Some paracetamol preparations contain other agents such as opiates, salicylates and caffeine. This flowchart deals only with the management of the paracetamol component. The other agents need separate consideration.

If there is ever any doubt over either the dose ingested, or time of ingestion it is best to err on the side of caution and to treat these variables as ‘unknown’.

**Presentation**

![Flowchart Image]

**Risk box**

Some patients may be at risk of liver damage from lower levels of plasma paracetamol:
1. Regular ethanol consumption in excess of 21 units/week in males, 14 units/week in females
2. Regular use of enzyme-inducing drugs (carbamazepine, phenytoin, phenobarbitone, rifampacin)
3. Conditions causing glutathione depletion (malnutrition, HIV, eating disorders, cystic fibrosis)

**Figure 1 - Paracetamol Overdose: a flowchart to guide management**

(The numbers in superscripts relate to the supporting references)
Check paracetamol level result and plot on the treatment nomogram.

Is the paracetamol level above the treatment line?

Is the patient symptomatic or are the lab tests abnormal?

Are the lab tests abnormal?

Start treatment with i.v. N-acetylcysteine (see treatment box for doses), if not already started.

Start or complete treatment with i.v. N-acetylcysteine.

On completion of N-acetylcysteine recheck INR, creatinine and venous bicarbonate (if bicarbonate abnormal then check arterial blood gases).

Treatment Box

Dosage of Intravenous N-acetylcysteine (NAC)

Adults
1. 150mg/kg NAC in 200ml 5% dextrose over 15 minutes followed by
2. 50mg/kg NAC in 500ml 5% dextrose over 4 hours followed by
3. 100mg/kg NAC in 1000ml 5% dextrose over 16 hours

Children
1. 150mg/kg in 3ml/kg 5% dextrose over 15 minutes followed by
2. 50mg/kg in 7ml/kg 5% dextrose over 4 hours followed by
3. 100mg/kg in 14ml/kg 5% dextrose over 16 hours

Adverse reactions to N-acetylcysteine (NAC)
NAC can cause adverse effects which include flushing, itching, rash, angioedema, bronchospasm and hypotension.
NAC should be stopped and, if necessary, an intravenous antihistamine given. Once any adverse effects have settled, the NAC can be restarted at a rate of 50mg/kg over 4 hours.

Indicators of severe paracetamol poisoning and when to contact a specialist liver centre:
1. Progressive coagulopathy, or INR > 2 at 24hrs, INR > 4 at 48hrs, INR > 6 at 72hrs.
2. Renal impairment (creatinine > 200µmol/l)
3. Hypoglycaemia
4. Metabolic acidosis (pH < 7.3, bicarbonate < 18) despite rehydration
5. Hypotension despite fluid resuscitation
6. Encephalopathy

Discharge the patient.

Contacting the National Poisons Information Service:
The telephone number for the National Poisons Information Service is 0870 600 6266 - this will connect you to your local centre.