Aim: To standardize the management of patients with accidental primary hypothermia.

<table>
<thead>
<tr>
<th>STAGE</th>
<th>CLINICAL SYMPTOMS</th>
<th>TYPICAL CORE TEMP</th>
</tr>
</thead>
<tbody>
<tr>
<td>HT I</td>
<td>Conscious, shivering</td>
<td>32–35°C</td>
</tr>
<tr>
<td>HT II</td>
<td>Impaired consciousness, not shivering</td>
<td>28–32°C</td>
</tr>
<tr>
<td>HT III</td>
<td>Unconscious, not shivering, vital signs present</td>
<td>24–28°C</td>
</tr>
<tr>
<td>HT IV</td>
<td>No vital signs</td>
<td>&lt; 24°C</td>
</tr>
</tbody>
</table>

COLD PATIENT
Patient’s trunk feels cold on exam or core temp < 35°C

- Remove cold clothing
- Insulate to prevent further loss
- Minimize jostling of patient
- Maintain horizontal position
- Establish IV/IO access

VS present

Impaired consciousness

Yes

HT I TREATMENT
(see page 3)

Yes

Patient with any of the following
- Cardiac instability
- Hypotension for age
- Ventricular arrhythmias
- Core temp < 28

Yes to ANY

LEVEL 1 TTA

HT I TREATMENT
(see page 3)

HT IV (see page 3)

HT IV

No

LEVEL 2 TTA

HT II +/- HT III TREATMENT
(see page 3)

Exclusions:
Standard ECMO exclusions apply to those patients in hypothermia stage 4, as outlined.
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<tr>
<th>STAGE</th>
<th>TREATMENT</th>
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<tr>
<td>HT I</td>
<td>Warm environment, clothing, warm sweet drinks, active movement if possible.</td>
</tr>
<tr>
<td>HT II</td>
<td>Cardiac monitor, minimize movement to avoid arrhythmias, horizontal position &amp; immobilization, full body insulation, warm environment, Bair Hugger, warm blankets, warm IV fluids (42°C).</td>
</tr>
<tr>
<td>HT III</td>
<td>HT II management + airway management as required. Insert esophageal probe. Consider bladder lavage with warmed IV fluids (42°C). Be cautious for mucosal injury.</td>
</tr>
<tr>
<td>HT IV</td>
<td>HT II + HT III + CPR if no pulse, organized rhythm or signs of life. Attempt PALS drugs and/or defibrillation x 3. Initiate ECMO per protocol if no exclusion criteria: ie uncontrolled hemorrhage, initial iSTAT K &gt; 8 mEq/L, pH &lt; 6.6, lactate &gt; 225, drowning in water &gt; 50 degrees.</td>
</tr>
</tbody>
</table>

**OTHER CONSIDERATIONS**

- Simultaneously while warming is initiated, perform primary & secondary survey to assess for injuries.
- Obtain Trauma lab panel, iSTAT CG8+, lactate, CPK, fibrinogen, ABG/VBG.
- Placement of core continuous temperature monitoring device (esophageal or bladder) HT II–HT IV prior to systemic heparinization.
- Obtain any indicated imaging, ie CXR for submersion.
- Assess skin closely for signs of frostbite. If present, consult Skin Integrity & Plastics if severe.
- If exposure/immersion/submersion not cause for hypothermia, consider other medical etiologies.
- Obtain cultures & initiate broad spectrum antibiotics in high risk populations, ie homeless & neonates.
- For HT II–IV, admit to PICU for cardiac monitoring due to risk for arrhythmias, afterdrop, rewarming hypotension, electrolyte imbalances, hypoglycemia, post-arrest management and neurological monitoring.
- For HT IV requiring ECMO: Prepare for multiorgan dysfunction. May require ECMO for prolonged period of time due to respiratory/multi-organ failure.
- Once temperature > 35, maintain normothermia for all HT patients and especially avoid hyperthermia.