

Title	Multi Disciplinary Care Pathways for Paracetamol Overdose
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Equality & Diversity Impact Assessed	December 2019

#### Multi Disciplinary Care Pathways for Paracetamol Overdose

All five protocols are contained within this document. Should you wish to print individual pathways please click on the links below.

Appendix 1	Care Pathway for Paracetamol overdose 0-8 hours SNAP Regimen
Appendix 2	Care Pathway for Paracetamol overdose 8-24 hours SNAP Regimen
Appendix 3	Care Pathway for Paracetamol overdose more than 24 hours SNAP regimen
Appendix 4	Care Pathway (ingestion of a Therapeutic excess of Paracetamol) SNAP Regimen
Appendix 5	Care Pathway for Staggered Paracetamol overdose SNAP Regimen

**NHS Borders** 



ADDRESSOGRAPH, or Name: DoB: Hospital number: CHI:

# Multi Disciplinary Care Pathway for **PARACETAMOL OVERDOSE**

## Ingested over a period of one hour or less - presenting 0-8 hours after acute ingestion

This care pathway includes the SNAP based regimen for acetylcysteine and is ONLY for use at the Borders General Hospital

This version is not available on TOXBASE<sup>®</sup>. For advice contact the on-call toxicologist at the RIE via switchboard (Monday – Friday 8.30am-6pm) or the National Poisons Information Service (NPIS) out of hours

Multi Disciplinary Care Pathway for PARACETAMOL OVERDOSE – 0-8 HOURS	ADDRESSOGRAPH, or Name:
Hospital: Borders General Hospital	DoB:
ED presentation date: Time	Hospital number:
MAU admission date: Time	
Admitting Consultant:	CHI:

Expected length of stay: approx 24 hours

#### To be initiated once a PARACETAMOL overdose is suspected Ingested over a period of one hour or less presenting less than 8 hours after acute ingestion

KEY TO INITIALS OF <b>ALL</b> STAFF COMPLETING THIS CARE PATHWAY				
Print name	Designation	Initials	Signature	Date
1				
2				
3				
4				
5				

**PATIENT:** This document is a supplement to your record of treatment for an admission with a suspected or confirmed paracetamol overdose

**STAFF:** Should be completed in addition to the In-patient Record (nursing admission, medical clerking, Toxicology Questionnaire), NEWS observation chart, ED shock chart, Infusion charts and Prescription & Administration Record

SUMMARY			Initials & time
Ingestion date	Was para	acetamol bought for overdose: Yes $\Box$	No
Ingestion time	Total par	racetamol ingested	g
	Patient's weightkg		
	CALCULATE The amount of paracetamol ingestedmg / kg		
	Notes	For obese patients weighing more than toxic dose in mg/kg should be calculated u rather than the patient's actual weight.	
		For pregnant patients the toxic dose in m be calculated using the patient's pre-pregn	0 0
Alcohol ingested? Yes 🛛 No 🗅	There is	a dosage calculator on TOXBASE <sup>®</sup> for calcu	llating mg/kg.

This document represents the care expected for a majority of your patients. It is to be expected that some patients will need care other than that noted. This is referred to as a 'Variance' and should be noted as 'Var' in the appropriate space & explained fully on the 'Variance' sheet, page 8. **Clinicians are free to exercise their own professional judgements as appropriate.** 

However, any alteration to practice noted in this document should be noted as a 'Variance' in notes.

Multi Disciplinary Care Pathway for	ADDRESSOGRAPH, or
PARACETAMOL OVERDOSE – 0-8 HOURS	Name:
Date:	DoB:
Hospital: Borders General Hospital Clinical area: ED D MAU D	Hospital number:
	CHI:

Please tick boxes as appropriate and initial / time in conjunction with the Inpatient record

#### Ingested over a period of one hour or less - presenting less than 8 hours after acute ingestion

There is normally no indication to start acetylcysteine without a plasma paracetamol concentration provided the result can be obtained and acted upon within 8 hours of ingestion

If there is going to be undue delay (beyond 8 hours) in obtaining the paracetamol concentration, treatment should be commenced if more than 150 mg/kg paracetamol has been ingested

#### TREATMENT MUST START WITHIN 8 HOURS IF MAXIMUM PROTECTION IS TO BE OBTAINED

#### **STAGE 1 - IMMEDIATE ASSESSMENT**

Assessment for risk of liver damage Paracetamol ingested.....mg / kg (see calculation on page 2)

Initial	
& time	

#### Less than 1 hour post-ingestion

Consider administration of activated charcoal if more than 150 mg/kg paracetamol has been ingested within 1 hour			Initial & time
Charcoal administered (50 g for adults)	Yes 🛛	No	

Charcoal administered (50 g for adults)

If no give reason.....

4 - 8 hours post-ingestic
---------------------------

Clinic	al priorities are:		Initial
	od samples: U&Es, TCO <sub>2</sub> , LFTs, GGT, FBC, INR & paracetamol concentration		& time
On ree	ceipt of blood results assess the risk of liver damage:		
by	plotting the paracetamol concentration on the graph on page 4		
Dat	te, time & blood results documented on page 4		
Decis	sion		
	mmence acetylcysteine if the plasma paracetamol concentration is on or over the atment line (Refer to SNAP based dosage table on page 5)		
	nsider use of acetylcysteine if the patient has an ALT above the limit of normal even if the acetamol concentration is below the treatment line		
Notes	A rise in ALT can suggest acute liver injury and in cases of severe poisoning the ALT rises ra commonly abnormal at first presentation to hospital	pidly	and is
	Haemodialysis may be indicated alongside acetylcysteine if the patient has a paracetamol co of 700 mg/L or more and an elevated lactate. For advice contact local toxicologist or the Poisons Information Service Tel 0344 892 0111 out of hours		
trea	etylcysteine is not indicated if the plasma paracetamol concentration is under the atment line, the INR and ALT are normal, the patient is asymptomatic <b>AND</b> there is no ubt about the time of ingestion.		Initial & time
	reatinine is abnormal and the above criteria are met acetylcysteine is not required but al function should be monitored as an inpatient		

If treatment with acetylcysteine is not indicated and further blood tests are not required, go to Stage 4 'Subsequent Management & Discharge' [page 8]

Multi Disciplinary Care Pathway for	ADDRESSOGRAPH, or
PARACETAMOL OVERDOSE – 0-8 HOURS	Name:
Date:	DoB:
Hospital: Borders General Hospital	Hospital number:
Clinical area: ED 📮 MAU 📮	CHI:
Initial as your assentate as ab associate of some them assentate.	the WEY TO INITIAL S' table on name 2

Initial as you complete each aspect of care then complete the 'KEY TO INITIALS' table on page 2.

