to allow the family the maximum amount of practice time.

## **Intravenous Administration**

The IV route for administering medications is frequently used in pediatric therapy. For some drugs, it is the only effective route. This method is used for giving drugs to children who:

- Have poor absorption as a result of diarrhea, vomiting, or dehydration
- Need a high serum concentration of a drug
- Have resistant infections that require parenteral medication over an extended time
- Need continuous pain relief
- Require emergency treatment