PIER
Paediatric Innovation, Education and Research Network

NHS
Hampshire Hospitals
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PAEDIATRIC
12hour (2 bag NAC / Paracetamol overdose Protocol)
Version 14
TOXBASE update 03/2023

PAEDIATRIC aged ≤ 18 years — *N*-ACETYLCYSTEINE (NAC) / PARACETAMOL OVERDOSE PROTOCOL

Single Ingestion (all tablets over ≤1hr) ☐ Staggered Overdose ☐ Timing Unclear ☐

Timing:

DD/MM/YY	HH:MM	DD/MM/	HH:MM	hrs mins	HH:MM
Current date	Current time	**Date of ingestion**	**Time last tablet(s) were ingested**	**Time since last ingestion**	**Time paracetamol sample required** *(4hr post last ingestion)*

Calculate total dose ingested within a 24 hour

Total **acute** dose ingested: ____ mg / Patient weight: (*up to **MAX** 110 kg*) ____ kg = ____ mg/kg

If pregnant, use pre-pregnancy weight

Total Ingested: ≥6yr old: >75mg/kg **OR** <6yr old: >150mg/kg **OR** staggered overdose **OR** Unreliable history

if **YES** (go to next step) ☐ if **NO** ☐ (no further medical treatment required for paracetamol overdose)

Single Ingestion (all tablets over ≤ 1 hour)

Ingestion < 4 hrs ago

Paracetamol sample :

- Delay until ≥ 4hr post-ingestion

Ingestion within 1hr & >150mg/kg:

- Con-

Time blood sample HH:MM

Ingestion 4 - 8 hrs ago

if Paracetamol level won't be back within 8 hrs of

Ingestion 8 - 24 hrs ago

≥6yr old: <150mg/kg ingested

>150mg/kg Ingested OR Jaundice OR Hepatic tenderness

Staggered overdose OR unclear timing?

Single Ingestion >24 hr ago

Prescribe NAC (guidance on pg2)

Obtain blood samples for FBC, U&E, LFT, INR + clotting, paracetamol level and venous blood gas

Time paracetamol level taken: HH:MM

Review baseline blood results

- Known time of Single Ingestion < 24 hours **AND**; paracetamol level on/above treatment line; ALT or INR abnormal; patient is symptomatic.
- **OR**; Staggered ingestion **AND** NAC not indicated as per criteria below (green box).

Do NOT stop NAC if timing unclear regardless of level

YES → **Prescribe NAC (guidance on pg2)**

NO → ***Staggered OD***
Discontinue NAC / NAC not indicated: INR < 1.3 **AND** ALT within normal range **AND** Paracetamol <10mg/L **AND** Patient has no symptoms suggesting liver damage

Single Ingestion > 24 hours ago

IF 150mg/kg over ≤1hr OR Liver tenderness OR jaundice: start NAC immediately, do not wait for bloods. Otherwise:

Treat with NAC if any of the following:

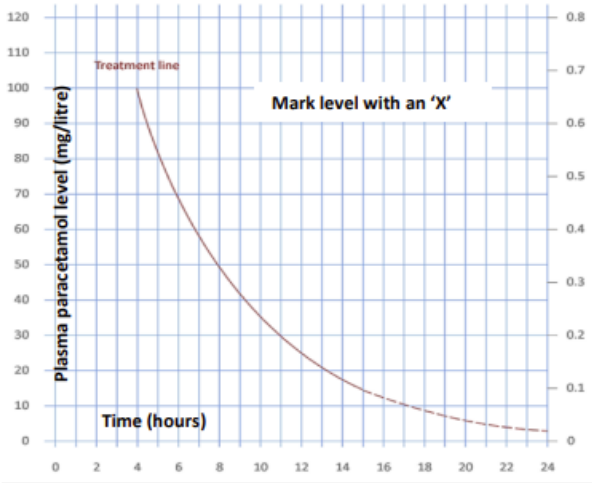
Paracetamol level detectable ALT > upper limit of normal INR > 1.3 (in the absence of other cause, e.g. warfarin)

Patients presenting > 7 days after ingestion who have been asymptomatic and have no history of liver/renal disease do not usually