Γ

itials date / time	Plasma paracetamol concentration         athours post ingestion         Other         Initials       date / time
	INR
	Platelets
Time (hours)	WCC
	MCV
20	Hb
	Albumin
0.4 La contra co	GGT
La concentration (mmodular)	Alk Phos
	ALT
() 150 140 140 130 130 120 10 10 10 10 10 10 10 10 10 1	eGFR Bilirubin
	Creatinine
	TCO <sub>2</sub>
	Potassium
200	Sodium
ARNING: PLEASE CHECK THE UNITS CAREFULLY AND USE IE CORRECT SCALE	Urea
	Blood Results Date/Time of sample

ADDRESSOGRAPH, or

Multi Disciplinary Care Pathway for **PARACETAMOL OVERDOSE – 0-8 HOURS** Date:

**Hospital: Borders General Hospital** 

Clinical area: ED 🔲 MAU 🔲

Please tick boxes as appropriate and initial / time in conjunction with the 'Inpatient record'.

#### **STAGE 2 – INITIATION OF TREATMENT WITH ACETYLCYSTEINE**

Name:

Hospital number:

DoB:

CHI:

#### FOR OBESE PATIENTS WEIGHING more than 110 kg

Calculate acetylcysteine dose using 110 kg rather than the patient's actual weight

#### FOR PREGNANT PATIENTS

Calculate acetylcysteine dose using the patient's actual pregnant weight

#### THIS SNAP BASED DOSAGE TABLE IS ONLY FOR USE IN

#### BORDERS GENERAL HOSPITAL

Adult acetylcysteine prescription

(each ampoule = 200 mg/mL acetylcysteine)

	Regimen	First In	fusion	Second In	fusion	
	Infusion fluid	200 mL 5%	glucose or	1000 mL 5% glucose or		
		sodium chlo	oride 0.9%	sodium chloride 0.9%		
D	uration of infusion	2 ho	urs	10 ho	urs	
	Drug dose	100 m	g/kg	200 mg	g/kg	
		Acetylcy	vsteine	acetylcys	steine	
	Patient Weight <sup>1</sup>	Ampoule volume <sup>2</sup>	Infusion Rate	Ampoule volume <sup>2</sup>	Infusion Rate	
	kg	mL	mL/h	mL	mL/h	
	30-39	18	109	35	104	
	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	
<sup>1</sup> Do	se calculations are bas	ed on the weight in the	middle of each band	•		
<sup>2</sup> Arr	npoule volume has beer	n rounded up to the ne	arest whole number.			
Exte	nded treatment – con	tinue acetylcysteine a	at the dose and infus	ion rate used in the 2	nd treatment bag	
ent's we	: a b t	kg				

Prescription and Administration record completed		
--	--	--

Infusion chart completed

#### Date/time treatment commenced

REACTION to acetylcysteine			COMPLICATIONS of paracetamol ingestion				
None		Wheeze		Abnormal liver function		Encephalopathy	
Flushing		Hypotension		Acute kidney injury		Haemorrhage	
Vomiting		Other		Hypoglycaemia		Other	
Rash		Specify		Acidosis		Specify	
Date and time of reaction		Initial		Date and time of reaction	on	Initi	al

Initial

#### Multi Disciplinary Care Pathway for **PARACETAMOL OVERDOSE – 0-8 HOURS** Date:

ADDRESSOGRAPH, or

Name:

DoB:

CHI:

Hospital number:

**Hospital: Borders General Hospital** 

Clinical area: ED MAU 🛛

#### **STAGE 3 – END OF TREATMENT WITH ACETYLCYSTEINE**

#### End bag 2 bloods (10 hour bloods) U&Es, LFTs, FBC, INR & PARACETAMOL CONCENTRATION Initial/time End of bag 2 bloods (10 hour bloods) obtained 2 hours before the end of bag 2 Bloods results documented in table below Results reviewed by medical staff (of grade FY2 and above) END OF BAG 2 (10 hour) bloods review Criteria for DISCONTINUING acetylcysteine after Bag 2 are: INR 1.3 or less AND ALT less than 100 U/L AND ALT not more than double the admission measurement AND PARACETAMOL concentration less than 20 mg/L Decision to continue or discontinue acetylcysteine documented on page 7

	Blood results							
	<u>Pre</u> <u>Treatment</u>	<u>End of bag 2</u> 10 hour bloods	End of extended treatment bloods	End of extended treatment bloods				
Notes	* Copy from page 4	Blood samples 2 hours before the end of bag 2	Blood samples 2 hours before the end of the extended bag	Blood samples 2 hours before the end of the extended bag				
		Date/time taken	Date/time taken	Date/time taken				
		Initial	Initial	Initial				
Urea								
Sodium								
Potassium	*							
TCO <sub>2</sub>								
Creatinine	*							
eGFR								
Bilirubin								
ALT	*							
Alk. Phos								
Hb								
WCC								
Platelets								
INR	*							
Paracetamol	*							
Reviewed by		Initial	Initial	Initial				
Decision		Continue / stop	Continue / stop	Continue / stop				

Multi Disciplinary Care Pathway for **PARACETAMOL OVERDOSE – 0-8 HOURS** Date:

Hospital: Borders General Hospital Clinical area: ED D MAU D ADDRESSOGRAPH, or Name: DoB: Hospital number: CHI:

STAGE 3 – END OF TREATMENT WITH ACETYLCYSTEINE						
If criteria for discontinuing acetylcysteine at end of Bag 2 are met: Discontinue acetylcysteine once bag 2 infusion is <u>complete</u> Acetylcysteine discontinued at		Initial/time				
If criteria for discontinuing acetvlcvsteine at the end of Bag 2 are NOT met: Continue acetylcysteine treatment at the dose and infusion rate of bag 2 (page 5) Obtain bloods 2 hours before the end of the extra bag of acetylcysteine U&Es, LFTs, FBC & INR						
FOR ALL PATIENTS:						
Results reviewed by medical staff (of grade FY2 and above or specialist nurse trained in Nurse-Led Discharge)						
NB: If creatinine is abnormal or is 10% greater than at presentation, and the criteria for discontinuing acetylcysteine are met, further acetylcysteine is not required but renal function should be monitored inpatient. Re-check 12 hours later.		an				
Decision		Initial/time				
If further treatment or blood sampling is not required go to Stage 4 'Subsequent Management & Discharge'(page 8)						
If monitoring of renal function is required obtain blood samples 12 hours later and review by medical team						
If extended acetylcysteine is indicated follow advice below						
If extended treatment is required:		date/time				
Continue acetylcysteine at the dose and infusion rate used in the 2 <sup>nd</sup> treatment bag (Page 5)						
Recheck U&Es, LFTs, FBC and INR every 10 hours to assess the course of liver injury (2 hours before the end of each extended bag) Document results on page 6						
Discontinue automale d'un atmost sub any						

Discontinue extended treatment when: INR 1.3 or less; OR falling towards normal on two consecutive blood tests, <u>and</u> less than 3. Note, the discontinuation criteria once on extended treatment do not include ALT measurements; however LFTs should still be checked to assess the course of liver injury. There is no clinical advantage to treating isolated ALT rises after this normalisation in INR (indicating restoration of hepatic synthetic function)

