



**Institutional Animal Care and Use Committee  
Guidelines and Policies**

**GUIDELINES FOR MAXIMUM INJECTION VOLUMES AND NEEDLE SIZES  
FOR USE IN LABORATORY ANIMALS**

This table provides a list of recommended *maximum* injection volumes and needle sizes for a variety of dosing sites in laboratory animals. It is provided as a guideline for PIs and should be used with good judgment and prior experience. These guidelines apply to healthy, adult animals. SC volumes should be dosed at the maximum volume listed by species to provide post-operative fluids to a healthy animal if indicated. Contact the attending veterinarian for any species not listed.

<b>Maximum Volumes by animal (except were indicated as *ml/site)</b>						
<b>Species</b>	<b>IV (bolus)</b>	<b>IV (infusion)</b>	<b>IP</b>	<b>IM</b>	<b>SC</b>	<b>PO</b>
<b>Average Mouse (25 gms)</b>	<b>0.125 ml</b> ----- ≤ 25 g	<b>0.625 ml</b> ----- ≤ 25 g	<b>2 ml</b> ----- ≤ 23 g	<b>0.05ml/site*</b> ----- ≤ 23 g	<b>2.5 ml</b> ----- ≤ 23 g	<b>1.25 ml</b> ----- 20-24 g gavage
<b>Average Hamster (100 gms)</b>	<b>0.3 ml</b> ----- ≤ 25 g	<b>2 ml</b> ----- ≤ 25 g	<b>4 ml</b> ----- ≤ 23 g	<b>0.1 ml/site*</b> <u>2 sites/day</u> ≤ 21 g	<b>4 ml</b> ----- ≤ 20 g	<b>2 ml</b> ----- 18 g gavage

<b>Maximum Volumes per 100 gms of body weight (except where indicated as *ml/site)</b>						
<b>Rat</b>	<b>0.5 ml</b> ----- ≤ 23 g	<b>2.0 ml</b> ----- ≤ 23 g	<b>2.0 ml</b> ----- ≤ 21 g	<b>0.3 ml/site*</b> <u>2 sites/day</u> ≤ 21 g	<b>2 ml</b> ----- ≤ 20 g	<b>2 ml</b> (5 ml max) 16-20 g gavage
<b>Guinea Pig</b>	<b>0.5 ml</b> ----- ≤ 23 g	<b>2.0 ml</b> ----- ≤ 23 g	<b>2.0 ml</b> ----- ≤ 21 g	<b>0.3 ml/site*</b> <u>2 sites/day</u> ≤ 21 g	<b>2 ml</b> ----- ≤ 20 g	<b>2 ml</b> (5 ml max) 16-20 g gavage

<b>Volumes given in ml/kg (multiply number by the animals weight (kg) except where indicated as *ml/site)</b>						
<b>Rabbit</b>	<b>2 ml/kg</b> ----- ≤ 21 g	<b>10 ml/kg</b> ----- ≤ 21 g	<b>20 ml/kg</b> ----- ≤ 20 g	<b>0.5 ml/kg</b> (5 ml max) <u>4 sites/day</u> ≤ 20 g	<b>20 ml/kg</b> ----- ≤ 20 g	<b>15 ml/kg</b> ----- 16 g gavage
<b>Swine</b>	<b>2.5 ml/kg</b> ----- ≤ 20 g	<b>10 ml/kg</b> ----- ≤ 20 g	<b>5 ml/kg</b> ----- ≤ 18 g	<b>0.5 ml/kg</b> (5 ml max) ≤ 16 g	<b>3 ml/kg</b> ----- ≤ 16 g	<b>15 ml</b> ----- Drench gun/syringe



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Administration of excessive dose volumes may produce pain, excitement, altered physiological parameters (e.g., serum electrolyte imbalance, increased blood pressure, increased respiratory rate, etc.), and cause abnormal compound absorption. A large IM injection into a small muscle mass may force the dose into fascial planes and subcutaneous tissues that could affect lymphatic drainage and could also cause pressure necrosis and nerve damage. For some routes of administration, it may be less irritating to administer the dose halved in two separate locations. For studies requiring repeated dosing, the same site should not be used for two consecutive administrations.