

### Body requirement – essential elements

- Zinc, copper, chromium, iron and manganese
- Required by body in small amounts
- High conc = toxic

### Heavy metal sources

- Food (fish)
- Water
- Air
- Skin absorption

→ Compete with and deplete essential elements – this interferes with normal tissue function.

### Symptoms

- N & V
- Diarrhoea
- Stomach pain
- Sweating
- Headache
- Metallic taste in mouth
- Blue black lines in gum
- Impairment of cognitive, motor and language skills

### Detection

- Urinalysis
- Blood tests
- Hair and tissue analysis – arsenic accumulates here
- X ray –

– Levels needed to poison are lower in children than in adults due to less levels of smooth muscle. Type of metal can cause poisoning at lower conc than other metals.

### Diagnosis – Arsenic poisoning

- Quickly cleared from the blood
- >50micrograms/dL in the urine
- X rays – Arsenic opaque to X rays – detected in abdomen
- Remains in hair and nails for months

### Treatment

\*Usually painful and lengthy and requires hospitalisation

- Chelation agent specific to metal – binds to metal, forms a complex, travels to blood stream, filtered to kidney and cleared in urine.
  - Calcium disodium edetate
  - Dimercaprol
  - Penicillamine
- Oral, IM or IV administration
- Types of poisoning
  - Lead, Arsenic, Mercury