Look for any signs of contrast reaction, no matter how mild they may seem.

Patients experiencing reactions will be monitored according to the severity of the reaction. If there are a few hives only, the patient may be discharged from the department as soon as the hives begin to fade and the patient is medically stable. If the reaction is more severe, follow the treatment guidelines below.

<table>
<thead>
<tr>
<th>Severity of Reaction</th>
<th>Symptoms</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mild</td>
<td>Nausea, warmth (heat), pallor, flushing (these are normal physiological responses to contrast injection and do not require intervention or documentation) Cough, headache, dizziness, vomiting, anxiety, altered taste, itching, shaking, sweats, rash (hives) chills</td>
<td>Signs and symptoms appear self-limited without evidence of progression (e.g. limited urticaria with mild pruritis, transient nausea, one episode of emesis). Requires observation (15 –20 minutes) to confirm resolution and/or lack of progression but usually no treatment. Patient reassurance is usually helpful.</td>
</tr>
<tr>
<td>Moderate</td>
<td>nasal stuffiness, swelling-eyes or face, tachycardia/bradycardia, hypertension, bronchospasm (wheezing), dyspnea, laryngeal edema, pronounced cutaneous reaction</td>
<td>The symptoms listed are considered as indication(s) for immediate monitoring and treatment. These situations require close, careful observation for possible progression to a life-threatening event.</td>
</tr>
<tr>
<td>Severe</td>
<td>Laryngeal edema, profound hypotension, unresponsiveness, convulsions, clinically manifested arrhythmias, cardiopulmonary arrest</td>
<td>Requires immediate recognition, monitoring and treatment, almost always requires hospitalization</td>
</tr>
</tbody>
</table>

*Call x6111 for Code Blue*
## Management of Acute Reactions

### Urticaria
- Discontinue injection, if not completed
- No treatment needed in most cases
- Hi-receptor blocker: Diphenhydramine (Benadryl)
  - PO/IM/IV 25-50 mg or
- If severe/widely disseminated:
  - Alpha-agonist (arteriolar and venous constriction):
    - Epinephrine SC (1:1,000) 0.1-0.3ml (if no cardiac contraindication)

### Facial/Laryngeal Edema
- Alpha-agonist (arteriolar and venous constriction):
  - Epinephrine SC (1:1,000) 0.1-0.2 ml or if hypotension evident, then give epinephrine (1:10,000) slowly IV 1.0 ml, repeat
  - O₂ 6-10L/Min (via mask)
- If not responsive to therapy or for obvious laryngeal edema (acute), seek appropriate assistance (code blue)
  - Consider intubation

### Bronchospasm
- O₂ 6-10ml/min via mask
- Monitor: ECG; O₂ saturation (pulse oximeter); BP
- Beta agonist inhalers: Alupent, Brethaire, Albuterol
- Epinephrine SC (1:1,000) 0.1-0.2 ml, if hypotensive give (1:10,000) slowly IV 1.0 ml
  - Repeat prn up to a max. 1.0 mg
- Alternatively:
  1. Aminophylline: 6.0mg/kg IV in D5W over 10-20 min (loading dose); then 0.4-1.0 mg/kg/hr, prn
  2. Call for assistance (CODE) for severe bronchospasm or if O₂ sats <88 persist

### Hypotension with Tachycardia
- Legs up 60 degrees or more (preferred) or Trendelenberg position
- Monitor: ECG, pulse ox, BP
- O₂ 6-10L/min (via mask)
- Rapid administration of large volumes of isotonic Ringer’s Lactate or NS
- If poorly responsive:
  - Epinephrine (1:1,000) slowly IV, if hypotensive give (1:10,000) slowly IV 1.0 ml, repeat prn up to max. 1.0 mg
  - If still poorly responsive: Call Code Blue and/or transfer to Emergency Department for further care.

### Hypotension with Bradycardia-Vagal Reaction
- Monitor vital signs
- Legs up 60 degrees or more (preferred) or Trendelenberg position
- Secure airway; give O₂ 6-10L/min (via mask)
- Secure IV access; push fluid replacement with Ringer’s Lactate or NS
- Give atropine 0.6-1 mg IV slowly if patient does not respond quickly to above.
- Repeat atropine up to a total dose of 0.04 mg/kg (2-3 mg) in adults.
- Call Code Blue and/or transfer to Emergency Department for further care.

### Hypertension, Severe
- Monitors in place, ECG, pulse ox., BP
- Nitroglycerin 0.4mg tablet, sublingual (may repeat x3); topical 2% ointment
- Call Code Blue and/or transfer to ED for further care.
| Seizures/Convulsions | Sodium nitroprusside arterial line: infusion pump necessary to titrate  
- For pheochromocytoma-phentolamine 5.0mg (1.0mg in children) IV  
- Transfer to ICU or emergency department |
|----------------------|--------------------------------------------------------------------------------|
| Pulmonary Edema      | Elevate torso; rotating tourniquet (venous compression)  
- 02 6-10 L/min via mask  
- Diuretics-furosemide (Lasix) 20-40 mg IV slow, push  
- Consider Morphine (1-3 mg IV)  
- Corticosteroids optional |

Call Code Blue and/or transfer to ED for further care.

02 6-10L/min via mask  
- Consider diazepam (Valium) 5.0 mg or midazolam (Versed) 2.5 mg IV  
- If longer effect needed, obtain consultation; consider phenytoin (Dilantin) infusion 15-18 mg/kg at 50mg/min  
- Careful monitoring of vital signs required  
- Consider CODE for intubation if needed