

PRE-HOSPITAL GUIDELINE: Illicit Substance-Induced Hyperthermia



Hyperthermia is the elevation of core body temperature above 38°C secondary to a hypermetabolic state [excessive heat production] +/- impaired heat dissipation which is most commonly due to environmental exposure [heat stress/stroke] and/or drugs.

Hyperthermia following illicit substance use commonly occurs as a result of sympathomimetic and/or serotonin toxicity with contributing environmental factors, including prolonged high ambient temperature and/or physical exertion.

Some of the more common illicit substances which can precipitate hyperthermia include:

- Amphetamines: methamphetamine, Methylenedioxymethamphetamine (MDMA), Para-methamphetamine (PMA, PMMA)
- Cocaine
- Synthetic Cathinones (i.e. "bath salts")
- Novel Psychoactives
- Dinitrophenol (DNP)

Patients with elevated temperature following illicit substance use are at high risk of serious pathology and death. Early recognition and urgent targeted management of hyperthermia in these patients can prevent rapid progression to multi-organ failure and cardiac arrest.

Factors Which Increase Risk of Severe Hyperthermia and/or Adverse Outcomes

- High ingested dose of illicit substance
- High ambient temperature
- Dehydration
- Poly-drug ingestion
- Physical exertion
- Physical restraint

These patients are at high risk for **Agitated Delirium** (also known as Excited Delirium Syndrome). This is a syndrome with presence of delirium, psychomotor agitation and physiologic excitation.

- Strongly associated with stimulant substance use
- Clinical features include:
 - Severe agitation, violence
 - Lack of tiring or constant physical activity
 - Unusual or unexpected strength
 - Pain tolerance
 - Inappropriate removal of clothing
 - Hyperthermia, tachycardia, tachypnoea, seizures.

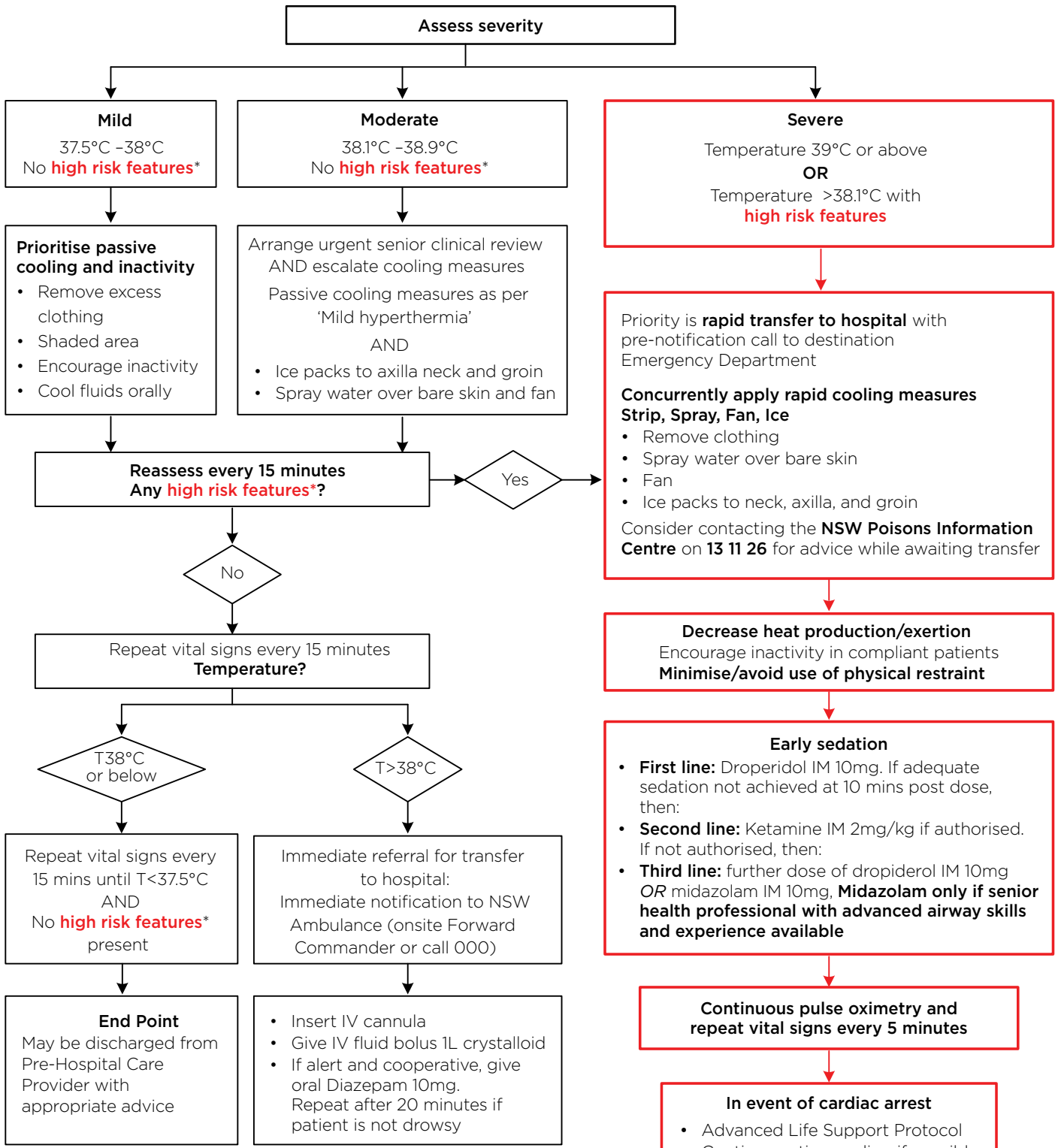
There is a high risk for precipitation of cardiac arrest with application of physical restraint in patients with agitated delirium.

Pre-Hospital Approach to Hyperthermia

1. Assessment for presence and severity of temperature disturbance
2. Rapid transfer to hospital for any patient with severe hyperthermia (**Temperature >39°C**). Consider contacting the **NSW Poisons Information Centre on 13 11 26** for advice while awaiting transfer
3. **Management of Hyperthermia:**
 - **Decrease heat production**
 - Encourage inactivity in compliant patients
 - Avoid use of physical restraint
 - Early use of rapidly acting intramuscular sedation for agitated patients
 - Consideration of early intubation +/- paralysis for severe hyperthermia with agitation or decreased level of consciousness
 - **Aggressive active cooling**
4. Obtain a brief history if possible (eg. AMPLE); Check medi-alert bracelets; Pills/substances/medicines on person; Signs of injury or focal neurology
5. Clearly document all relevant history, observations, examination and interventions to facilitate rapid handover at receiving hospital

The capacity to deliver these interventions will depend on the clinical resources available

Pre-Hospital Approach to Hyperthermia



High risk features*

If any of the following develop, immediately commence the 'Severe' management pathway

- Any confusion, agitation or decreased level of consciousness
- Tachycardia (HR>100) or tachypnoea (RR>22)
- Hypotension (SBP<100mmHg) or hypertension (SBP>140mm Hg)
- Shock
- Any evidence of rigidity or cardiac dysrhythmia
- Temperature remains elevated after 1 hr of initial treatment
- Any clinical concern after review by most senior onsite clinician