Created by Martin Wiese

LRI Emergency Department

Paracetamol poisoning

Proforma to guide ED management of ORAL ingestions in adults

Includes overdoses due to therapeutic excess

Manage and document any co-ingestions separately

Disclaimer:
This is a clinical template; clinicians should always use judgment when managing individual patients

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Patient details

Full name

DoB

Unit number

(use sticker if available)

① Read me first

Main effects of Paracetamol poisoning are delayed-onset liver and kidney damage.

The antidote N-Acetylcysteine (NAC) is very effective, but its protectiveness declines rapidly if started >8h of a single ingestion.

Management of Paracetamol overdose has changed in Sep12 following a review by the Commission on Human Medicines (CHM):

- All ingestions >75mg/kg are significant **(NB**: In patients weighing <54kg, taking even the standard dose of Paracetamol 1G QDS will result in therapeutic excess!)
- Assessment for risk factors of hepatotoxicity is no longer required
- The 1st bag is now run over 1h (previously 15min) to reduce anaphylactoid reactions

Document decisions by ticking appropriate YES or NO box

Record delegated tasks and times in boxes below

DD/MM/YY
Current date

HH:MM
Current time

DD/MM/YY
Date of ingestion

Time of ingestion (24h clock)
☐ Single ingestion; all tablets at
☐ Staggered; **last** tablets taken at
HH:MM
hours passed since
HH:MM
☐ Timing unclear

