Guideline: Paracetamol Overdose in Adults

Purpose

This guideline is designed to assist in the investigation and treatment of paracetamol toxicity in adults

Responsibility

All EC medical staff.

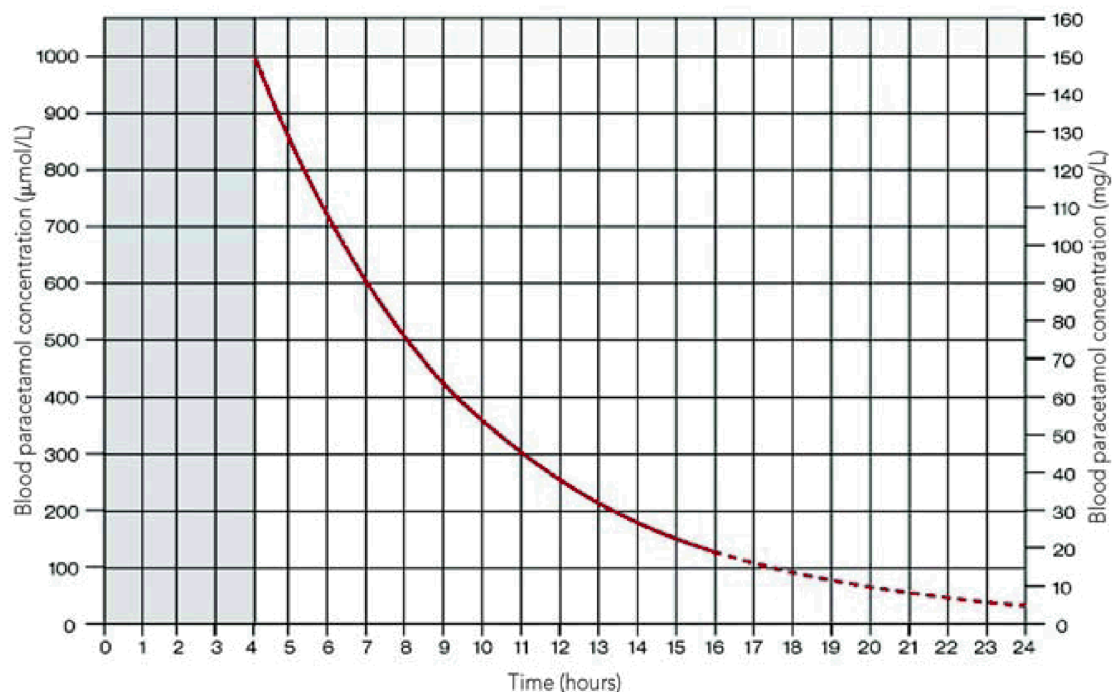
Guideline

Risk Assessment

- Amount ingested
- When ingested
- All at once or staggered/repeat dosing
- Co-ingestants

New Treatment Nomogram

- A single treatment line (no high or low risk treatment lines as previous)
- Cannot be extrapolated beyond 24 hours (see below for management)



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Counties Manukau District Health Board			

Decontamination

- Is NOT indicated in paracetamol OD as NAC is a very effective antidote

A. SINGLE EXPOSURE WITH KNOWN TIME OF INGESTION

Table 1: Toxic doses for acute single ingestion

Adults > 15 years old	Children < 15 years old
>200mg/kg or >10g (whichever is lower) over a period <8h	See Paediatric Paracetamol Poisoning Guideline

Patients that present within 8 hours

- Commencement of NAC can be deferred pending results of paracetamol serum levels 4 hours post ingestion (provided blood levels will return within the 8 hour post ingestion period)
- In massive ingestions or symptomatic patients, ALT should be considered at time of admission and at the end of the 20 hour infusion. If it is trending up, continue infusion.
- *** **If the treating clinician is not confident of the history of ingestion, it is safest to treat the patient as a delayed presentation (>8hrs)**

Patients that present later than 8 hours

- If a toxic dose (table 1) has been taken *OR* if the patient is symptomatic (eg: nausea/vomiting or RUQ pain)
  - ♦ Commence NAC immediately
  - ♦ Take serum paracetamol levels and ALT and await results
  - ♦ If serum level is below treatment line *AND* ALT is normal
    - discontinue NAC
  - ♦ If serum level is above treatment line *OR* ALT is raised
    - Continue treatment for 20h
    - Recheck ALT level at end of 20h infusion - if normal or trending down significantly, stop infusion

Patients presenting later than 24 hours

- NAC is only indicated if paracetamol is detectable or aminotransferases are elevated. It is continued until aminotransferases are falling.

