# Lead (Pb)

**Initial evaluation requires a detailed risk assessment to identify the source of lead, and to ensure the patient is removed from further exposure.**

## Toxicity / Risk Assessment

- *Toxicity is from ingestion or inhalation*
- *Most cases result from chronic occupational exposure or ingestion of lead-containing "traditional" remedies*
- *Pregnant women and children are most at risk*
- *Toxicity is enhanced by iron and calcium deficiency*

**Sources:**

- *Environmental* - lead paint, contaminated drinking water
- *Occupational* - radiator repairs, construction workers, pottery manufacturers, gun firing ranges, lead piping / paint
- *Other* - pottery, soldering, lead sinkers, ayurvedic remedies, alternative cosmetics, contaminated opium
- If no clear source found consider XR of GI tract

***Ingested lead foreign body: see separate guideline***

**Clinical features:**

- vague symptoms, abdominal pain, headache, poor concentration, malaise, irritability, anaemia and basophilic stippling on blood film

**Severe:** - encephalopathy, seizure, coma ***(discuss with a clinical toxicologist)***

## Management

- Identifying the source and preventing further exposure prior to chelation is essential
- Acute resuscitation is rarely required.

**Children and pregnant women**

| *Whole blood [Pb] (**umol/L**)* | *Whole blood [Pb] (**ug/dL**)* | *Action* |
|---|---|---|
| < 0.48 | < 10 | No action |
| 0.48 – 2.2 | 10 - 45 | Remove from source; repeat concentration in a month; chelate if symptomatic |
| 2.2-3.4 | 45 - 70 | Chelation therapy |
| > 3.4 | > 70 | Chelation therapy + admit to hospital |

**Adults**

| *Whole blood [Pb] (**umol/L**)* | *Whole blood [Pb] (**ug/dL**)* | *Action* |
|---|---|---|
| < 0.48 | < 10 | No action |
| 0.48 – 2.4 | 10 - 50 | Remove from source; repeat concentration in a month |
| 2.4 - 3.4 | 50 - 70 | Consider chelation if symptomatic or [Pb] in this range for 3 consecutive months |
| 3.4 – 4.8 | 70 - 100 | Chelation therapy |
| > 4.8 | > 100 | Chelation therapy + admit to hospital |

*Occupational exposure guidelines recommend removal from source if conc. > 20 ug/dL (0.96 umol/L)*

**Chelation therapy: discuss with a clinical toxicologist**

- See separate Succimer / DMSA / DMPS guidelines