Task delegated to

HH:MM
Sample taken at

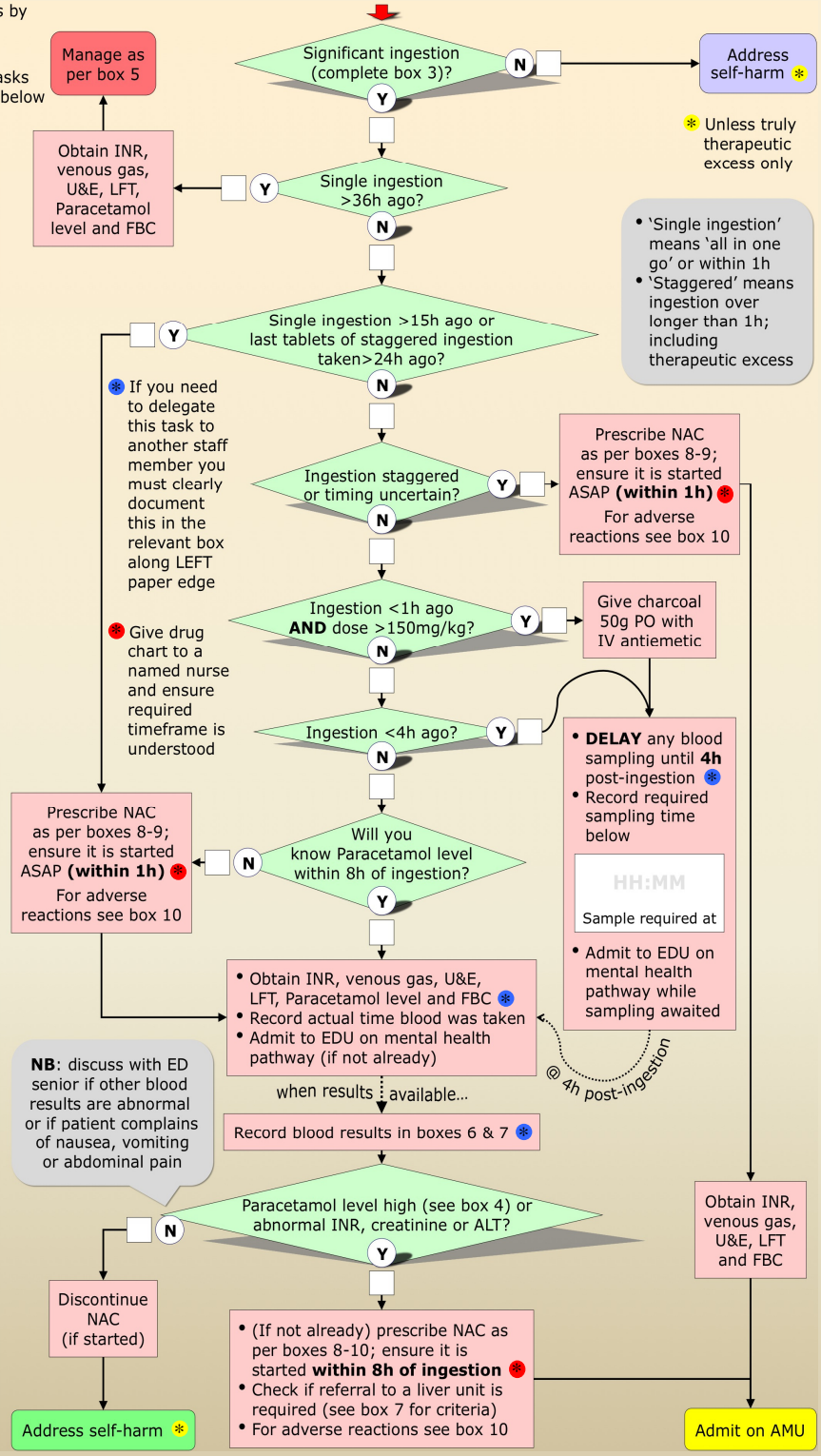
Task delegated to

HH:MM
Results checked at

Task delegated to

HH:MM
Start NAC before

HH:MM
NAC started at



② Sources of further advice

- **www.toxbase.org** has complete online management guidance for Paracetamol poisoning, including IV and other routes
  Username [redacted] Password [redacted]
- **National Poisons Information Service** (NPIS) is available anytime if remaining uncertainties after advice from ED senior
  ☎ **0844 892 0111**
- **Liver unit** referrals should be made to the 'liver unit medical registrar' at the **Queen Elizabeth Hospital Birmingham** (see box 7 for criteria)
  ☎ **0121 627 2000**

③ Significant ingestion?

Work out ingested dose in mg/kg

Total Dose ____ mg / Patient weight ____ kg = ____ mg/kg

Disregard any additional kilos in excess of 110kg

If pregnant, enter pre-pregnancy not actual weight

☐ **Yes**, as one of the below
Ingested dose >75 mg/kg/24h ☐
Reported dose unreliable ☐

☐ **No**, as none of the above

④ Paracetamol level high?

☐ **YES**, as one of the below

4-15h after single ingestion, level on or above treatment line ☐
>15h after single ingestion Paracetamol still detectable ☐
>24h after last tablets of a staggered ingestion taken Paracetamol still detectable ☐

☐ **NO**, as none of the above

⑤ Single ingestion >36h ago

<u>If jaundice or liver tenderness</u>
➔ Start NAC immediately (do not wait for blood results) and admit to AMU.
NB: check if referral to a liver unit is required (see box 7 for criteria).