Multiple or staggered overdoses

- If < 8 hours since first dose – treat as per the 1-8 hour scenario
- If >8 hours since first dose – treat as per >8 hour scenario

Sustained-Release Paracetamol Ingestion

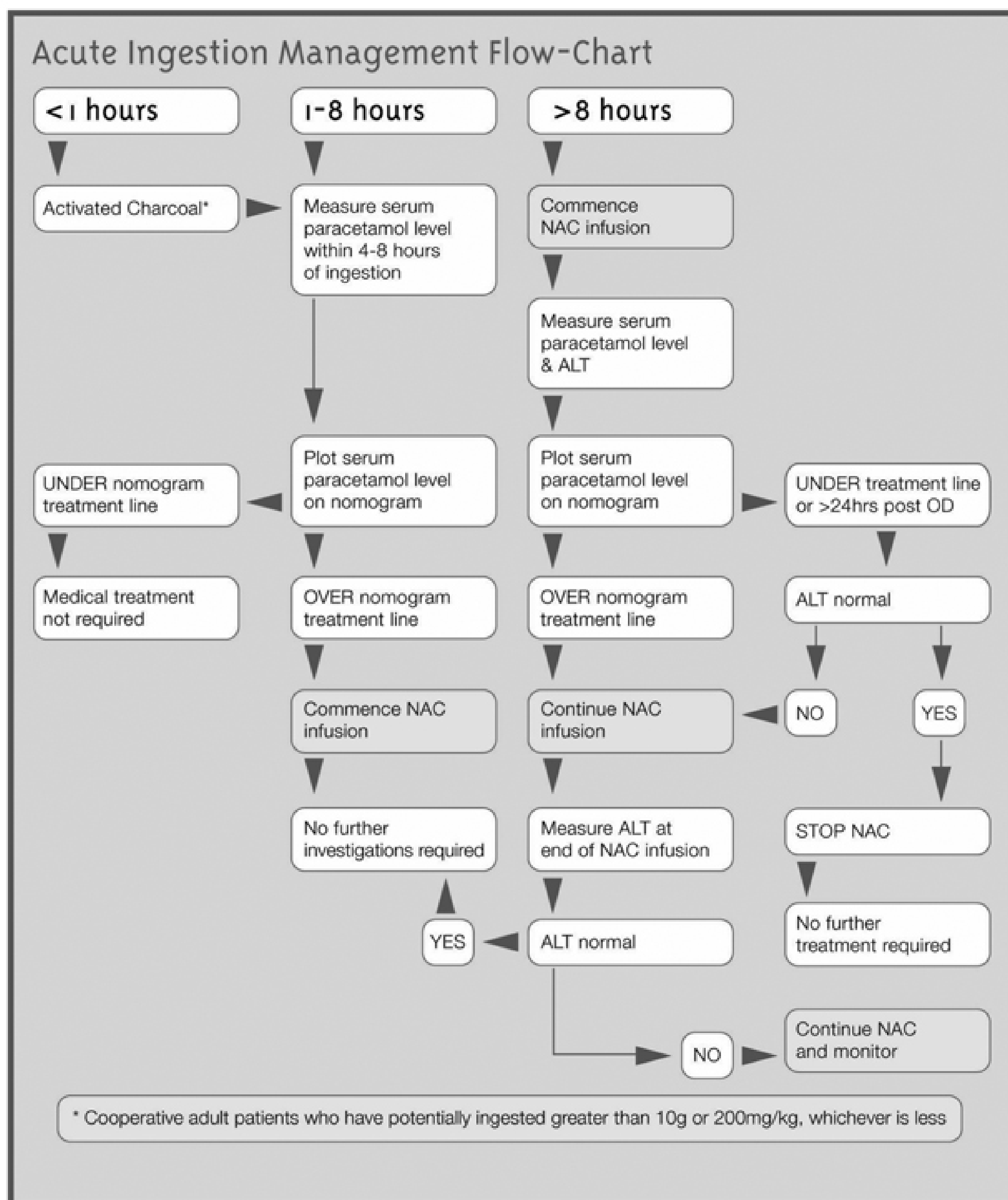
If a toxic dose (table 1) has been ingested

