

# Carbon monoxide poisoning



# Learning agenda

- Introduction
- Causes
- Pathophysiology
- Signs and Symptoms
- Diagnosis
- First aid
- Treatment
- Complications
- Prevention
- Summary
- References

# Introduction

Carbon monoxide poisoning is extremely serious and can be life threatening.

## CARBON MONOXIDE (CO) POISONING



- Carbon monoxide is a toxic gas, but, being colourless, odourless, tasteless, and initially non-irritating, it is difficult for people to detect.
- Carbon monoxide is a product of incomplete combustion of organic matter

## Symptoms of mild acute poisoning include ;



Light headedness



Confusion



Nausea & vomiting



Aggression



Feeling like the world is spinning



Incontinence

Larger exposures can lead to :



Grey –blue skin coloration



Rapid / difficulty breathing



Impaired consciousness

# Causes

- Carbon monoxide (CO) found in combustion (exhaust) fumes produced by:

Heaters

Fireplaces

Car  
mufflers

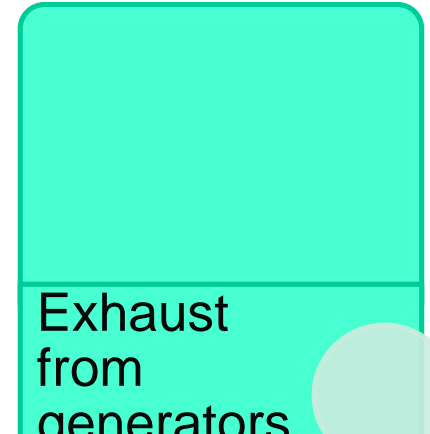
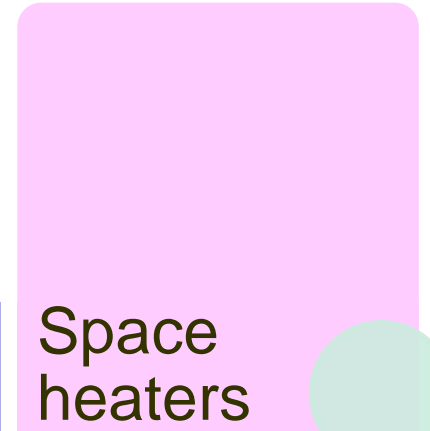
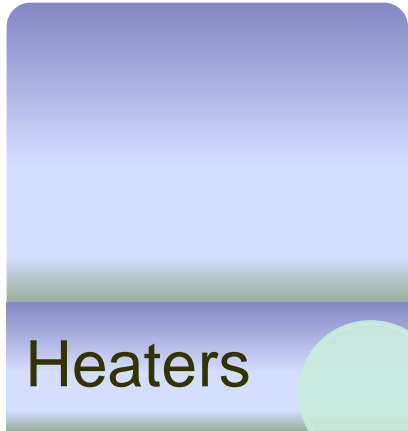
Charcoal  
grills