Extended treatment with acetylcysteine was required If YES, number of extended bags required	Yes	No		date/time
Once treatment with acetylcysteine is discontinued go to Stage 4 'Subsequent I	Management & Di	scharge	' (page	e 8)

#### Multi Disciplinary Care Pathway for **PARACETAMOL OVERDOSE – 0-8 HOURS** Date:

Hospital: Borders General Hospital Clinical area: ED D MAU D

	ADDRESSOGRAPH, or
Name:	
DoB:	
Hospital nun	nber:
CHI:	

STAGE 4 – SUBSEQUENT MANAGEMENT & DISCHARGE							
<b>T</b>						Initial/time	
Target	nt with acetylcysteine tolerated	N/A 🗆	Yes 🛛	No			
	Patient eating and drinking.		Yes 🗖	No	Ē		
:	Seen by Psychiatry team member	N/A 🛛	Yes□	No			
Com	iment						
	Is the patient suitable for Nurse-Led-Discharge*		Yes 🛛	No			
lf Ye	s, ensure Nurse Led Discharge documentation is initiated						
Notes	*Nurses must have achieved Nurse Led Discharge competence	s					
D'						Initial/time	
Dischar	<b>ge</b> Treatment complete	N/A 🗂	Yes 🛛	No			
	Criteria for discharge met		Yes 🛯	No			
(	Comment						
	Discharge advice given, <b>including paracetamol patient discha</b> TOXBASE <sup>®</sup> )	rge sheet	(available	on			
-	NOK informed		Yes 🛛	No			
	iment department Date Time						
Lon							
<b>F</b> a II a						Initial/time	
Follow-up Has follow-up been arranged?		N/A 🛛	Yes 🛛	No			
	Has follow-up been arranged? N/A						
Notes	Medical follow-up arrangements are not normally required if blog	od results	are within	accep	table	range	

For additional information – not held anywhere else in the document	Date/time Initial

VARIANCES: <u>all</u> staff to identify & record variances. Types of Variance - break down into types: A - Patient/Relative, B - Clinician, C - Hospital System, D - Community/External.									
Record of Variance									
Date	Time	Description of issue	Reason	Action	Initials	Var. code			
<b>EXAMPLE</b> 01.12.17	17.15	Flushing	Reaction to acetylcysteine	Infusion stopped for 30 minutes Chlorphenamine administered	BS	А			



ADDRESSOGRAPH, or
lame:
DoB:
lospital number: CHI:

# Multi Disciplinary Care Pathway for **PARACETAMOL OVERDOSE**

### Ingested over a period of one hour or less presenting 8-24 hours after acute ingestion

This care pathway includes the SNAP based regimen for acetylcysteine and is ONLY for use at the Borders General Hospital

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Multi Disciplinary Care Pathway for PARACETAMOL OVERDOSE – 8-24 HOURS	ADDRESSOGRAPH, or
Hospital: Borders General Hospital	Name: DoB:
ED presentation date: Time	Hospital number:
MAU admission date: Time	CHI:
Admitting Consultant:	
Expected length of stay: approx 24 hours	

#### To be initiated once a PARACETAMOL overdose is suspected Ingested over a period of one hour or less presenting 8-24 hours after acute ingestion

KEY TO INITIALS OF ALL STAFF COMPLETING THIS CARE PATHWAY					
Print name	Designation	Initials	Signature	Date	
1					
2					
3					
4					
5					
6					

**PATIENT:** This document is a supplement to your record of treatment for an admission with a suspected or confirmed paracetamol overdose.

**STAFF:** Should be completed in addition to the Inpatient Record (nursing admission, medical clerking, Toxicology Questionnaire), NEWS observation chart, ED shock chart, Infusion charts and Prescription & Administration Record.

SUMMARY			Initials & time
Ingestion date	Was para	acetamol bought for overdose: Yes D	No 🗖
Ingestion time			
List all the drug(s) ingested	Total par	acetamol ingested	g
	Patient's	weight	kg
			ma / ka
		unt of paracetamol ingested	
	Notes	For obese patients weighing more than 1 toxic dose in mg/kg should be calculated us	•
		rather than the patient's actual weight.	
		For pregnant patients the toxic dose in mg be calculated using the patient's pre-pregna	
Alcohol ingested? Yes 🛛 No 🖵	There is a	a dosage calculator on TOXBASE <sup>®</sup> for calculator	

This document represents the care expected for a majority of your patients. It is to be expected that some patients will need care other than that noted. This is referred to as a 'Variance' and should be noted as 'Var' in the appropriate space & explained fully on the 'Variance' sheet, page 8. **Clinicians are free to exercise their own professional judgements as appropriate.** However, any alteration to practice noted in this document should be noted as a 'Variance' in notes.

Multi Disciplinary Care Pathway for	ADDRESSOGRAPH, or
PARACETAMOL OVERDOSE – 8-24 HOURS	Name:
Date:	DoB: Hospital number:
Hospital: Borders General Hospital	CHI:
Clinical area: ED 🔍 MAU 🔍	
Please tick boxes as appropriate and initial / time in co	onjunction with the Inpatient record.
STAGE 1 - IMMEDIATE AS	SESSMENT
Ingested over a period of one hour or less - present	ting 8-24 hours after acute ingestion
Give acetylcysteine <b>IMMEDIATELY</b> to all patients if it is thought that r has been ingested. <b>DO NOT WAIT for the plasma paracetamol con</b>	
The efficacy of the antidote declines rapidly during this period and	
Assessment for risk of liver damage	Initial & time
Paracetamol ingestedmg/kg (see	
Clinical priorities	
Is it thought that more than 150 mg/kg has been ingested	Yes 🖬 No 🗖
If Yes,	
START ACETYLCYSTEINE IMMEDIATELY DO NOT W/ (Refer to SNAP based dosage table on page 5) If No,	AIT FOR BLOOD RESULTS
Wait for blood results before starting acetylcysteine	
Blood sampling	
Obtain urgent blood samples for paracetamol concentration and INR	, U&Es, TCO <sub>2</sub> , LFTs, GGT, FBC
On receipt of blood results assess the risk of liver damage	:
by plotting the paracetamol concentration on the graph on p	bage 4
Date, time & blood results documented on page 4	
If treatment has not already been initiated:	
Commence acetylcysteine if paracetamol concentration is p (Refer to SNAP based dosage table on page 5)	olotted on or over the treatment line
Consider the use of acetylcysteine if the patient has an ALT the paracetamol concentration is below the treatment line	above the limit of normal even if
Acetylcysteine is not indicated if the plasma paracetamol co line, the INR and ALT are normal, and the patient is asympt about the time of ingestion	
If creatinine is abnormal and the above criteria are met acet function should be monitored as an inpatient and if required	
Notes A rise in ALT can suggest acute liver injury and in cases commonly abnormal at first presentation to hospital	•
Haemodialysis may be indicated alongside acetylcystein concentration and an elevated lactate. For advice con- Information Service. Tel 0344 892 0111 out of hours	
If treatment has already been initiated:	Initial
Continue acetylcysteine if paracetamol concentration is plot	ted over the treatment line
Discontinue acetylcysteine if paracetamol concentration is p	
the INR and ALT are normal; patient is asymptomatic; <b>AND</b> of ingestion	
If creatinine is abnormal and the above criteria are met acent renal function should be monitored as an inpatient and if rec	
Medical staff of grade FY2 or above <u>must</u> review blood res	1
Results reviewed by	
If treatment with acetylcysteine is not indicated or discontinue	
go to Stage 4 'Subsequent Manageme	-

