## Drug Information Table

### Loop diuretics – furosemide (Lasix)

<table>
<thead>
<tr>
<th>Therapeutic Use</th>
<th>Administration</th>
<th>Patient Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Treats pulmonary edema in heart failure</td>
<td>• Available for oral, IM, or IV use</td>
<td>• Eat foods rich in potassium (if indicated), such as citrus fruits, potatoes, and bananas</td>
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<tr>
<td>• Treats edema caused by renal, hepatic or cardiac failure not affected by other diuretics</td>
<td>• Give oral form with food to prevent GI symptoms</td>
<td>• Monitor serum electrolyte levels periodically; notify provider for abnormal levels</td>
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<tr>
<td>• Treats hypertension not controlled by other diuretics</td>
<td>• If prescribed more than once daily, give second dose by early afternoon to prevent nocturia and sleep loss</td>
<td>• Monitor carefully for signs of electrolyte imbalance</td>
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<td></td>
<td>• Give IV form undiluted; administer slowly to prevent ototoxicity</td>
<td>• If hypokalemia occurs, monitor for cardiac dysrhythmias</td>
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<td></td>
<td>• Protect all forms from light; store oral solution in refrigerator and other forms at controlled room temperature</td>
<td>• If hypokalemia is a risk (e.g., patient also taking digoxin) furosemide can be combined with a potassium-sparing diuretic</td>
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</tbody>
</table>

### Side/Adverse Effects

- Electrolyte imbalance: hyponatremia, hypochloremia, severe fluid loss (dehydration), and hypokalemia
  - Monitor serum electrolyte levels periodically; notify provider for abnormal levels
  - Monitor carefully for signs of electrolyte imbalance
  - If hypokalemia occurs, monitor for cardiac dysrhythmias
  - If hypokalemia is a risk (e.g., patient also taking digoxin) furosemide can be combined with a potassium-sparing diuretic

- Hypotension
  - Monitor blood pressure frequently during treatment
  - Teach patient to have blood pressure monitored frequently
  - Report dizziness, syncope to provider
  - Avoid hazardous activities (e.g., driving) until effects are known

- Ototoxicity (all loop diuretics can be temporary or permanent depending on the specific drug)
  - Ensure that the patient does not take other ototoxic drugs (additive effect)
  - Monitor for hearing loss, tinnitus, and vertigo
  - Report new onset of hearing loss, ringing in ears, or vertigo to provider

- Hyperglycemia (especially in patients who have diabetes mellitus)
  - Monitor blood glucose periodically in all patients
  - Monitor blood glucose more frequently in patients who have diabetes mellitus; insulin or oral antidiabetic drug dosage can need to be increased
  - Patients who have diabetes mellitus need to carefully monitor blood glucose levels and notify provider for persistent hyperglycemia

- Increased uric acid levels (hyperuricemia) with possible gouty arthritis in susceptible patients
  - Monitor uric acid levels periodically
  - Know that this effect can occur, usually without symptoms
  - Patients who have a history of gout need to report symptom onset to provider

### Contraindications

- Allergy to furosemide
- Pre-eclampsia or eclampsia of pregnancy
- Hepatic coma
- Electrolyte imbalance or dehydration
- Increase in oliguria

### Precautions

- Renal or liver disorders
- Acute MI with cardiogenic shock
- Ventricular dysrhythmias
- Heart failure
- Diarrhea
- History of gout or systemic lupus erythematosus
- Diabetes mellitus

### Interactions

- Digoxin toxicity is a high risk with hypokalemia
- Other diuretics increase the diuretic effect
- NSAIDs can decrease diuretic effect
- Neuromuscular blocking agents can have prolonged effect
- Lithium toxicity can occur
- Amphotericin B and corticosteroids increase risk for hypokalemia
- Other ototoxic drugs (e.g., aminoglycoside antibiotics) increase risk for ototoxicity