Space  
heaters

Car  
engines

Portable  
generators

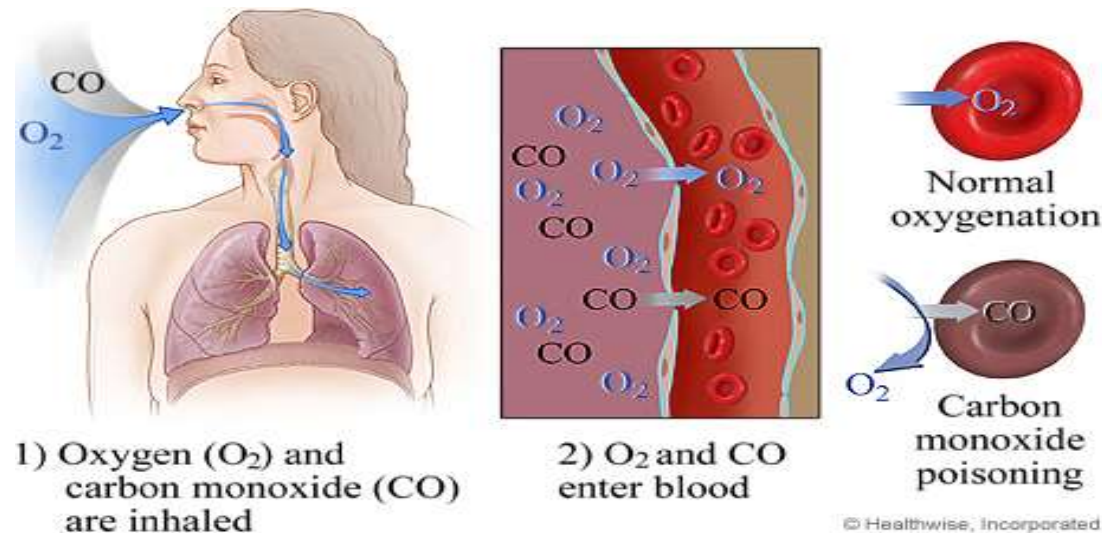
# Risk places





# Pathophysiology

- CO toxicity causes impaired oxygen delivery and utilization at the cellular level.
- Co affects several different sites within the body but has its most profound impact on the organs (eg, brain, heart) with the highest oxygen requirement.



# Diagnosis of Carbon Monoxide Poisoning

- A doctor or nurse will take a blood sample to determine the amount of CO in blood.
- Once CO levels increase to 70 parts per million (ppm) and above, symptoms become more noticeable.

# Treatment of Carbon Monoxide Poisoning

Quick treatment is essential to prevent life-threatening complications.



## Emergency Care;



- Never treat CO poisoning by self



- Immediately call for emergency services .

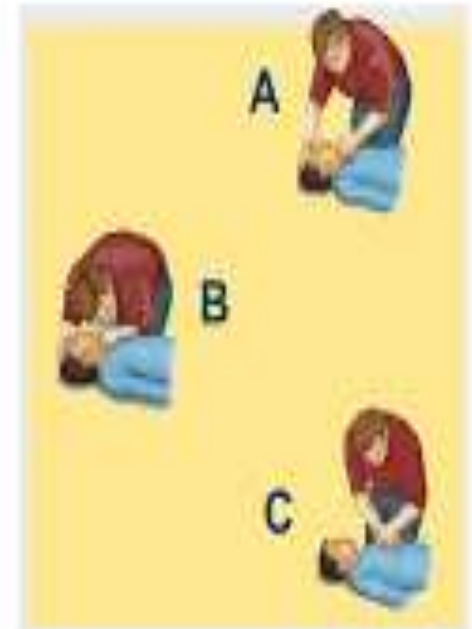


- Don't drive self to the hospital

# First aid

- Once removed from the source of carbon monoxide poisoning, an ABC (airway, breathing and circulation) approach to assessment and management of the patient is advised.

## CPR



## Oxygen therapy

- High-flow oxygen therapy should be started immediately and should be continued until poisoning is excluded or treated successfully (ernst and zibrak 1998).
- A non-rebreather face mask with reservoir should be used .

# Prevention of Carbon Monoxide Poisoning

Ensure there's plenty of ventilation in areas with appliances that burn gas, wood, propane, or other fuel.



Buy a co detector and place it in an area near the source of carbon monoxide  
Make sure to change the batteries regularly.





Don't fall asleep or sit for a long time in an idling car that's in an enclosed space.



Don't sleep  
near a gas or  
kerosene  
space heater



Don't ignore symptoms of co poisoning

Don't Ignore  
Your Own  
Self

❖ **Other safety tips at home and in the workplace:**

Follow the safety tips below to help protect yourself at home and in the workplace.



# Contind...

Never use ovens or gas ranges to heat your home



# Contind....

Never use oversized pots on your gas stove, or place foil around the burners.



# Contind...

Make sure rooms are well-ventilated and don't block air vents.



# Contind....

Don't use gas-powered equipment and tools inside your home if you can avoid it.





Only use them in a well-ventilated area, and put the engine unit and exhaust outside.