ADDRESSOGRAPH, or

Name: DoB:

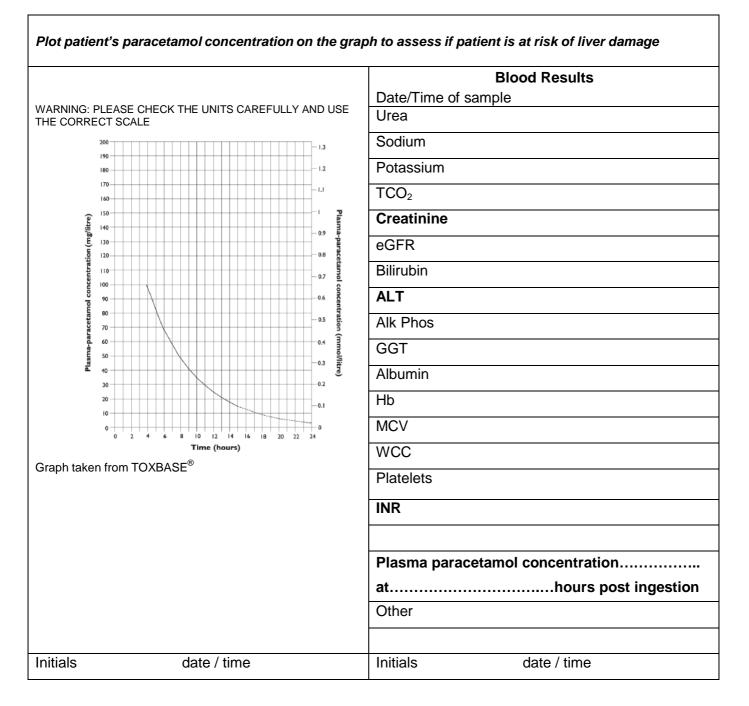
CHI:

Hospital number:

Multi Disciplinary Care Pathway for
PARACETAMOL OVERDOSE - 8-24 HOURS
Date:
Hospital: Borders General Hospital

Clinical area: ED 📮 MAU 📮

Initial as you complete each aspect of care then complete the 'KEY TO INITIALS' table on page 2.



Multi Disciplinary Care Pathway for **PARACETAMOL OVERDOSE – 8-24 HOURS** Date:

Hospital: Borders General Hospital

Clinical area: ED 📮 MAU 📮

ADDRESSOGRAPH, or Name: DoB: Hospital number: CHI:

Please tick boxes as appropriate and initial / time in conjunction with the Inpatient record.

#### **STAGE 2 – INITIATION OF TREATMENT WITH ACETYLCYSTEINE**

#### FOR OBESE PATIENTS WEIGHING more than 110 kg

Calculate acetylcysteine dose using 110 kg rather than the patient's actual weight

FOR PREGNANT PATIENTS

Calculate acetylcysteine dose using the patient's actual pregnant weight

#### THIS SNAP BASED DOSAGE TABLE IS ONLY FOR USE IN

#### BORDERS GENERAL HOSPITAL

Adult acetylcysteine prescription

(each ampoule = 200 mg/mL acetylcysteine)

Regimen	First In	fusion	Second Infusion			
Infusion fluid	200 mL 5%	glucose or	1000 mL 5% glucose or			
	sodium chlo	oride 0.9%	sodium chlo	sodium chloride 0.9%		
Duration of infusion	2 ho	ours	10 ho	10 hours		
Drug dose	100 m	ng/kg	200 m	g/kg		
	acetylcy	/steine	acetylcy	steine		
Patient Weight <sup>1</sup>	Ampoule volume <sup>2</sup>	Infusion Rate	Ampoule volume <sup>2</sup>	Infusion Rate		
kg	mL	mL/h	mL	mL/h		
30-39	18	109	35	104		
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		
<sup>1</sup> Dose calculations are b	ased on the weight in the	middle of each band	1			
<sup>2</sup> Ampoule volume has be	en rounded up to the ne	arest whole number.				

Patient's weight ...... kg

Prescription and Administration record completed

Date/time treatment commenced

Infusion chart completed

Initial

REACTION to acetylcysteine			COMPLICATIONS of paracetamol ingestion					
None		Wheeze		Abnormal liver function		Encephalopathy		
Flushing		Hypotension		Acute kidney injury	$\Box$	Haemorrhage		
Vomiting		Other		Hypoglycaemia	$\Box$	Other		
Rash		Specify		Acidosis	$\Box$	Specify		
Date and time of reaction		Initial		Date and time of reaction	on	I	Initial	

#### Multi Disciplinary Care Pathway for **PARACETAMOL OVERDOSE – 8-24 HOURS** Date:

ADDRESSOGRAPH, or Name: DoB: Hospital number: CHI:

Hospital: Borders General Hospital Clinical area: ED D MAU D

STAGE 3 – END OF TREATMENT WITH ACETYLCYSTEINE	
End bag 2 bloods (10 hour bloods) U&Es, LFTs, FBC, INR & PARACETAMOL CONCENTRATION	
End of bag 2 bloods (10 hour bloods) obtained 2 hours before the end of bag 2 Bloods results documented in table below Results reviewed by medical staff (of grade FY2 and above)	Initial/time
END OF BAG 2 (10 hour) bloods review Criteria for DISCONTINUING acetylcysteine after Bag 2 are: INR 1.3 or less AND ALT less than 100 U/L AND ALT not more than double the admission measurement AND PARACETAMOL concentration less than 20 mg/L	
Decision to continue or discontinue acetylcysteine documented on page 7	

	Blood results						
	<u>Pre</u> <u>Treatment</u>	<u>End of bag 2</u> 10 hour bloods	End of extended treatment bloods	End of extended treatment bloods			
Notes	* Copy from page 4	Blood samples 2 hours before the end of bag 2	Blood samples 2 hours before the end of the extended bag	Blood samples 2 hours before the end of the extended bag			
		Date/time taken Initial	Date/time taken Initial	Date/time taken Initial			
Urea							
Sodium							
Potassium	*						
TCO <sub>2</sub>							
Creatinine	*						
eGFR							
Bilirubin							
ALT	*						
Alk. Phos							
Hb							
WCC							
Platelets							
INR	*						
Paracetamol	*						
Reviewed by Decision		Initial Continue / stop	Initial Continue / stop	Initial Continue / stop			

Multi Disciplinary Care Pathway for
PARACETAMOL OVERDOSE – 8-24 HOURS
Date:

Hospital: Borders General Hospital Clinical area: ED D MAU D ADDRESSOGRAPH, or Name: DoB: Hospital number: CHI:

STAGE 3 – END OF TREATMENT WITH ACETYLCYSTEINE					
If criteria for discontinuing acetylcysteine at end of Bag 2 are met: Discontinue acetylcysteine once bag 2 infusion is <u>complete</u> Acetylcysteine discontinued at		Initial/time			
If criteria for discontinuing acetylcysteine at the end of Bag 2 are NOT met: Continue acetylcysteine treatment at the dose and infusion rate of bag 2 (page 5)					
FOR ALL PATIENTS: Results reviewed by medical staff (of grade FY2 and above or specialist nurse trained in Nurse-Led Discharge)					
NB: If creatinine is abnormal or is 10% greater than at presentation, further acetylcysteine is not rear renal function should be monitored as an inpatient. Re-check 12 hours later.	quire	d but			
Decision         If further treatment or blood sampling is not required go to Stage 4 'Subsequent Management & Discharge'(page 8)         If monitoring of renal function is required obtain blood samples 12 hours later and review by medical team         If extended acetylcysteine is indicated follow advice below		Initial/time			
If extended treatment is required:		date/time			
Continue acetylcysteine at the dose and infusion rate used in the 2 <sup>nd</sup> treatment bag (Page 5)					
Recheck U&Es, LFTs, FBC and INR every 10 hours to assess the course of liver injury (2 hours before the end of each extended bag) Document results on page 6					
Discontinue extended treatment when: INR 1.3 or less; OR falling towards normal on two consecutive blood tests, <u>and</u> less than 3. Note, the discontinuation criteria once on extended treatment do not include ALT measurements, however LFTs should still be checked to assess the course of liver injury. There is no clinical advantage to treating ALT rises after this normalisation in INR (indicating restoration of hepatic synthetic function)					
Extended treatment with acetylcysteine was required Yes No If YES, number of extended bags required		date/time			
Once treatment with acetylcysteine is discontinued go to Stage 4 'Subsequent Management & Discharge' (	page	e 8)			

#### Multi Disciplinary Care Pathway for **PARACETAMOL OVERDOSE – 8-24 HOURS** Date:

Hospital: Borders General Hospital

Clinical area: ED 📮 MAU 📮

	ADDRESSOGRAPH, or
Name:	
DoB:	
Hospital num	nber:
CHI:	

STAGE 4 – SUBSEQUENT MANAGEMENT & DISCHARGE						
Torret						Initial/time
Target Treatme	ent with acetylcysteine tolerated	N/A 🗆	Yes 🛛	No		
	Patient eating and drinking.		Yes 🛛	No	ā	
Seen by Psychiatry team member N/A Ves No						
Comment						
	Is the patient suitable for Nurse-Led-Discharge*		Yes 🛛	No		
lf Ye	es, ensure Nurse Led Discharge documentation is initiated					
Notes	*Nurses must have achieved Nurse Led Discharge competence	s				
Diachar						Initial/time
Dischar	ge Treatment complete	N/A 🗆	Yes 🛛	No		
	Criteria for discharge met		Yes 🛛	No		
	Comment				-	
	Discharge advice given, <b>including paracetamol patient discha</b>			on		
	TOXBASE <sup>®</sup> )	ge sheet	available	on		
	NOK informed		Yes 🛛	No		
Comment						
Left	department DateTime					
Fallow						Initial/time
Follow-up Has follow-up been arranged? N/A Ves No						
Has follow-up been arranged? N/A U Yes No U Comment						
Notes	Medical follow-up arrangements are not normally required if blo	od results	are within	accep	table	range

For additional information – not held anywhere else in the document	Date/time initial

VARIANCES: <u>all</u> staff to identify & record variances. Types of Variance - break down into types: A - Patient/Relative, B - Clinician, C - Hospital System, D - Community/External.						
Record of Va	Record of Variance					
Date	Time	Description of issue	Reason	Action	Initials	Var.
						code
<b>EXAMPLE</b> 01.12.17	17.15	Flushing	Reaction to acetylcysteine	Infusion stopped for 30 minutes Chlorphenamine administered	BS	А

**NHS Borders** 



ADDRESSOGRAPH, or Name: DoB: Hospital number: CHI:

# Multi Disciplinary Care Pathway for **PARACETAMOL OVERDOSE**

## Ingested over a period of one hour or less - presenting more than 24 hours after acute ingestion

This care pathway includes the SNAP based regimen for acetylcysteine and is ONLY for use at the Borders General Hospital

This version is not available on TOXBASE<sup>®</sup>. For advice contact the on-call toxicologist at the RIE via switchboard (Monday – Friday 8.30am-6pm) or the National Poisons Information Service (NPIS) out of hours

#### **NHS Borders**

Multi Disciplinary Care Pathway for PARACETAMOL OVERDOSE – more than 24 HOURS	ADDRESSOGRAPH, or Name:
Hospital: Borders General Hospital	DoB:
ED presentation date: Time	Hospital number:
MAU admission date: Time	
Admitting Consultant:	CHI:
Expected length of stay: approx 24 hours	

#### To be initiated once a PARACETAMOL overdose is suspected Ingested over a period of one hour or less presenting more than 24 hours after acute ingestion

KEY TO INITIALS OF ALL STAFF COMPLETING THIS CARE PATHWAY				
Print name	Designation	Initials	Signature	Date
1				
2				
3				
4				
5				

### **PATIENT:** This document is a supplement to your record of treatment for an admission with a suspected or confirmed paracetamol overdose.

**STAFF:** Should be completed in addition to the Inpatient Record (nursing admission, medical clerking, Toxicology Questionnaire), NEWS observation chart, ED shock chart, Infusion charts and Prescription & Administration Record.

SUMMARY			Initials & time
Ingestion date	Was para	acetamol bought for overdose: Yes $\Box$	No
Ingestion time		acetamol ingested	-
	<b>CALCUL</b> The amo	ATE unt of paracetamol ingested	mg / kg
	Notes	For obese patients weighing more than toxic dose in mg/kg should be calculated u rather than the patient's actual weight. For pregnant patients the toxic dose in m be calculated using the patient's pre pregn	ising 110kg, ng/kg should
Alcohol ingested? Yes 🛛 No 🖵	There is a dosage calculator on TOXBASE <sup>®</sup> for calculating mg/kg.		

This document represents the care expected for a majority of your patients. It is to be expected that some patients will need care other than that noted. This is referred to as a 'Variance' and should be noted as 'Var' in the appropriate space & explained fully on the 'Variance' sheet, page 8. **Clinicians are free to exercise their own professional judgements as appropriate.** However, any alteration to practice noted in this document should be noted as a 'Variance' in notes.

