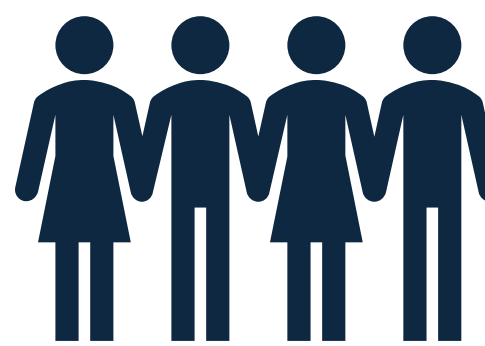
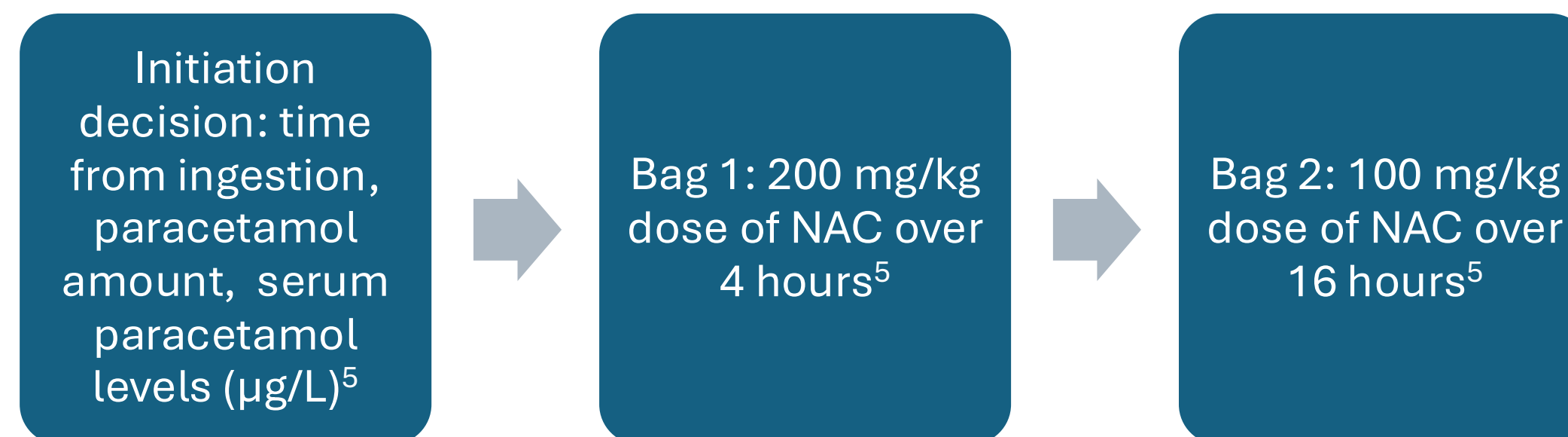


BACKGROUND

- An Australian study has found that paediatric paracetamol overdose admissions are increasing over the years²
-  **95 668 admissions** due to paracetamol overdose between **2007-2008 to 2016-2017**²
- An increase of **133%** in ages **0-14**²
- An increase of **61%** in ages **15-19**²
- Primary treatment for paracetamol overdose is intravenous N-acetylcysteine (IV NAC)⁵

Standard NAC Treatment



* Biochemical review of liver function tests, international normalised ratio and serum paracetamol levels prior cessation⁵

* If abnormal or critical serum paracetamol levels then treatment extended or higher dosage of second bag given (“more NAC”)⁵

- Further research into whether paediatric patients need “more NAC” as:
 - Australian data shows increasing admissions in this vulnerable demographic²
 - Anecdotal perception of clinicians at Northern Health

AIMS

- 1 Evaluate if paediatric paracetamol overdose patients are receiving increasing treatment through longer IV NAC duration and/or higher second bag dose (“more NAC”) from 2021 to 2025
- 2 Investigate if demographic, clinical and/or biochemical factors are associated with longer NAC duration, extended NAC duration or higher second bag of IV NAC

HYPOTHESIS

Patients will require “more NAC” during the study period either through longer NAC duration and/or higher second dose of IV NAC

METHODS

- Retrospective study of 80 paediatric patients at the Northern Hospital in Epping from January 1st 2021 to December 31st 2025
- Data sourced from VAED using ICD-10-AM T39.1 for paracetamol poisoning
- Data analysis using IBM SPSS software

Inclusion Criteria	Exclusion Criteria
- Age <18 years old - Received IV NAC	- Pre-existing chronic liver disease - Prior acute liver injury - Initiated IV NAC but ceased when found below treatment threshold

 NAC treatment outcomes: continuous NAC duration, extended NAC duration (>20 hours or >2 bags) and higher second dose of IV NAC (≥200 mg/kg)

 Primary analyses: Assess trend of NAC treatment outcomes over admission year

 Secondary analyses: Assess trend of NAC treatment outcomes with demographic (including admission year), clinical and biochemical factors for association