Fit an extractor fan in your kitchen



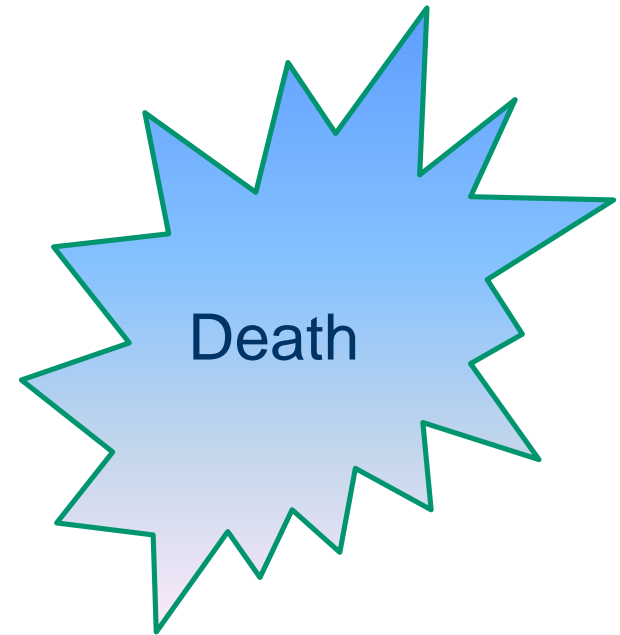
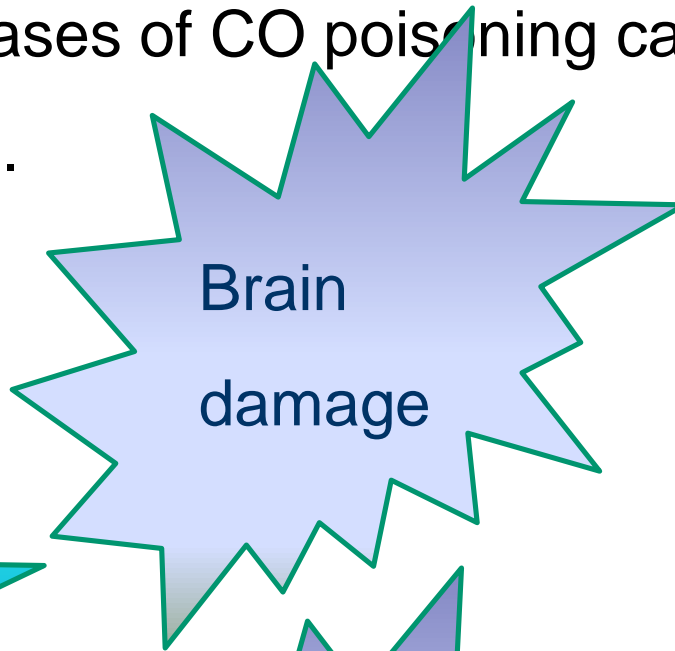
# Complications

- Even minor cases of CO poisoning can cause serious complications.
- These may include:
- Heart damage



# Complications

- Even minor cases of CO poisoning can cause serious complications.



# Summary

- Carbon monoxide poisoning remains a significant public health concern.
- Lack of awareness about the threat of carbon monoxide may cost lives.
- Nurses are ideally placed to ensure that patients understand the dangers and are able to prevent their risk of exposure.

# References

- Bartlett R (1998) carbon monoxide poisoning. In had dad LM, shannon MD, winchester JF (eds) clinical management of poisoning and drug overdose. Third edition. Saunders, philadelphia PA, 885-898.
- Criddle Im (2003) rhabdomyolysis. Pathophysiology, recognition, and management. Critical care nurse. 23, 6, 14-30.

# Mcqs

1. Which of the following symptoms are not due to carbon monoxide poisoning?

- A) black residue in coughed up sputum
- B) headache, especially “a band around the head”
- C) dizziness, breathing difficulty
- D) nausea, cyanosis

2. Carbon monoxide is:

- A. A poison gas that is colorless, odorless, and tasteless
- B. A common occupational hazard
- C. Dangerous when inhaled because it displaces oxygen in the blood, depriving vital organs of oxygen
- D. All of the above



- 3. Symptoms of carbon monoxide poisoning include all of the following EXCEPT:
  - A. Headaches
  - B. Drowsiness
  - C. Talkativeness
  - D. Nausea

4. Some occupations that may be at increased risk of carbon monoxide poisoning include:

A. Welders, garage mechanics, and forklift operators

B. Healthcare workers, nutritionists, and psychiatrists

C. Foresters, wetlands biologists, and park rangers

D. Teachers, librarians, and students

5. When you suspect a worker has CO poisoning, you should:
- A. Refrain from moving the victim
  - B. Move the worker to fresh air immediately, call 1-0-8, and administer 100% oxygen if the victim is breathing or cardiopulmonary resuscitation (CPR) if the victim is not breathing
  - C. Try to get the victim to drink a hot, caffeinated beverage
  - D. Use an automated electronic defibrillator (AED) on the victim

6. Possible sources of carbon monoxide include all of the following EXCEPT:

- A. Gas generators
- B. Compressors
- C. Welding equipment
- D. Microwave ovens

7. When the carbon monoxide alarm sounds, what should you do?
- A. Turn it off and unplug it, because it's right in the middle of your favorite show!
  - B. Ignore it -- it'll stop ringing some time soon
  - C. Get everyone out of the house and call 108.
  - D. Wave a magazine or paper in front of it until it stops ringing.