Multi Disciplinary Care Pathway for PARACETAMOL OVERDOSE – more than 24 HOURS	ADDRESSOGRAPH, or Name:
Date:	DoB:
Hospital: Borders General Hospital	Hospital number:
Clinical area: ED 📮 MAU 📮	CHI:

Please tick boxes as appropriate and initial / time in conjunction with the Inpatient record.

Ingested over a period of one hour or less - presenting more than 24 hours after acute ingestion

Wait for blood results before starting acetylcysteine unless the patient is clearly jaundiced or has hepatic tenderness. There is no evidence that treating with acetylcysteine before blood tests are available confers benefit or that delaying treatment for a short period while waiting for blood results worsens prognosis in patients who present more than 24 hours after overdose

Assessment of hepatic injury Clinical features of hepatic injury (jaundice or hepatic tenderness)? Yes No I If Yes, START ACETYLCYSTEINE IMMEDIATELY DO NOT WAIT FOR BLOOD RESULTS (Refer to SNAP based dosage table on Page 5) If no,	
If Yes, START ACETYLCYSTEINE IMMEDIATELY DO NOT WAIT FOR BLOOD RESULTS (Refer to SNAP based dosage table on Page 5) If no,	Initial & time
START ACETYLCYSTEINE IMMEDIATELY DO NOT WAIT FOR BLOOD RESULTS (Refer to SNAP based dosage table on Page 5)       If no,	a anto
(Refer to SNAP based dosage table on Page 5)	
lf no,	
, _	
Wait for bloods results to determine if acetylcysteine is required	
Blood sampling	
Obtain urgent blood samples for paracetamol concentration, U&Es, TCO <sub>2</sub> , LFTs, GGT, glucose, FBC, INR	

ON R	ECEIPT OF BLOOD RESULTS:		Initial & time	
Da	ate, time and blood results documented on page 4		a ante	
If trea	tment has not been initiated START acetylcysteine if:			
Pa	aracetamol concentration is detectable (5 mg/L or more) <b>OR</b>			
INR is greater than 1.3 (in the absence of another cause, e.g. warfarin) <b>OR</b>				
AL	T is above the upper limit of normal (50 U/L)			
Notes	Patients with a chronically elevated ALT (e.g. chronic liver disease), may not require acetylcyst treatment if the ALT and INR have not significantly changed from previously documented value cases should be discussed with the National Poisons Information Service (NPIS) Tel 0344 892	s. Th		
	Haemodialysis may be indicated alongside acetylcysteine if the patient has a very high paracet concentration and an elevated lactate. For advice contact local toxicologist or NPIS out of hours			
The patient is considered not to be at risk of liver toxicity if:				
Pa	racetamol concentration is not detectable (less than 5 mg/L) AND			
IN	R is 1.3 or less AND			
AL	T is within normal range (50 U/L or less) AND			
Th	e patient is asymptomatic with no clinical features suggesting liver damage			
lf t	hese criteria are met the acetylcysteine if not required			
If these criteria are met and acetylcysteine has been started it can be discontinued				
Assessment of renal function				
	acetycysteine is not required and the creatinine is normal the patient can be discharged. ovide the patient with a 'Patient Information Sheet' (available on TOXBASE)			
lf a	acetylcysteine is not required and the creatinine is abnormal the patient should remain in spital for monitoring of renal function and if required, treated conventionally			
	If treatment with acetylcysteine is not indicated and further blood tests are not required, go to Stage 4 (Subsequent Management & Discharge' [p 8]			

Care Pathway for Paracetamol Overdose More Than 24 hours SNAP regimen November 2019 page 3 of 8

Multi Disciplinary Care Pathway for	ADDRESSOGRAPH, or
PARACETAMOL OVERDOSE – more than 24 HOURS	Name:
Date:	DoB:
Hospital: Borders General Hospital	Hospital number:
Clinical area: ED D MAU D	CHI:

If you complete an entry on this page, initial as you complete each aspect of care then complete the 'KEY TO INITIALS' table on page 1 sign/print/designation.

Assessment blood results Date/Time of sample	Repeat blood results (if required) Date/Time of sample
Urea	Urea
Sodium	Sodium
Potassium	Potassium
	TCO <sub>2</sub>
Creatinine	Creatinine
eGFR	eGFR
Bilirubin	Bilirubin
ALT	ALT
Alk Phos	Alk Phos
GGT	GGT
Albumin	Albumin
Hb	Hb
MCV	MCV
WCC	WCC
Platelets	Platelets
INR	INR
Plasma paracetamol	Plasma paracetamol
concentration	concentration
athours post ingestion	athours post ingestion
H+	H+
Lactate	Lactate
HCO <sub>3</sub>	HCO <sub>3</sub>
TCO <sub>2</sub>	TCO <sub>2</sub>
Other	Other
Initials date / time	Initials date / time

ADDRESSOGRAPH, or

Multi Disciplinary Care Pathway for	ADE
PARACETAMOL OVERDOSE – more than 24 HOURS	Name:
Date:	DoB:
Hospital: Borders General Hospital	Hospital number:
	CHI:

Please tick boxes as appropriate and initial / time in conjunction with the Inpatient record.

#### STAGE 2 – INITIATION OF TREATMENT WITH ACETYLCYSTEINE

#### FOR OBESE PATIENTS WEIGHING more than 110 kg

Calculate acetylcysteine dose using 110 kg rather than the patient's actual weight

#### FOR PREGNANT PATIENTS

Calculate acetylcysteine dose using the patient's actual pregnant weight

#### THIS SNAP BASED DOSAGE TABLE IS ONLY FOR USE IN BORDERS GENERAL HOSPITAL Adult acetylcysteine prescription (each ampoule = 200 mg/mL acetylcysteine) Regimen First Infusion Second Infusion Infusion fluid 200 mL 5% glucose or 1000 mL 5% glucose or sodium chloride 0.9% sodium chloride 0.9% Duration of infusion 2 hours 10 hours Drug dose 100 mg/kg 200 mg/kg Acetylcysteine acetylcysteine Patient Weight<sup>1</sup> Ampoule volume<sup>2</sup> Infusion Rate Ampoule volume<sup>2</sup> Infusion Rate kg mL mL/h mL mL/h 30-39 18 109 35 104 40-49 23 45 105 112 50-59 28 114 55 106 60-69 33 117 65 107 70-79 38 119 75 108 80-89 43 109 122 85 90-99 48 110 124 95 100-109 53 127 105 111 >110 110 111 55 128 <sup>1</sup> Dose calculations are based on the weight in the middle of each band <sup>2</sup> Ampoule volume has been rounded up to the nearest whole number. Extended treatment - continue acetylcysteine at the dose and infusion rate used in the 2<sup>nd</sup> treatment bag

#### Patient's weight ..... kg

Prescription and Administration record completed

Infusion chart completed

pleted

Date/time treatment commenced

REACTION to acetylcysteine COMPLICATIONS of paracetamol ingest				estion				
None		Wheeze		Abnormal liver function		Encephalopath	у	
Flushing		Hypotension		Acute kidney injury		Haemorrhage		
Vomiting		Other		Hypoglycaemia		Other		
Rash		Specify		Acidosis		Specify		
Date and time of reaction		Initial		Date and time of reacti	on		Initial	

