Patient Details

Name:

DOB:

Hospital/ NHS No:
(Use sticker if available)

Paracetamol Poisoning (ADULTS ONLY) VERSION 2.9 - August 2022

Author: Edward Pineles
Approved by: MRG July 2022

- Proforma to guide management of ORAL ingestion in **ADULTS ONLY**
- Includes overdoses due to therapeutic excess (XS)
- Manage and document any co-ingestion separately
- **Disclaimer: This is a clinical template; clinicians should always use judgement when managing individual patients**

University Hospitals Sussex
NHS Foundation Trust

Document decisions by ticking appropriate YES or NO box

Record delegated tasks and times 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 once
☐ Staggered; **last** tablets taken at

HH:MM
Hrs passed since

HH:MM
☐ Timing unclear

Task delegated to

HH:MM
Sample taken

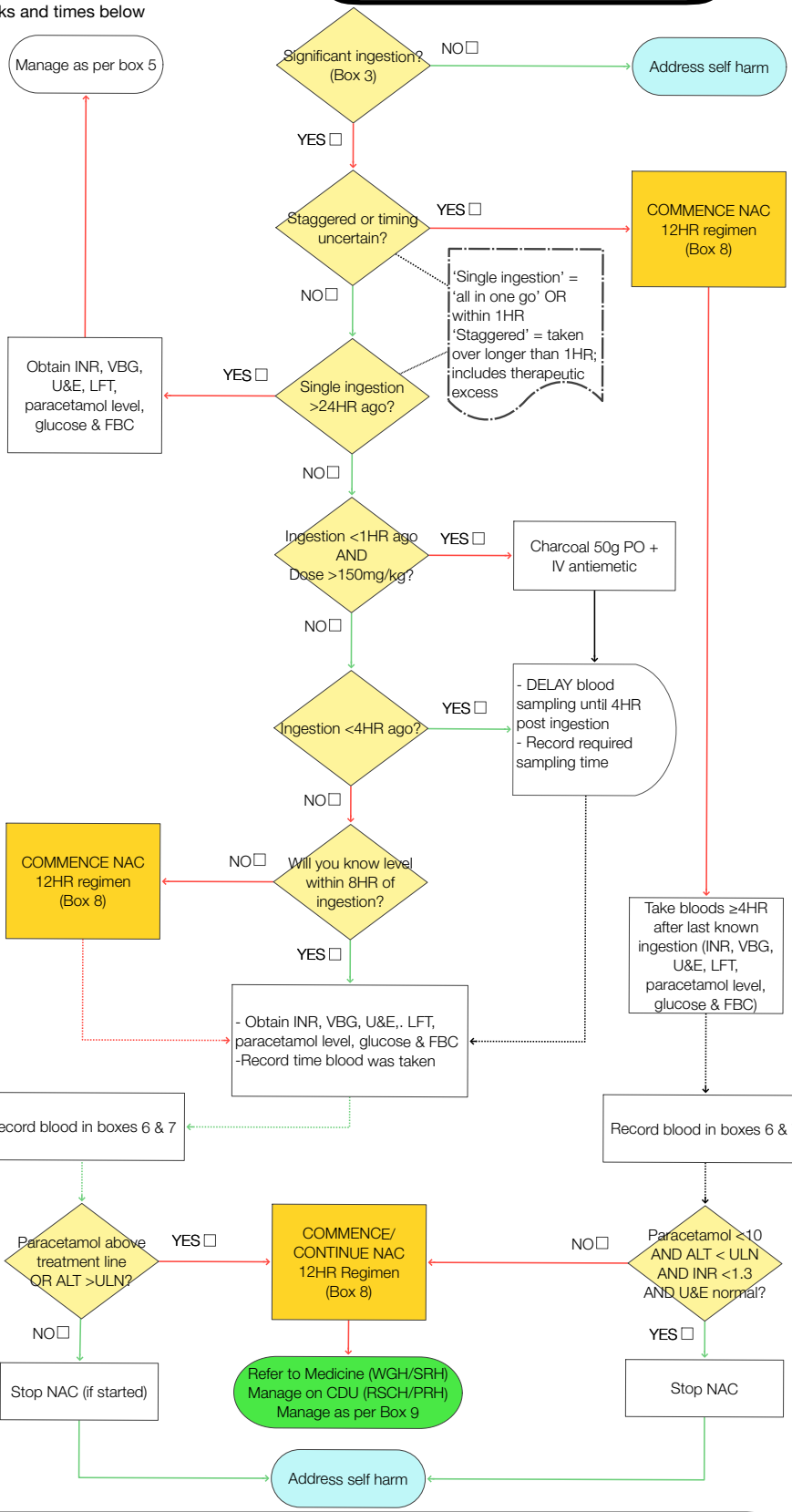
Task delegated to

HH:MM
Results checked

Task delegated to

HH:MM
NAC started

☐ Before blood results
☐ After blood results



1. Read me first

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

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

Management of Paracetamol overdose changed in 2012 following review by the Commission of Human Medicines (CHM):
- all ingestion >75mg/kg is significant (**NB**: in patient weighing <54kg, taking even standard dose of paracetamol 1g QDS may result in therapeutic XS)
