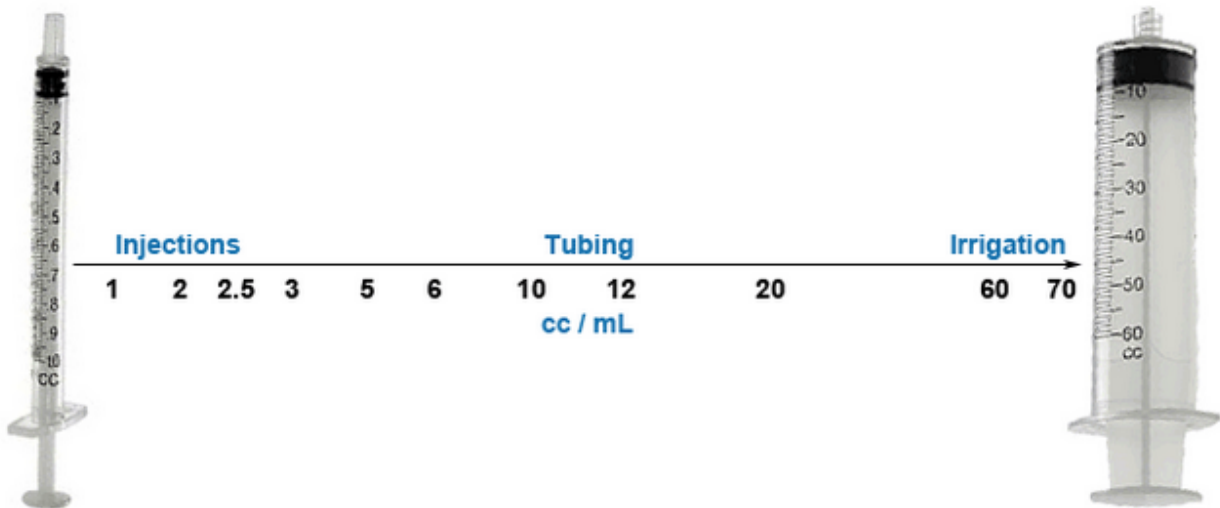


# Anatomy of a Syringe



# Syringe Size Continuum

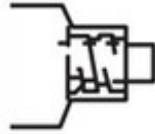


- Smaller volumes mostly used for subcutaneous & intramuscular injections.
- The Larger the syringe size, the lower the pressure flow.
- 10 to 12 mL commonly used for central lines, catheters, medical tubing.
- 20 to 70 mL commonly used for irrigation.

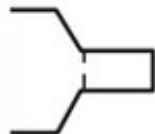
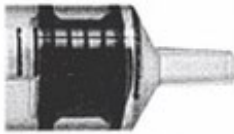
Hub / Shaft / Bevel

# Syringe Tip Selection

## Types of Syringe Tips



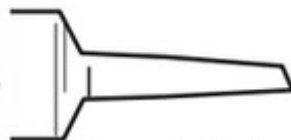
**Luer Lok Tip** - secure screw type connection.



**Slip Tip** - slip or push-on connection.



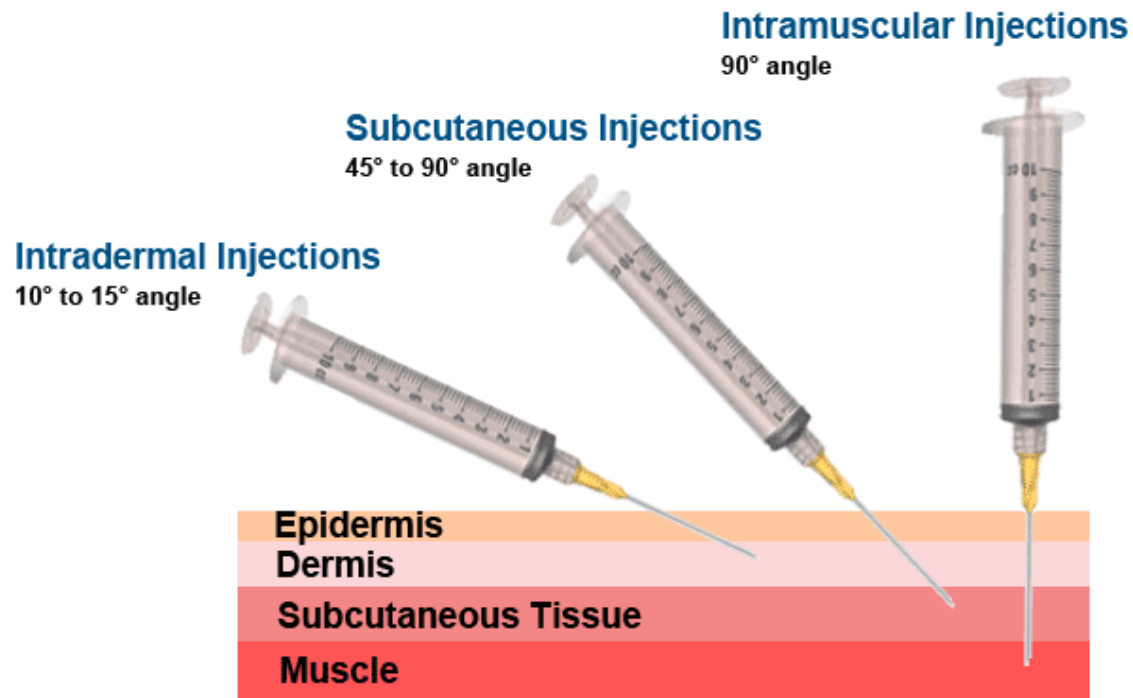
**Eccentric Tip** - off center tip used for surface veins or artery injections.