Clinical area: ED 🔲 MAU	Hospital number: CHI:
Hospital: Borders General Hospital	DoB:
Multi Disciplinary Care Pathway for <b>PARACETAMOL OVERDOSE – more than 24 HOURS</b> Date:	ADDRESSOGRAPH, or Name:

End bag 2 bloods (10 hour bloods) U&Es, LFTs, FBC, INR & PARACETAMOL CONCENTRATION		
	I	nitial/time
End of bag 2 bloods (10 hour bloods) obtained 2 hours before the end of bag 2		
Bloods results documented in table below		
Results reviewed by medical staff (of grade FY2 and above)		
END OF BAG 2 (10 hour) Bloods review		
Criteria for discontinuing acetylcysteine are:		
INR 1.3 or less AND		
ALT has decreased AND		
PARACETAMOL not detectable (less than 5 mg/L)		
Decision to continue or discontinue acetylcysteine documented on page 7		nitial/time

Blood results						
	<u>Pre</u> <u>Treatment</u>	End of bag 2 10 hour bloods	End of extended treatment bloods	End of extended treatment bloods		
Notes	* Copy from page 4	Blood samples 2 hours before the end of bag 2	Blood samples 2 hours before the end of the extended bag	Blood samples 2 hours before the end of the extended bag		
		Date/time taken	Date/time taken	Date/time taken		
		Initial	Initial	Initial		
Urea						
Sodium						
Potassium	*					
TCO <sub>2</sub>						
Creatinine	*					
eGFR						
Bilirubin						
ALT	*					
Alk. Phos						
Hb						
WCC						
Platelets						
INR	*					
Paracetamol	*					
Reviewed by		Initial	Initial	Initial		
Decision		Continue / stop	Continue / stop	Continue / stop		

Multi Disciplinary Care Pathway for
PARACETAMOL OVERDOSE – more than 24 HOURS
Date:

ADDRESSOGRAPH, or Name: DoB: Hospital number: CHI:

#### Hospital: Borders General Hospital Clinical area: ED D MAU D

#### STAGE 3 – END OF TREATMENT WITH ACETYLCYSTEINE

<u>lf crit</u>	eria for discontinuing acetylcysteine at end of Bag 2 are met: Discontinue acetylcysteine once bag 2 infusion is <u>complete</u> Acetylcysteine discontinued at		Initial/time
<u>lf crite</u>	<b>Continue</b> acetylcysteine treatment at the dose and infusion rate of bag 2 (page 5) Obtain bloods 2 hours before the end of the extra bag of acetylcysteine U&Es, LFTs, FBC & INR		
FOR	ALL PATIENTS:		
	Results reviewed by medical staff (of grade FY2 and above or specialist nurse trained in Nurse-Led Discharge)		
Notes	If creatinine is abnormal or is 10% greater than at presentation, further acetylcysteine is not r renal function should be monitored as an inpatient. Re-check 12 hours later.	requ	ired but
Notes Decisio	renal function should be monitored as an inpatient. Re-check 12 hours later.	•	ired but Initial/time
	renal function should be monitored as an inpatient. Re-check 12 hours later. on If further treatment or blood sampling is not required go to Subsequent Management &	•	
	renal function should be monitored as an inpatient. Re-check 12 hours later.		

If extended treatment is required:	Initial/ time
<b>Continue</b> acetylcysteine treatment at the dose and infusion rate used in the 2 <sup>nd</sup> treatment bag2 (page 5)	
Recheck U&Es, LFTs, FBC and INR every 10 hours to assess the course of liver injury (2 hours before the end of each extended bag) Document results on page 6	

#### Discontinue extended treatment when:

INR 1.3 or less; OR falling towards normal on two consecutive blood tests, <u>and</u> less than 3. Note, the discontinuation criteria once on extended treatment do not include ALT measurements; however LFTs should still be checked to assess the course of liver injury. There is no clinical advantage to treating ALT rises after this normalisation in INR (indicating restoration of hepatic synthetic function)

Extended treatment with acetylcysteine was required If YES, number of extra bags required	Yes	No		date/time
Once treatment with acetylcysteine is discontinued go to Stage 4 'Subsequent N	Management & D	ischarge	e' (page	e 8)

#### **NHS Borders**

	-				
Multi Disciplinary Care Pathway for	ADE	RESSOG	RAPH	l, or	
PARACETAMOL OVERDOSE – more than 24 HOURS	Name:				
Date:	DoB:				
Hospital: Borders General Hospital	Hospital number	:			
Clinical area: ED 📮 MAU 📮	СНІ:				
<u>STAGE 4 – SUBSEQUENT MANAGE</u>	MENT & DISCH	ARGE			
					Initial/time
Target					
Treatment with acetylcysteine tolerated	N/A 🗖	Yes 🛯	No		
Patient eating and drinking.		Yes 🛛	No		
Seen by Psychiatry team member	N/A 🛛	Yes 🛛	No		

Cor	nment					
	Is the patient suitable for Nurse-Led-Discharge*		Yes 🛛	No		l
lf Ye	es, ensure Nurse Led Discharge documentation is initiated					
Notes	*Nurses must have achieved Nurse Led Discharge competences					
Discha	rge					Initial/time
	-	N/A 🛛	Yes 🛛	No		l I
	Criteria for discharge met		Yes 🛛	No		l .
	Comment					l .
	Discharge advice given, including paracetamol patient discharge $TOXBASE^{\$}$	e sheet (a	available	on		l
	NOK informed		Yes	No		l I
	nment t department Date Time					l
Follow-	-up					Initial/time
	•	N/A 🛛	Yes 🗖	No		
Notes	Medical follow-up arrangements are not normally required if blood r	results a	re within a	accep	table	range

For additional information – not held anywhere else in the document	Date/time Initial

VARIANCES: <u>all</u> staff to identify & record variances. Types of Variance - break down into types: A - Patient/Relative, B - Clinician, C - Hospital System, D - Community/External.								
Record of Va	ariance							
Date	Time	Description of issue	Reason	Action	Initials	Var.		
						code		
<b>EXAMPLE</b> 01.12.17	17.15	Flushing	Reaction to acetylcysteine	Infusion stopped for 30 minutes Chlorphenamine administered	BS	А		



ADDRESSOGRAPH, or Name: DoB: Hospital number: CHI:

### Multi Disciplinary Care Pathway for

## INGESTION OF A THERAPEUTIC EXCESS OF PARACETAMOL

(ingestions of excessive paracetamol with intent to treat pain or fever and without self-harm intent)

# This care pathway includes the SNAP based regimen for acetylcysteine and is ONLY for use at the Borders General Hospital

This version is not available on TOXBASE<sup>®</sup>. For advice contact the on-call toxicologist at the RIE via switchboard (Monday – Friday 8.30am-6pm) or the National Poisons Information Service (NPIS) out of hours

ADDRESSOGRAPH, or

Multi Disciplinary Care Pathway for INGESTION OF A THERAPEUTIC EXCESS OF PARACETAMOL	ADI Name: DoB:
Hospital: Borders General Hospital	Hospital number:
ED presentation date:Time	CHI:
MAU admission date: Time	
Admitting Consultant:	
Expected length of stay: approx 24 hours	

#### To be initiated once an INGESTION OF THERAPEUTIC EXCESS OF PARACETAMOL is suspected

#### (ingestions of excessive paracetamol with intent to treat pain or fever, without self-harm intent)

KEY TO INITIALS OF ALL STAFF COMPLETING THIS CARE PATHWAY					
Print name	Designation	Initials	Signature	Date	
1					
2					
3					
4					
5					

### **PATIENT:** This document is a supplement to your record of treatment for an admission with a suspected or confirmed ingestion of a therapeutic excess of paracetamol.