**** All patients with a suspected intentional overdose should be reviewed by AMHT/CAMHS before discharge ****

Clinician name ____ Signature: ____

Paracetamol blood level



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Time	Initial	Post-NAC
Creatinine		
Urea		
AST		
ALT		
ALP		
GGT		
Bilirubin		
Albumin		
INR		
PT		
*p*H		
Lactate		
Paracetamol		

To make a referral to King's College Hospital Liver Unit

1. complete referral form from website https://www.kch.nhs.uk/service/a-z/paediatric-liver **AND** email to kch-tr.PaedLiverRegistrars@nhs.net

2. AND call on-call Paediatric Liver Registrar on **020 3299 7812,** extension 37812, 09:00—17:00. outside these hours tel: 07866792368

*after 24 hours and/or adequate fluid resuscitation

If pregnant use current weight

N-Acetylcysteine Dosing table 12hr regime

Doses based on weight in the middle of each band. Rounded up to nearest whole number.

For Paediatrics < 18yr and < 40kg use infusion fluid and volumes below

	First infusion		Second Infusion	
Infusion fluid	**Make 50mg/mL** ADD 20mL NAC 200mg/mL to 60mL Dex5% **OR** NACL0.9% **total volume 80mL**		**Make 10mg/mL** ADD 50mL NAC 200mg/mL to 950mL Dex5% **OR** NACL0.9% **total volume 1000mL**	
Duration	2 hour		10 hours	
Dose	100 mg/kg		200 mg/kg	
Weight (circle)	Total infusion volume	Infusion rate	Total infusion volume	Infusion rate
kg	mL	mL/hr	mL	mL/hr
20—24	44	22	440	44
25—29	54	27	540	54
30—34	64	32	640	64
35—39	74	37	740	74

For Paediatrics < 18yr and ≥ 40kg use infusion fluid and volumes below

	First infusion		Second Infusion	
Infusion fluid	200mL DEX5% **OR** NACL0.9%		1000mL DEX5% **OR** NACL 0.9%	
Duration	2 hour		10 hours	
Dose	100 mg/kg		200 mg/kg	
Weight (circle)	Ampoule volume	Infusion rate	Ampoule volume	Infusion rate
kg	mL	mL/hr	mL	mL/hr
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
≥110	55	128	110	111

At end of 12hr infusion CHECK: paracetamol conc, INR, U&Es, ALT

NAC should be continued (at 2nd infusion rate) if ANY of the following criteria are met:

- ALT above the upper limit of normal range, **OR**
- ALT has doubled or more from admission (even within normal range), **OR**
- Paracetamol concentration greater than 10mg/L

IF ALT is NORMAL BUT INR has increased read on (INR is a necessary severity marker but does not influence NAC continuation at this point).

IF CONTINUATION CRITERIA (above) NOT MET BUT WITH:

NORMAL ALT AND INR increase of ≤ 0.4 = can be considered for discharged.

IF CONTINUATION CRITERIA (above) NOT MET BUT WITH:

NORMAL ALT AND INR increase of 0.5 or more;

- STOP NAC and re-check INR and ALT in 4 - 6hr.

Review these bloods may discharge if:

- INR unchanged or falling, **AND**
- ALT is less than two times upper limit of normal

IF NOT, restart NAC at 10hr infusion regime.

***** Adverse Reaction to Acetylcysteine *****

1. STOP infusion—Temporarily
2. TREAT consider: IV Chlorpheniramine, NEB salbutamol
3. RESTART once reaction settles @ half first infusion rate.

Previous anaphylactoid reaction to NAC is NOT a contraindication, (consider prophylactic IV chlorphenamine and half rate of 1st infusion)

PRESCRIPTION

Date / Time	Infusion Fluid	Amp Volume (mL) (delete box if <40kg)	Drug	Concentration (delete box if >40kg)	Total Infusion Volume (mL)	Route	Rate (mL/hr)	Prescriber signature	Batch No	Given by	Start time
			Acetylcysteine			IV					
			Acetylcysteine			IV					

Further support and guidance is available at **www.toxbase.org**. Individual cases may be discussed with NPIS by calling **0344 892 0111**. .

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