- Assessment for risk factors of hepatotoxicity is no longer required

2. Sources of further advice

- **www.toxbase.org** has complete online guidance for Paracetamol poisoning
- RSCH/PRH: H370 Password: M993GR
- SRH/WGH: H206 Password: UD773Q
- **National Poisons Information Service** (NPIS) is available anytime if remaining uncertainties after advice from ED senior **03448920111**

3. Significant ingestion?

TOTAL DOSE mg / WEIGHT(max 110) kg = mg/kg

Disregard additional kilos in excess of 110kg
If pregnant, enter pre-pregnancy weight to calculate toxic dose, **BUT** use actual weight for NAC dosing (if required)

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

☐ **NO**, as none of the above

4. Paracetamol level high?

☐ **YES**, as one of the below
- 4-24h after single ingestion, Paracetamol level ≥ treatment line ☐
- >24h after single ingestion. Paracetamol detectable ☐
- >4h after last tablets of staggered ingestion taken. Paracetamol >10mg/L ☐

☐ **NO**, as none of the above

5. Single ingestion >24h ago

<u>If jaundice or liver tenderness</u>
Start NAC immediately (do not wait for results) and refer to medicine. **NB**: check if referral to liver unit required (BOX 7)

<u>Otherwise await bloods and then</u>:
1. If **ANY** of the below
   - Paracetamol detectable
   - ALT >ULN
   - INR >1.3 (in absence of other cause, e.g warfarin)