**Catheter Tip** - Longer and tapered slip tip design used for irrigation or with tubing.

# Needle Selection Guide

## Needle Use



Intramuscular injection angle 90°

Recommended injection sites for intramuscular injections:

- Adults - deltoid muscle of arm, vastus lateralis muscle of thigh.
- Children 18 months (walking) to 18 years - deltoid muscle of arm, vastus lateralis muscle of thigh, or ventrogluteal site.
- Infants less than 18 months - vastus lateralis thigh muscle.

Subcutaneous injection angle 45° to 90°

Recommended injection sites for subcutaneous injections:

- Adults to Infants - anterolateral thigh, upper outer tricep area, upper buttocks, or abdomen (avoid 2" radius around umbilicus).

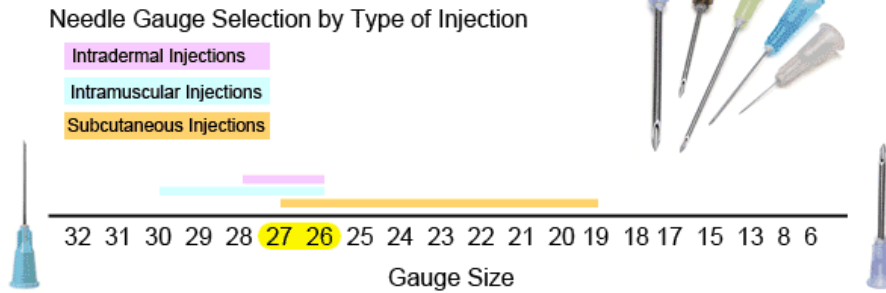
Intradermal injection angle 10° to 15°

Recommended injection sites for intradermal injections:

- Adults to Infants - anterior aspect of forearm, upper chest, upper back, or back of upper arm.

# Needle Selection Continuum

## Needle Gauge

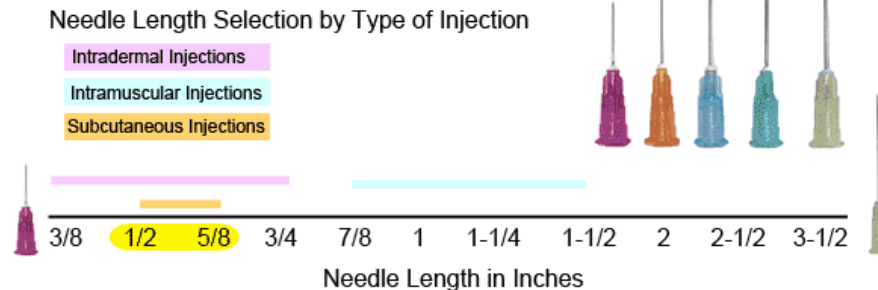


- Gauge recommendations for intradermal injections - 26 to 28.
- Gauge recommendations for intramuscular injections - 26 to 30.
- Gauge recommendations for subcutaneous injections - 19 to 27.
- There is overlap between all three injection types for gauges 26 and 27.
- The higher the gauge, number, the smaller the diameter of the needle.
- The higher the viscosity of the fluid, the lower the gauge size.
- The lower the gauge number, the stronger the needle, resulting in less chance of bending or breaking.
- The higher the gauge number, the less pain or bruising experienced by patients.

Source: Becton Dickinson



## Needle Length



- Length recommendations for intradermal injections - 3/8" to 3/4"
- Length recommendations for intramuscular injections - 7/8" to 1-1/2"
- Length recommendations for subcutaneous injections - 1/2" to 5/8"
- There is overlap between intradermal & subcutaneous injections for 1/2" to 5/8" length needles.
- The deeper the injection, the longer the length of the needle required.
- The shorter the needle length, the less pain or bruising experienced by patients.