MANAGEMENT OF ACUTE POISON INGESTION IN CHILDREN

- **Steps in the management**
  - Relieve anxiety
  - ABCD
  - **Reducing** drug absorption
  - Enhancing **drug elimination**
  - Detoxification – Antidotes
  - Supportive care

- **Blue Print**
  - Triage
  - Initial Stabilisation
    - Position
    - Airway
    - Breathing
    - Circulation
    - Disability
    - Measurement
    - Monitoring
    - Reassess
  - Directed History and Examination and Ix –
    - Depends on parents or bystander
    - somebody at home may be on medications
    - **Exceptions** – teenager patient
    - Investigations – Blood & Urine tests (for diagnosis, complications & comorbid problems)
  - Reassess
  - Commence Specific Treatment
  - Ongoing Care

- **Reducing Drug Absorption**
  - Surface irrigation
  - Gastric emptying
  - Emesis
  - Lavage
  - Activated charcoal
  - Whole bowel irrigation

Reducing drug absorption
- Emesis – no longer practiced
- Gastric lavage – unproven efficacy, high complications
Gastric lavage
- Effective within 2hrs of poisoning
- Airway protection should be ensured
- Lateral, Head down position
- wide bore OG tube (>24G)
- position accurately confirmed
- Oral airway to prevent biting
- N Saline 10-20 ml/kg (5ml/kg, 3 cycles)
- Continue till effluent is clear

Single dose Activated Charcoal
- Effective within 2hr of poisoning (Except for substances with delayed gastric emptying)
- Dose 1g/kg – Drinking / via OG/NG

Whole Bowel Irrigation
- Polyethylene glycol
- labour intensive
- Until effluent is clear (Mean duration 4 hrs)
- Dose 15-30 ml /kg/hr –via NG tube
- Indications
  - Iron, Lithium, ingested button batteries, ingested illicit drug packets Overdose of sustained release/ enteric coated drugs

Enhancing Drug Removal
- Forced urinary alkalinisation / enuresis
- Saline diuresis
- Multiple dose charcoal
- Dialysis
- Extracorporeal removal of drugs:
  - haemodialysis
  - charcoal haemoperfusion

Multiple dose activated charcoal
- Enhances elimination of poisons by either interrupting the entero-enteric or entero-hepatic circulation.
- May reduce absorption of controlled release drugs and oleander seeds.
- Dose 1-2 g/kg – Drinking / via OG/NG
- Dose repeated every 4 hours
Detoxification – *Antidotes*

<table>
<thead>
<tr>
<th>Drug</th>
<th>Antidote</th>
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<th>Antidote</th>
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<tbody>
<tr>
<td>Beta Blocker</td>
<td>Glucagon</td>
<td>Heparin</td>
<td>Protamine</td>
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<tr>
<td>Benzodiazepines</td>
<td>Flumazenil</td>
<td>Iron</td>
<td>Dexferrioxamine</td>
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<tr>
<td>Calcium chan blockers</td>
<td>CaCl₂</td>
<td>Isoniazid</td>
<td>Pyridoxine</td>
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<tr>
<td>Carbon Monoxide</td>
<td>Oxygen</td>
<td>MetHb</td>
<td>Methylene Blue</td>
</tr>
<tr>
<td>Cholinergics</td>
<td>Atropine</td>
<td>Methanol</td>
<td>Ethanol</td>
</tr>
<tr>
<td>Chloroquine</td>
<td>Diazepam</td>
<td>Methotrexate</td>
<td>Folinic acid</td>
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<tr>
<td>Clonidine</td>
<td>Naloxone</td>
<td>Narcotics</td>
<td>Naloxone</td>
</tr>
<tr>
<td>Cyanide</td>
<td>Hydroxycodalin</td>
<td>Organophosphate</td>
<td>Atropine, Pralidoxime</td>
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<tr>
<td>Digoxine</td>
<td>Specific Fabs</td>
<td>Paracetamol</td>
<td>NAC</td>
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<tr>
<td>Ethylene Glycol</td>
<td>Ethanol</td>
<td>TCS</td>
<td>Alkalnization</td>
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<tr>
<td>Fluoride</td>
<td>Calcium gluconate</td>
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<tr>
<td>Hydrofluoric acid</td>
<td>Calcium gluconate</td>
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**Common poisonings in children**

- **Drugs** - Paracetamol, Iron, Mercury,
- **Agrochemicals**
  - Insecticides – OP
  - Weedicides
- **Rodenticides** – rat poisons
- **Plants**
- **House hold chemicals**
  - Detergents
  - Cosmetics
  - Hydrocarbons
  - Vehicle maintenance chemicals
  - Insect repellants

**Acute paracetamol poisoning**

- Acute large ingestion >200mg/kg
- Repeated supra-therapeutic dose ingestion

**Investigations**

- PCM level at 4 hrs after ingestion (interpret on the chart)
- LFT
- Clotting profile

**Treatment**

- NAC,
- Methionine
Plant poisoning
- Oleander කනේරු (Arrhythmias, Hyperkalaemia)
- Daturaශාලමු (Anticholinergic)
- Abrusළිඳ (Shock, Haemolysis)
- Hondala (Necrotizing enteritis, liver failure)
- Ricinus / Jatropha (GI symptoms, hypoglycaemia)
- Gloriosasuperba (GI, Blood disorders, cardiac, neuro, hepatic, renal)
- Difenbachiබරල (Corrosive effects)

Hydrocarbons
- Volatile / Liquid
- No gastric lavage
- High risk of aspiration → aspiration pneumonia
- ?Use of steroids, Antibiotics

Example of a Toxidrome

<table>
<thead>
<tr>
<th>Cholinergic = DUMBELS</th>
<th>NICOTINIC</th>
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</thead>
<tbody>
<tr>
<td>Diarrhoea</td>
<td>Hypertension</td>
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<tr>
<td>Urination</td>
<td>Tachycardia</td>
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<tr>
<td>Miosis</td>
<td>Mydriasis</td>
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<tr>
<td>Bronchorhoea, bradycardia, bronchospasm</td>
<td>Fasciculation</td>
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<tr>
<td>E mesis</td>
<td>NICOTINIC</td>
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<td>Lacrimation</td>
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<tr>
<td>Salivation</td>
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MUSCARINIC

Important points
- The most common error in the management of a poisoned patient is inadequate management of airway, breathing or circulation
- Emesis is no longer part of the in-hospital management of a poisoned patient
- Seek expert advice early in regard to antidote use (National Hospital Poisons Centre)
- Gastric lavage is of unproven efficacy, complication fraught if the patient not intubated
- Activated charcoal is an important decontamination method, but is not always indicated
- Whole bowel irrigation is useful in certain serious overdoses