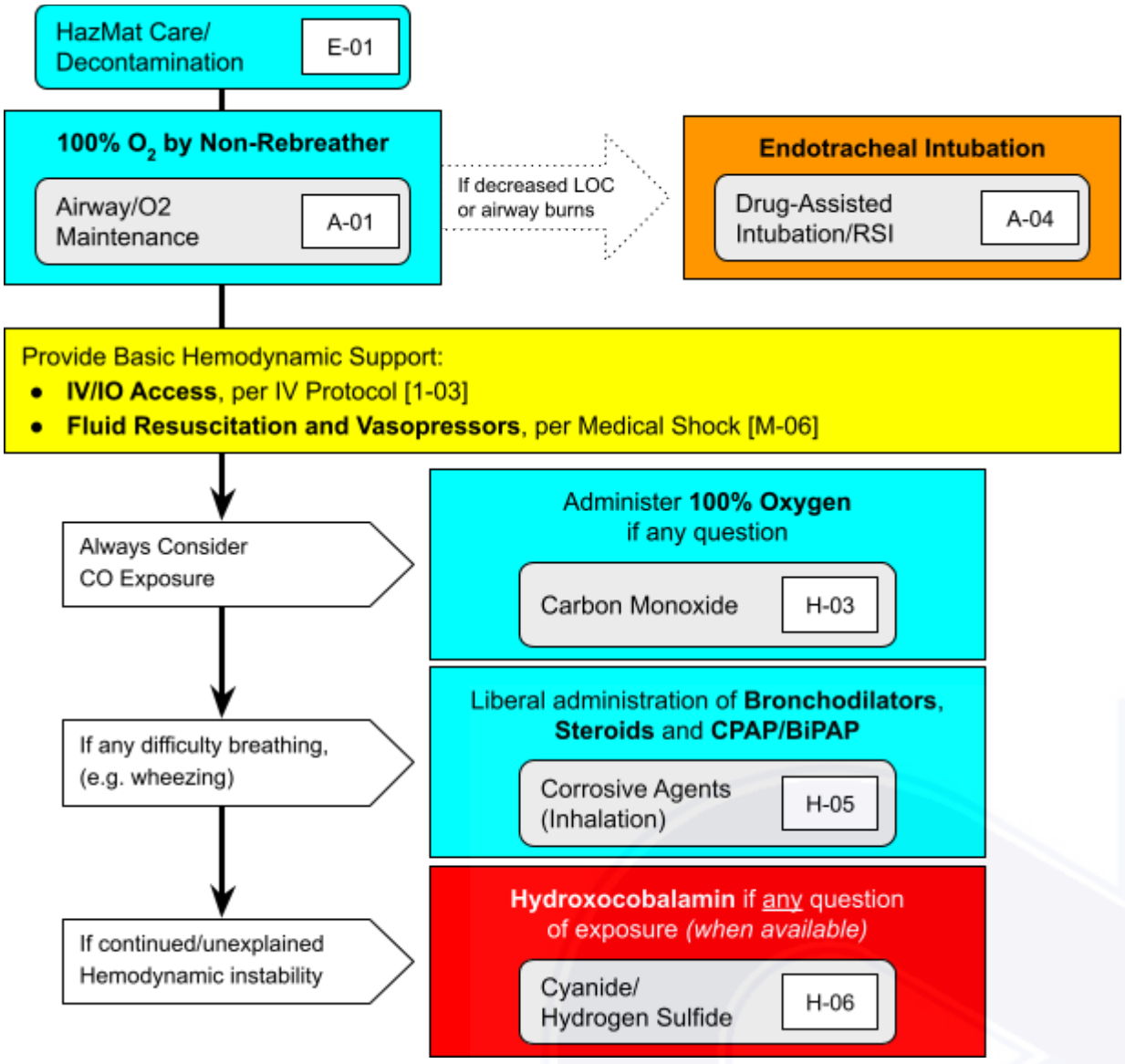
H-04 CLOSED-SPACE FIRE (SMOKE INHALATION)		First Responder EMT AEMT Paramedic

Closed-space fires produce many toxic substances. This creates a complicated clinical picture where it may be difficult to differentiate the primary underlying pathophysiology. Possibilities include:

- **Thermal burns** to the airway (and body) potentially leading to airway obstruction.
- **Chemical irritation/burns** to the upper and/or lower airways leading to bronchospasm, edema/swelling of the bronchioles and/or non-cardiogenic pulmonary edema.
- Cellular asphyxia due to **cyanide and/or carbon monoxide poisoning**.

TREATMENT



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NOTES:

- Cyanide is one of the most rapidly acting poisons and can be found as a byproduct of combustion, (especially with synthetic materials). Increasingly, cyanide has been recognized as a threat at the scene of a closed space fire and hazardous materials incidents.
- Carbon Monoxide rapidly removes the ability of the blood to carry oxygen.
- The lack of oxygen availability (CO), plus the inability of the body to use oxygen to create energy (cyanide), combined with the swelling of the bronchioles and bronchospasm related to the exposure to respiratory irritants **creates a patient that may rapidly decompensate.**

TREATMENT PEARLS

- All patients should receive 100% Oxygen via non-rebreather mask, or similar. This will help displace CO and ensure as much O2 to the tissues as possible.
- The airway should be monitored closely for signs of thermal burns. Any evidence of intraoral or intranasal burns (or soot) should warn of possible burns to the larynx or trachea. Any change in voice or stridor should prompt the paramedic to consider placement of an endotracheal tube to protect against potential complete airway obstruction.
- Any wheezing, rales or increased work of breathing should be treated aggressively with bronchodilators, steroids and non-invasive positive pressure ventilation (CPAP or BiPAP).
- Hemodynamic instability that is not improved with proper management of the airway, oxygenation and ventilation should be assumed to be due to cyanide poisoning and prompt treatment (when available).

NOTE: Poison Control may be contacted **[1-800-222-1222]** for **INFORMATION ONLY.** Treatment modalities must utilize these guidelines, or may be received received through online Medical Control.