<u>Otherwise await blood results and then</u>

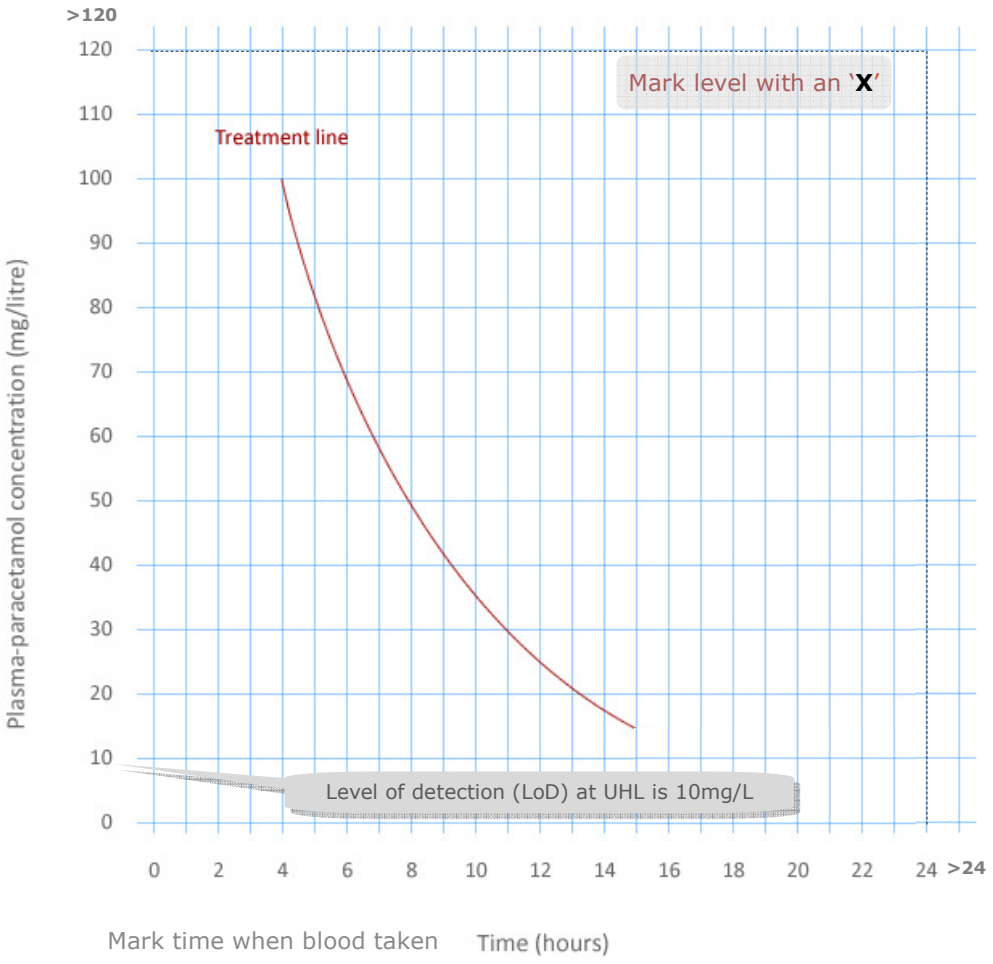
1. If **ANY** of the below
   - Paracetamol still detectable
   - ALT >149IU/L
   - INR >1.2 **AND ANY** ALT elevation
   ➔ Start NAC and admit to AMU
   NB: check if referral to a liver unit is required (see box 7 for criteria)
2. If INR >1.3 but ALT normal
   ➔ Look for other causes (discuss with ED senior then call NPIS if in doubt)
3. If none of the above
   ➔ Admit to EDU and repeat all blood tests (apart from Paracetamol level) after 12h **UNLESS**
   - ingestion >48h ago **AND**
   - ALT <150IU/L **AND**
   - INR <1.4

   If then ALT <150IU/L **AND** INR <1.4
   ➔ no more bloods needed, *otherwise*
   ➔ manage as per 1. & 2. above