RESULTS AND DISCUSSION

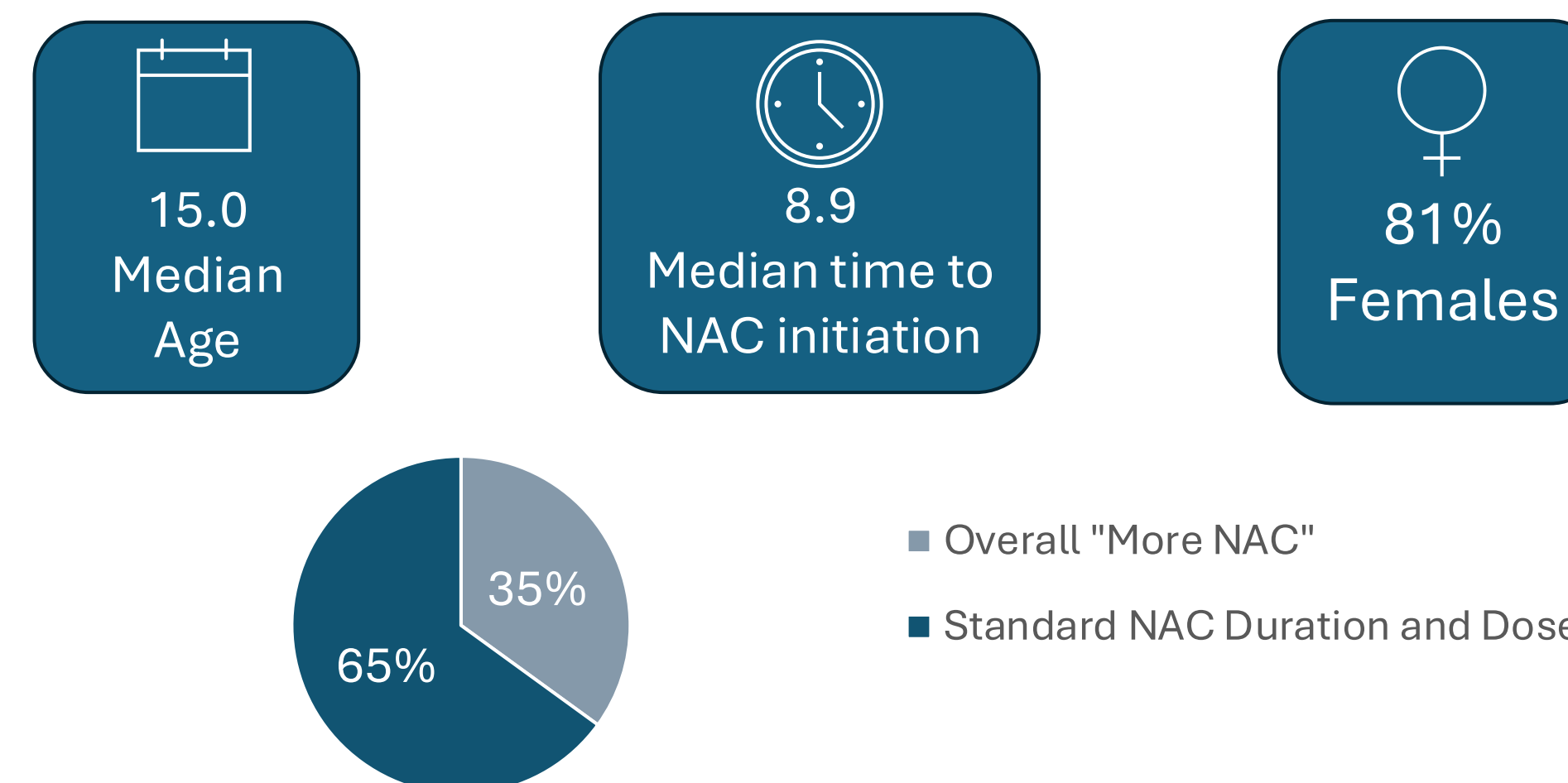


Figure 1. Proportion of Cohort Receiving Overall “More NAC” (N=75)

Table 1. Primary Analyses of NAC Treatment Outcomes with Admission Year

NAC Treatment Outcome	Trend Estimate	p-value
Continuous NAC Duration (N=80)	B=-0.11 hr/year	0.920
Higher Second-Dose of IV NAC (N=75)	OR=1.290	0.240
Greater Overall NAC (N=75)	OR=0.059	0.719

Table 2. Secondary Analyses of NAC Treatment Outcomes with Admission Year and Factors

Factor	NAC Treatment Outcome	Association
Admission Year	Higher Second Dose of IV NAC	OR: 1.599 per year; p=0.039
Reported Ingested Paracetamol (mg)	Higher Second Dose of IV NAC	OR: 1.010 per 100 mg; p<0.001
Abnormal LFTs	Continuous and Extended IV NAC duration	B=16.061 hours; p<0.001 OR: 72.984 higher odds; p<0.001
Age	Extended IV NAC duration	OR 1.676 per year; p=0.016

CONCLUSION

- The **hypothesis was not supported** → **no statistically significant** increase in NAC through dose or duration through 2021-2025 independently
- Secondary analyses with factors:
 - Admission year** and **age** associated with higher odds of receiving “more NAC”
 - Similar to studies, **reported paracetamol ingestion** and **abnormal LFTs** showed likely protocol-driven association with “more NAC”^{1,3,5}
 - Contrasting to studies, **time to NAC initiation** and **serum paracetamol levels not associated** with receiving “more NAC”^{1,4-6}
 - Treatment was escalated for a portion of the cohort → why?

LIMITATIONS

- Small cohort size and single-centre study → interpret findings carefully
- Overdose severity, INR were excluded as sizeable missing/unknown data
- Demographics (e.g. ethnicity, mental health history) were unable to be collected due to retrospective study design
- Certain factors subject to recall, reporting or documentation error

Future multicentre, larger cohort studies should move from “Is more NAC being given over time?” to “Why each patient had treatment escalation?” to assess protocol adherence, local practice patterns and overdose severity.

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