- Commence NAC immediately
- Check paracetamol level at 4h and 8h post ingestion
- If either of these is above the line – continue NAC infusion

If less than a toxic amount has been ingested

- As above but can wait for level results before commencing NAC

Flowchart 1: Management of Acute Paracetamol Ingestion



B. REPEATED SUPRATHERAPEUTIC INGESTION

Table 2: Toxic doses for repeated supratherapeutic ingestion

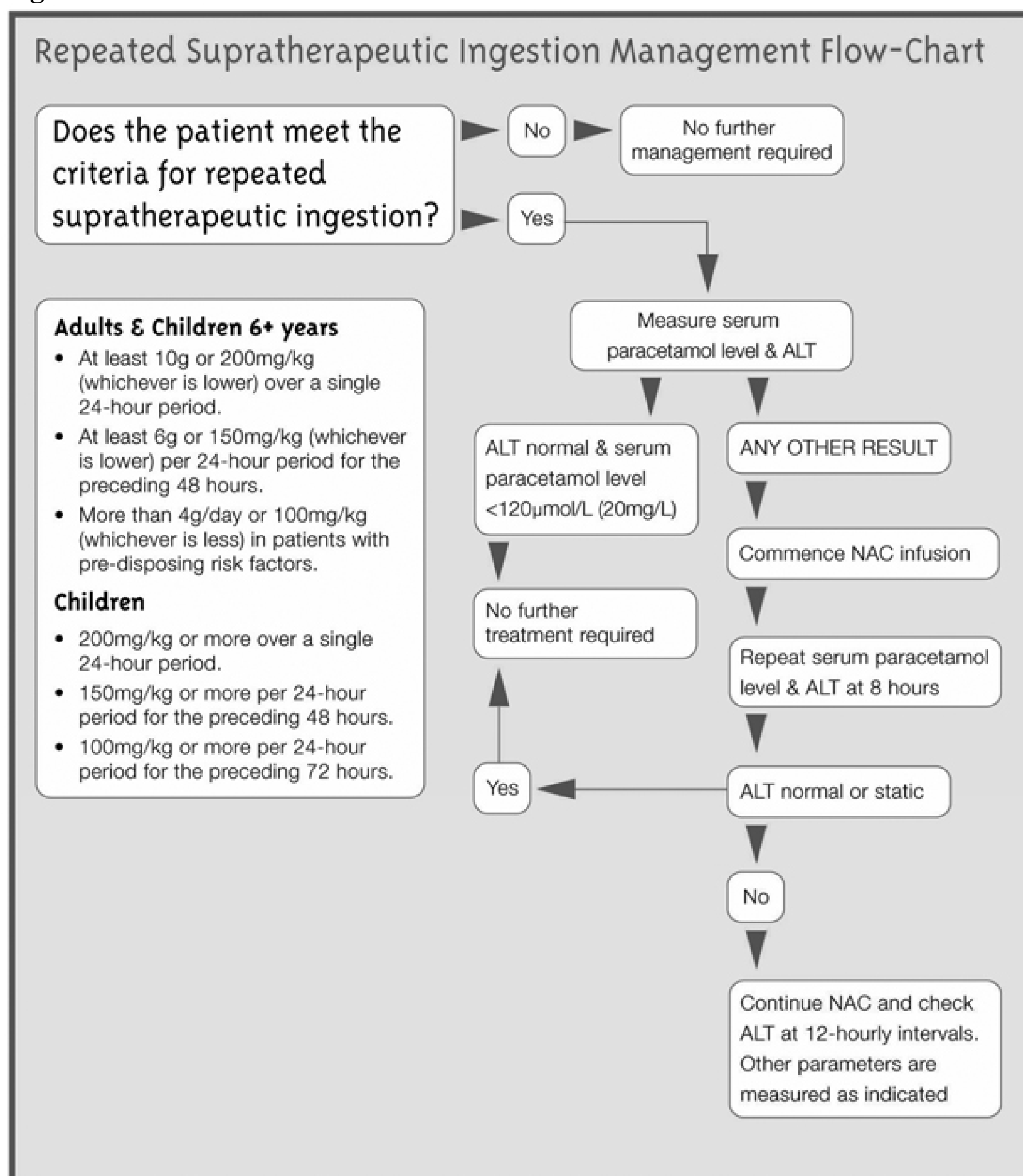
Adults > 15 years old	**Children < 15 years old**
>200mg/kg or >10g (whichever is lower) over a single 24h	See Paediatric Paracetamol Poisoning Guideline
>150mg/kg or >6g (whichever is lower) per 24h period for the preceding 48h	See Paediatric Paracetamol Poisoning Guideline
>100mg/kg or 4g/day (whichever is lower) in patients with risk factors*	See Paediatric Paracetamol Poisoning Guideline

