Clinical Practice Guidelines:
Toxicology and toxinology/Carbon monoxide

Policy code	CPG_TO_CM_0221
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.
Source of funding	Internal – 100%
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Review date	February, 2024
Information security	UNCLASSIFIED – Queensland Government Information Security Classification Framework.
URL	https://ambulance.qld.gov.au/clinical.html

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Carbon monoxide

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

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.

CPG: Clinician safety
CPG: Standard cares

Consider safety issues and remove patient from exposure

Ongoing imminent risk of harm?

Y

Consider:

- Verbal de-escalation
- QPS assistance
- Physical restraint
- EEA

Manage as per:

CPG: Sedation – Acute behavioural disturbance

N

Provide:

High flow oxygen

Consider:

IV access

Transport to hospital
Pre-notify as appropriate

Note: *Clinicians must only perform procedures for which they have received specific training and authorisation by the QAS.*