



Clinical Practice Guidelines: Toxicology and toxinology/Carbon monoxide

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Date	February, 2021
Purpose	To ensure a consistent approach to the management of carbon monoxide poisoning.
Scope	Applies to Queensland Ambulance Service (QAS) clinical staff.
Health care setting	Pre-hospital assessment and treatment.
Population	Applies to all ages unless stated otherwise.
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Carbon monoxide

February, 2021

Carbon monoxide (CO) is a colourless, odourless gas produced by the incomplete combustion of carbon-based compounds. Common hazardous sources of CO include contained fires, car exhaust and operating petrol-powered machinery in enclosed spaces.

CO has 240 times the affinity for haemoglobin compared to oxygen.^[1] Haemoglobin will preferentially bind to CO when present, forming carboxyhaemoglobin, which decreases the oxygen-carrying capacity of the blood. In addition to impairing the oxygen carrying capacity of haemoglobin, CO also causes direct cellular damage.^[2]

Oxygen is considered an antidote for carbon monoxide poisoning, with increasing concentrations of oxygen decreasing the half life of carbon monoxide binding to haemoglobin.

In attending this type of incident, ambulance officers must maintain a high index of suspicion that the area is still contaminated with carbon monoxide. The scene should not be entered until the area is declared safe by emergency response services with gas detection capability.

If there is any suspicion of CO poisoning, high flow oxygen should be applied immediately and continued until the patient is assessed by the receiving medical facility.

In the setting of an enclosed fire, consideration should be given to concomitant cyanide toxicity.

Clinical features are non-specific, and a high index of suspicion is required. Carbon monoxide intoxication occurs on a spectrum from mild headache and dizziness through to coma and death.^[1,2]

Clinical features



MILD

SEVERE



Headache
Nausea
Dizziness
Tachycardia

Confusion
Ataxia
Syncope

Seizures
Coma
Myocardial ischaemia
Pulmonary oedema



Risk assessment

The classic cherry red complexion often described in some texts is **rarely** seen.

Patients at particular risk of carbon monoxide poisoning include pregnant women and those with underlying coronary artery disease.

