

# Pain in the NAC

## A Review of Paracetamol Overdoses

Hailey Doodson and Michael Quach  
Shellharbour Hospital – Department of Pharmacy

### BACKGROUND

Paracetamol overdose is a frequent presentation to Emergency Departments due to the accessibility of paracetamol in the community. A paracetamol level is utilised in the management of overdose cases to appropriately guide treatment with N-acetyl cysteine (NAC). Treatment is dependent on factors including formulation of paracetamol ingested, dose ingested and time since ingestion, all of which guide clinicians in determining the timing of paracetamol levels

### AIM

To identify the frequency of inappropriate paracetamol level requests and subsequent NAC initiation in a regional hospital.

### METHODS

52 cases of paracetamol overdose (52) from 1/1/2019 to the 1/6/2022 were identified through medical records. The audit assessed formulation of paracetamol ingested (slow release versus immediate release), time since ingestion and dose ingested. The audit excluded cases of unknown time of paracetamol ingestion and cases in which paracetamol levels were taken at another hospital. Timing of paracetamol levels were classified as appropriate if taken  $\geq 4$  hours and inappropriate if  $<4$  hours since ingestion, according to Therapeutic Guidelines. Of inappropriate paracetamol levels, cases were reviewed to ascertain whether NAC was initiated and appropriate.

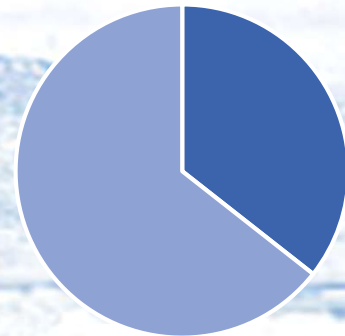
### RESULTS

45 cases were included. 64.4% (29) of paracetamol levels were taken at an appropriate time since ingestion whilst 35.6% (16) were classified as inappropriate. Of the 16 inappropriate paracetamol levels, 37.5% (6) were initiated on NAC prior to collection of levels. Subsequently, 83.3% (5) of those initiated on NAC did not warrant treatment based on dose and formulation ingested as per Therapeutic Guidelines.

### DISCUSSION

This audit highlights the importance of appropriately timing paracetamol levels to guide treatment of paracetamol overdose. Each paracetamol level processed by pathology costs money to the healthcare system and therefore, inappropriate paracetamol levels provide insight into un-necessary costs and prescribing of NAC in an already stretched healthcare system.

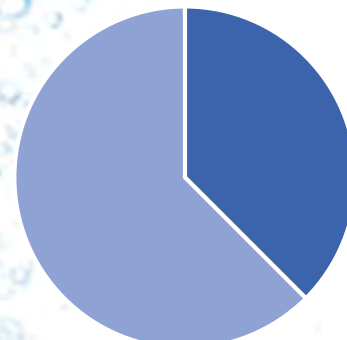
### Paracetamol Levels



- Inappropriate time  $<4$  hrs
- Appropriate time  $\geq 4$  hrs

Figure 1: Appropriateness of paracetamol levels measured since time of ingestion (n=45).

### NAC vs No Treatment



- Initiated on NAC
- No treatment

Figure 2: For patients that had paracetamol levels  $< 4$  hours, percentage that received NAC treatment (n=16).

### Proportion of those initiated on NAC that warranted treatment



- Warrant NAC treatment
- Did not require treatment

Figure 3: Appropriateness of NAC treatment in those that prematurely received NAC treatment based on time since ingestion (n=6).