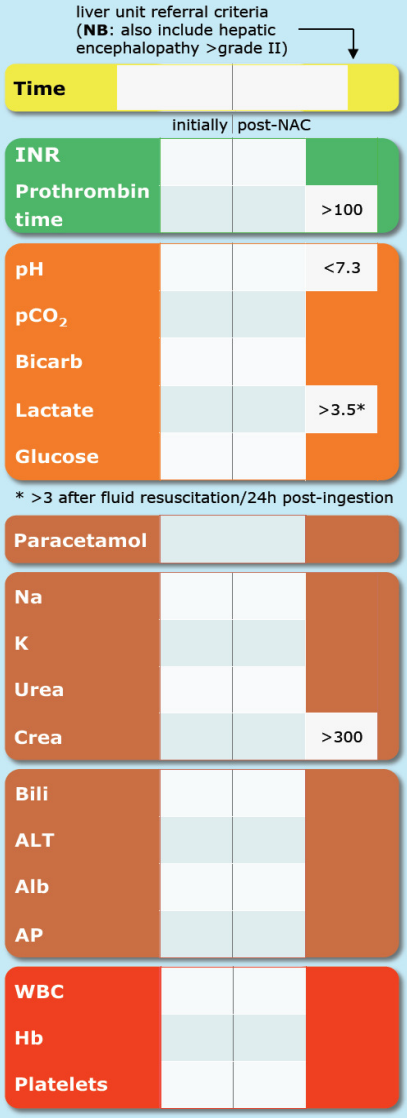
This patient was managed by

Print name Signature Role

⑥ Paracetamol blood level



⑦ Blood results



⑧ NAC regimen

- *N-Acetylcysteine (NAC) ampoules contain 2G NAC in 10mL (200mg/mL)*
- *Regimen consists of 4 infusions given consecutively over 21h*
- *Tick applicable weight range (in pregnancy, here: **ACTUAL** weight)*
- *Prescribe NAC on fluid page of drug chart as per example in box 9*

Patient weight (kg)	For the first infusion, add required amount of NAC to a 200mL bag of Glucose 5%			For the second, third and fourth infusion, add required amount of NAC to a 500mL bag of Glucose 5%			
	NAC 150mg/kg		Rate	NAC 50mg/kg		Rate	
	Dose	Volume	Infusion 1	Dose	Volume	Infusion 2	Infusions 3 and 4
	mg	mL	mL/h	mg	mL	mL/h	mL/h
☐ 40-49	6800	34	234	2400	12	128	64
☐ 50-59	8400	42	242	2800	14	129	64
☐ 60-69	9800	49	249	3400	17	129	64
☐ 70-79	11400	57	257	3800	19	130	65
☐ 80-89	12800	64	264	4400	22	131	65
☐ 90-99	14400	72	272	4800	24	131	65
☐ 100-109	15800	79	279	5400	27	132	66
☐ >109	16600	83	283	5600	28	132	66
Run time	1h			Infusions 2: 4h, infusions 3 and 4: 8h each			

⑩ NAC adverse reactions

NAC can cause anaphylactoid reactions with vomiting, flushing, urticaria, angioedema and bronchospasm, rarely shock and, very rarely, respiratory depression, AKI and DIC.

Reactions occur in around 20% of patients. They are more likely in women, especially brittle asthmatics and those with very low Paracetamol levels, and are usually seen during infusion of the 1st bag (larger dose).

Reactions can usually be controlled by simply stopping the infusion; consider giving Chlorphenamine 10mg IV if not. Add Salbutamol 5mg neb if bronchospasm.

If unsuccessful use anaphylaxis pathway.

NB: (Re)start 2nd bag once reaction settled.

Previous reaction is **NO** contraindication to NAC. If patient reports repeated previous reactions consider pretreatment with Chlorphenamine 10mg and Ranitidine 50mg IV, and give 1st bag over 2h. Pretreat with Salbutamol if previous bronchospasm.

⑨ NAC example prescription

for 62kg patient as per table in box 8

Date	Infusion fluid		Additions to infusion		IV or SC	Line	Start Time	Time to run or ml/hr	Fluid Batch No.	Prescriber
	Type/strength	Volume	Drug	Dose						
DD/MM/YY	Glucose 5%	200mL	N-Acetylcysteine	9800mg = 49mL	IV		HH:MM	249mL/h (i.e. runs over 1h)		Dr.'s Name
DD/MM/YY	Glucose 5%	500mL	N-Acetylcysteine	3400mg = 17mL	IV		HH:MM	129mL/h (i.e. runs over 4h)		Dr.'s Name
DD/MM/YY	Glucose 5%	500mL	N-Acetylcysteine	3400mg = 17mL	IV		HH:MM	64mL/h (i.e. runs over 8h)		Dr.'s Name
DD/MM/YY	Glucose 5%	500mL	N-Acetylcysteine	3400mg = 17mL	IV		HH:MM	64mL/h (i.e. runs over 8h)		Dr.'s Name