

**TABLE 1** Indications and Contraindications for Using Specific Alternative IV Catheter Sites

CATHETER SITE	INDICATIONS	CONTRAINDICATIONS
<b>Jugular vein (central line)</b>	<ul style="list-style-type: none"> <li>● Small patient (e.g., neonate, exotic) with tiny peripheral vessels</li> <li>● Concurrent administration of fluids or medications that are not compatible with each other (e.g., IV enrofloxacin, n-acetylcysteine, blood products, insulin)</li> <li>● Frequent blood sampling</li> <li>● All other IV access routes exhausted</li> <li>● Hyperosmolar fluids (risk for phlebitis in cephalic vein)</li> <li>● Total or peripheral parenteral nutrition</li> </ul>	<ul style="list-style-type: none"> <li>● Thrombocytopenia or clotting factor disorders</li> <li>● Traumatic brain injury (risk of increasing intracranial pressure)</li> <li>● Stress of catheter placement resulting in increased intracranial pressure and patient's need for oxygen</li> <li>● Risk for infection, thrombosis, or embolism</li> <li>● Risk of advancing guidewire too far into the heart, causing arrhythmias or loss of guidewire</li> </ul>
<b>Accessory cephalic vein</b>	<ul style="list-style-type: none"> <li>● Ease of access (prominent vessel)</li> <li>● Mass or edema on proximal aspect of the limb</li> <li>● Inability to keep hind limbs dry and clean due to frequent urination or diarrhea</li> <li>● Scar tissue cranial to site caused by previous cephalic vein catheter</li> </ul>	<ul style="list-style-type: none"> <li>● Damage to the front limb (e.g., fracture, severe edema)</li> <li>● Aggressive patient (bite risk)</li> <li>● Skin infection or open sores</li> <li>● Angular limb deformity (catheter would cause patient discomfort)</li> </ul>
<b>Auricular vein</b>	<ul style="list-style-type: none"> <li>● Anesthetized patients (immobile)</li> <li>● Inaccessible peripheral vessels</li> <li>● Canine patients with large ears (e.g., basset hounds, mastiffs, Great Danes, Doberman pinschers), and rabbits</li> </ul>	<ul style="list-style-type: none"> <li>● Head trauma</li> <li>● Ear infection</li> <li>● Mobile patient</li> <li>● Risk for ear nerve injury</li> </ul>
<b>Lateral saphenous vein (PICC line)</b>	<ul style="list-style-type: none"> <li>● Need for continuous blood sampling</li> <li>● Need for multiple separate fluids to be administered concurrently</li> <li>● Injured front limb (e.g., fracture, open wound, amputation)</li> <li>● Severe edema/swelling</li> <li>● Aggressive patient</li> </ul>	<ul style="list-style-type: none"> <li>● Extremely mobile patient</li> <li>● Edema</li> <li>● Frequent bouts of urination or defecation</li> <li>● Risk for injury to femoral artery</li> <li>● Risk for trauma to underlying muscles and nerves</li> </ul>
<b>Medial saphenous vein</b>	<ul style="list-style-type: none"> <li>● Nonambulatory patient</li> <li>● Exhaustion of other veins</li> </ul>	<ul style="list-style-type: none"> <li>● Trauma above the site</li> <li>● Mobile site</li> <li>● Multiple uses of site for blood sample collection</li> <li>● Risk for trauma to underlying muscles and nerves</li> </ul>
<b>Common dorsal digital vein (dorsal pedal vein)</b>	<ul style="list-style-type: none"> <li>● Ease of access (patient draped for surgery, less fat or excess tissue over location)</li> <li>● Size (small to giant breed patients)</li> <li>● Exhausted front limb IV access</li> </ul>	<ul style="list-style-type: none"> <li>● Frequent urination and defecation</li> <li>● Extremely mobile patient (e.g., likely to jump in cage, prone to seizures and circling)</li> <li>● Previous surgery to that limb (e.g., tibial plateau leveling osteotomy, total hip replacement, fracture repair)</li> </ul>
<b>Sublingual vein</b>	<ul style="list-style-type: none"> <li>● Anesthetized patients only</li> <li>● Main catheter site and other sites inaccessible</li> </ul>	<ul style="list-style-type: none"> <li>● Severe dental disease</li> <li>● Risk for damage to cranial nerve XII (hypoglossal)</li> <li>● Risk for hemorrhage</li> <li>● Risk for tissue necrosis from extravasated medication</li> </ul>
<b>Corpus cavernosum</b>	<ul style="list-style-type: none"> <li>● Hypovolemic patient, need for immediate fluid resuscitation</li> <li>● Exhaustion of other IV access points</li> <li>● Unavailable intraosseous catheter supplies</li> </ul>	<ul style="list-style-type: none"> <li>● Risk for penile or pelvic trauma, fibrosis, or penile dysfunction</li> </ul>
<b>Umbilical vein</b>	<ul style="list-style-type: none"> <li>● Postpartum lifesaving efforts for neonate &lt;24 hours of age</li> <li>● Unavailable intraosseous catheter supplies</li> </ul>	<ul style="list-style-type: none"> <li>● Risk for infection of the umbilicus or surrounding abdominal tissue</li> <li>● Abnormal anatomy (e.g., umbilical hernia)</li> <li>● Open wound</li> <li>● Risk for sepsis</li> <li>● Potential for thromboembolism, extravasation, or perforation of the catheter into the peritoneum</li> <li>● Ischemia</li> </ul>
<b>Intraosseous</b>	<ul style="list-style-type: none"> <li>● Neonates</li> <li>● Exotics</li> <li>● Extreme hypovolemia</li> <li>● Cardiac arrest</li> <li>● Burns</li> <li>● Morbid obesity</li> <li>● Status epilepticus</li> <li>● Peripheral vascular thrombosis</li> <li>● Exhausted peripheral vessels</li> </ul>	<ul style="list-style-type: none"> <li>● Risk for trauma to underlying muscles and nerves</li> <li>● Risk for fracture</li> <li>● Preexisting fractures (increased risk for fluid and medication extravasation)</li> <li>● Potential inaccuracy of blood samples</li> <li>● Already infected tissue</li> <li>● Risk for osteomyelitis (inflammation of bone usually caused by infection)</li> </ul>

IV=intravenous; PICC=peripherally inserted central catheter