* risk factors include: chronic ethanol abuse, enzyme inducing drugs, prolonged fasting, dehydration

If the patient meets criteria for toxic repeated supratherapeutic ingestion (Table 2)

- Measure paracetamol and ALT levels
- If paracetamol level is <120micromol/L *and* ALT normal
  - No further action required
- If paracetamol level is >120micromol/L *or* ALT raised
  - Commence NAC
  - Repeat paracetamol levels and ALT at 8h
  - If ALT normal or static - can discontinue NAC
  - If ALT remains elevated - continue NAC and recheck ALT at q12h intervals

Flowchart 2: Management of Repeated Supratherapeutic Ingestion



C. UNKNOWN TIME OF INGESTION

If paracetamol is detectable but the time of ingestion is unknown, commence NAC immediately

NAC may be ceased later when history is available or where aminotransferases are found to be normal at the end of the 20-hour NAC infusion

D. N-ACETYL CYSTEINE

3 stage 20 hour infusion (use online NAC Calculator for adults and children)

1. *150mg/kg NAC*	diluted in *200ml 5% dextrose*	infused over 60 min
2. *50mg/kg NAC*	diluted in *500ml 5% dextrose*	infused over next 4 hours
3. *100mg/kg NAC*	diluted in *1000ml 5% dextrose*	infused over the next 16h

(NAC is hyperosmolar (2600 mOsm/L) and is compatible with 5% Dextrose (D5W), ½ Normal Saline (0.45% Sodium Chloride Injection, ½ NS), and Water for Injection (WFI).

* If evidence of ongoing hepatic injury after 3rd stage of infusion has been completed (as indicated by abnormal ALT results or ongoing symptoms), continue at the rate of the last infusion stage (3rd stage) until there is significant clinical/biochemical evidence of improvement.

Anaphylactoid Reactions to NAC

Clinical features

- Wheeze, rash, mild hypotension
- Usually during the initial 2 stages
- More likely to be severe in patients with asthma

Management

- Supportive
- Stop or slow the infusion, then restart after treatment
- Treat with antihistamines and prednisone

References

Daly FS, Fountain JS, Murray L, Graudins A, Buckley NA. Guidelines for the management of paracetamol poisoning in Australia and New Zealand. MJA 2008; 188: 296-301.

Associated Documents

Other documents relevant to this guideline are listed below:

NZ Legislation	
CMDHB Clinical Board Policies	
NZ Standards	
Organisational Procedures or Policies	Paediatric Paracetamol Poisoning Guideline
Other related documents	