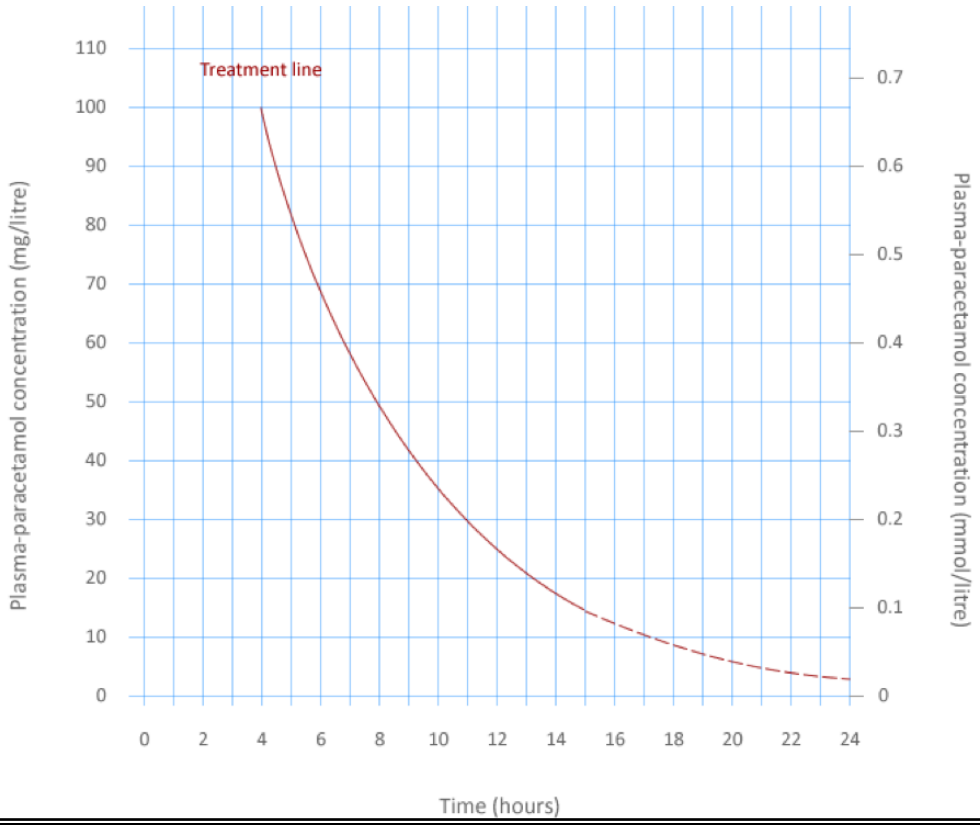
   —> Start NAC and refer to medicine

   NB: check if referral to a liver unit is required (BOX 7)
2. If INR >1.3 but ALT normal
   - Look for other causes e.g. chronic liver disease (d/w senior or call NPIS if in doubt)
3. If none of the above, then can stop NAC if started.
   - Normal creatinine - can be discharged
   - Abnormal creatinine - may need management as per AKI pathway

Print name/ Stamp | Signature | Consultant/ ST/ CT/ FY/ ANP

6. Paracetamol blood level

Mark level with an '**X**'



7. Blood results

Transplant criteria (**NB**: includes new confusional state) **Do not wait for deterioration to discuss**

Date			
Time			
	Initially	Post NAC	
INR			
PT			>100
pH			<7.3
pCO_2			
$HCO3^-$			
Lactate			>3.5*
Glucose			
* > 3 after fluid resuscitation/24h post-ingestion			
Paracet			
Na+			
K+			
Urea			
Creat			>300
Bili			
ALT			
Alb			
ALP			
Hb			
WCC			
PLTs			

8. 12hr (SNAP) NAC Regimen

Regimen	First Infusion		Second & Third Infusions	
Infusion fluid	200 mL 5% glucose or sodium chloride 0.9%		1000 mL 5% glucose or sodium chloride 0.9%	
Run Time	2 hours		10 hours	
Dose	NAC 100mg/kg		NAC 200mg/ kg	
Patient weight (kg)	Ampoule volume (mL)	Rate (mL/h)	Ampoule volume (mL)	Rate (mL/h)
40-49	23	112	45	105
50-59	28	114	55	106
60-69	33	117	65	107
70-79	38	119	75	108
80-89	43	122	85	109
90-99	48	124	95	110
100-109	53	127	105	111
>109	55	128	110	111

Dose calculations are based on the weight in the middle of each band. If the patient weighs less than 40 kg use the paediatric dose table.

9. ?Continue NAC

Take bloods 2hrs before end of infusion 2: (U&Es, HCO3, LFTs, INR, glucose & paracetamol level) record in BOX 7

- Discontinue NAC after infusion 2 if:
  INR <1.3 **AND**
  ALT <80 (2x ULN) **AND**
  ALT <2x admission value **AND**
  Paracetamol level <20

- **If criteria for discontinuing not met then proceed to infusion 3, discuss with gastroenterology/ hepatology**

- Discontinue NAC after infusion 3 (extended) if:
  INR <1.3 **AND**
  ALT <80 **AND**
  ALT <2x admission value

(Bloods should be checked **2 hours before** the end of infusion 3)

- **If criteria for discontinuing not met then proceed to infusion 4 (and repeats if needed) until:**
  INR ≤1.3, **OR**
  INR falling on two consecutive bloods **AND**
  INR <3.0

(Bloods should be checked **2 hours before** the end of infusion 4 or subsequent infusions)

When to involve Critical Care/ Liver Unit:

- If meets criteria for transplantation
- Acute confusional state
- Refractory hyperlactaemia
- Oliguria despite adequate filling
- Deteriorating patient

If in doubt then please involve specialty early

10. NAC Adverse Reactions

- NAC can cause anaphylactoid reactions with vomiting, flushing, urticaria, angioedema & bronchospasm, rarely shock &, very rarely respiratory depression, AKI & DIC.
- Reactions occur in around 20% of patients. More likely in women, especially brittle asthmatics & those with very low paracetamol levels.
- Reactions can be usually controlled by stopping the infusion; consider giving chlorphenamine 10mg IV if not. Add salbutamol 5mg neb if bronchospasm.

If unsuccessful use anaphylaxis pathway

- **NB**: Restart bag once reaction settled
- Previous reaction is **NO** contraindication to NAC. If patient reports repeated previous reactions consider pretreatment with H_1 & H_2 antagonists. Pretreat with salbutamol if previous bronchospasm on NAC
- SNAP regimen results in lower peak plasma concentration and lower reaction incidence