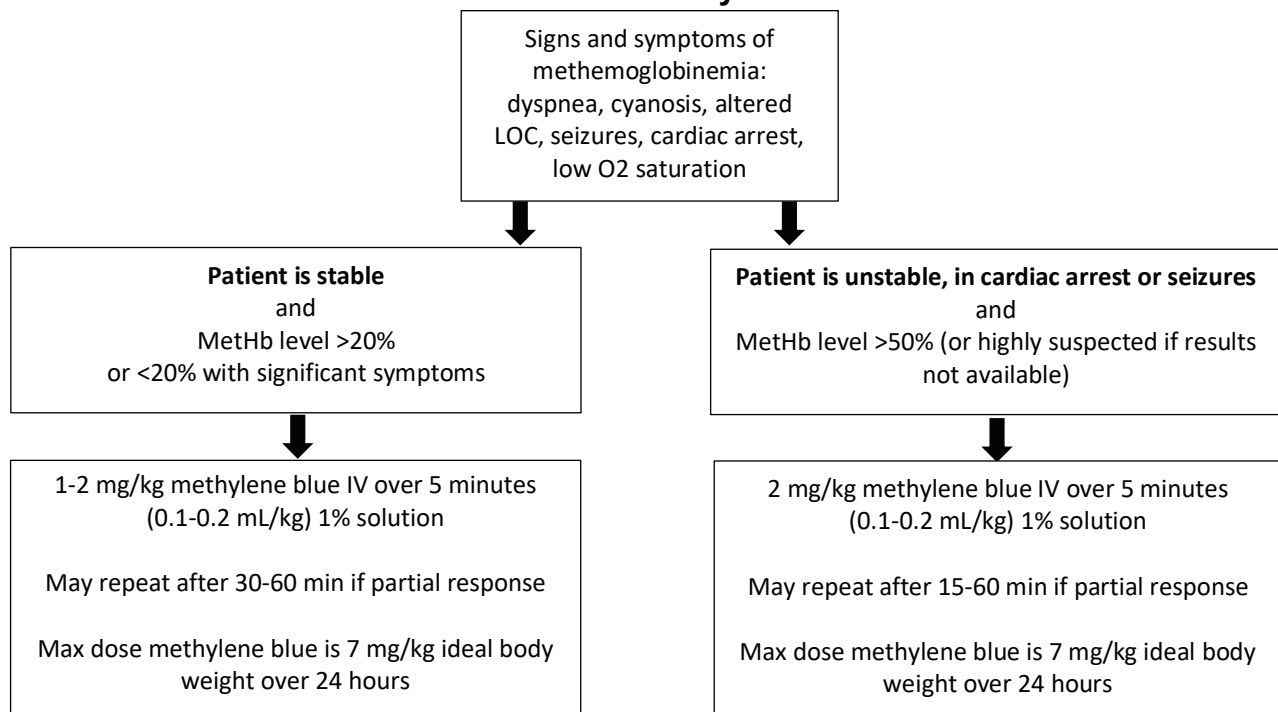




## Emergency Treatment of Methemoglobinemia

- Methemoglobin (MetHb) is an abnormal form of hemoglobin that alters the oxygen carrying capacity of the blood. **Consultation with the on-call Toxicologist at the Poison Centre is recommended for all cases of methemoglobinemia >15%.**
- Methemoglobinemia can be induced by exposure to a number of drugs and chemicals.
- **Signs and symptoms of methemoglobinemia:**
  - cyanosis, dyspnea, pulse oximetry readings in the 80% range despite supplemental oxygen with normal pO<sub>2</sub> on arterial blood gas (oxygen saturation gap), and dark chocolate brown blood noted with blood draw
  - severe cases: seizures, altered level of consciousness (LOC) and cardiac arrest may occur
- **Treatment Indications:**
  - methemoglobin levels less than 20% usually do not require treatment with methylene blue unless there are significant associated symptoms
  - methemoglobin levels greater than 20% are more likely associated with symptoms and should be treated
  - methemoglobin levels greater than 50% may be life-threatening and should be treated urgently

### Treatment with Methylene Blue



#### Administration Notes:

- Follow methylene blue dose with 15-30mL NS flush.
- Administration of dextrose (1 mEq/kg) may help to provide adequate NAD and NADPH cofactors.
- Methylene blue is relatively contraindicated in patients with known or suspected G6PD deficiency.
  - However, for life threatening MetHb levels, the antidote should not be withheld if there is uncertainty about G6PD status; also, it is not contraindicated with partial G6PD deficiency.
- Note that there will be a transient spurious drop in the oxygen saturation pulse oximetry reading after administering methylene blue, due to the colour interference. This is not an accurate oxygen reading and will resolve spontaneously within 10-30 min.
- If methylene blue is ineffective consider other treatments such as whole blood exchange transfusion or hyperbaric oxygen therapy. **Consultation with the on-call Toxicologist at the Poison Centre is recommended for all cases of methemoglobinemia.**