**STAFF:** Should be completed in addition to the Inpatient Record (nursing admission, medical clerking, Toxicology Questionnaire), NEWS observation chart, ED shock chart, Infusion charts and Prescription & Administration Record.

SUMMARY	Initials & time			
Reason for the ingestion of a therapeutic excess of paracetamol.         Was the patient aware of the correct therapeutic dose of paracetamol?       Yes □ No □         If yes, why was an excess ingested?          Therapeutic excess ingested from Last dose ingested       Date       Time.				
List all drugs ingested (including brand names ie lemsip) and the quantity of each				
Total paracetamol ingestedg overhours/days				
CALCULATE: Total paracetamol ingested (in any 24-hour period) mg Patient's weightkg Amount ingestedmg/kg Comments				
NotesFor obese patients weighing more than 110 kg, the toxic dose in mg/kg s calculated using 110 kg, rather than the patient's actual weight.For pregnant patientsthe toxic dose in mg/kg should be calculated using t pre-pregnancy weight				
There is a dosage calculator on TOXBASE <sup>®</sup> for calculating mg/kg.				
This document represents the care expected for a majority of your patients. It is to be ex- some patients will need care other than that noted. This is referred to as a 'Variance' an noted as 'Var' in the appropriate space & explained fully on the 'Variance' sheet, p <b>Clinicians are free to exercise their own professional judgements as approp</b>	d should be age 8.			

However, any alteration to practice noted in this document should be noted as a 'Variance' in notes.

Multi Disciplinary Care Pathway for INGESTION OF A THERAPEUTIC EXCESS OF PARACETAMOL Date: Hospital: Borders General Hospital

DoB: Hospital number: CHI:

Name:

Clinical area: ED  MAU		
Please tick boxes as appropriate and initial / time in conjunction with the Inpatient r	ecord	
<b>Therapeutic excess</b> (ingestions of a dose greater than the licensed daily dose AND more than a 75 mg/kg/24 hours for the treatment pain or fever without self-harm intent	·	
In dental patients tooth extraction should not be carried out prior to investigations and treatment ( due to the increased risk of bleeding	IT necessa	iry)
STAGE 1 - IMMEDIATE ASSESSMENT AND MANAGEMENT		
Assessment of hepatic injury		Initial & time
If yes,	No 🗖	
<b>START ACETYLCYSTEINE IMMEDIATELY</b> (Refer to SNAP based dosage table on Page 5) Obtain blood samples for paracetamol concentration, U&Es, TCO <sub>2</sub> , LFTs, GGT, INR, FBC		
If no, ASSESS FOR RISK OF LIVER DAMAGE Paracetamol ingested in any 24-hour periodmg/kg (see calculation on page 2) If maximum dose is more than 75 mg/kg in any 24-hour period Obtain blood samples for paracetamol concentration, U&Es, TCO <sub>2</sub> , LFTs, GGT, INR, FBC, at least 4 hours after the last ingestion		
If maximum dose is more than licensed 24-hour dose for the patient (e.g. 4g in an adult but less than 75 mg/kg/24 hours over the preceding 2 days or more	t)	
Risk of toxicity is extremely small but consider blood tests for paracetamol concentration, U&Es, TCO <sub>2</sub> , LFTs, GGT, INR, FBC <b>at least 4 hours</b> after the last ingestion especially if:		
<ul> <li>there is doubt about the doses ingested, OR</li> <li>other factors are present that may increase the risk of hepatoxicity, such as: <ul> <li>long term treatment with carbamazepine, phenobarbital, phenytoin, rifampacin, St John's</li> <li>Wort or other drugs that induce liver enzymes</li> <li>regular consumption of alcohol in excess of recommended amounts</li> <li>likely glutathione depletion e.g. eating disorders, cystic fibrosis, HIV, starvation, cachexia</li> </ul> </li> </ul>	s	
If maximum dose is consistently less than the licensed 24-hour dose for the patient (e. 4g in an adult) AND consistently less than 75 mg/kg over the preceding 24-hour period	.g.	
Blood tests are not needed, and the patient can be discharged (also see "Subsequent Management & Discharge Advice" at end of this document)		
On receipt of blood results assess risk of hepatotoxicity (document on page 4) Clinically significant hepatotoxicity is unlikely if at least 4 hour or more after the last ingestion	n:	
<ul> <li>Paracetamol concentration less than 10 mg/L, AND</li> <li>ALT is within normal range (50 U/L or less), AND</li> <li>INR is 1.3 or less, AND</li> <li>The patient has no clinical features suggesting liver damage</li> </ul>		
If these criteria are met then acetylcysteine if not required If these criteria are met and acetylcysteine has been started it can be discontinued If these criteria are not met start acetylcysteine (refer to SNAP dosage regimen on page 5	)	
Assessment of renal function		
If acetycysteine is not required and the creatinine is normal the patient can be discharged Provide the patient with a 'Patient Information Sheet' (available on TOXBASE)		
If acetylcysteine is not required and the creatinine is abnormal the patient should remain in hospital for monitoring of renal function and if required, treated conventionally		
The underlying clinical reason for chronic excess dosage should always be considered		
Medical staff of grade FY2 or above must review blood results prior to discontinuing thera         Results reviewed by         Acetylcysteine discontinued         Yes	py No □	Initial & time
If acetylcysteine is not indicated or discontinued and further blood sampling is not required, g 'Subsequent Management & Discharge' [page 8]	o to Stage	9 4

Care Pathway (Ingestion of a Therapeutic Excess of Paracetamol) SNAP Regimen November 2019 page 3 of 8

Multi Disciplinary Care Pathway for	ADDRESSOGRAPH, or
INGESTION OF Á THERAPEUTIĆ EXCESS OF	Name:
PARACETAMOL	DoB:
Date: Hospital: Borders General Hospital	Hospital number:
Clinical area: ED 🖵 MAU 🗖	CHI:

If you complete an entry on this page, initial as you complete each aspect of care then complete the 'KEY TO INITIALS' table on page 1 sign/print/designation.

Assessment blood results Date/Time of sample	Repeat blood results (if required) Date/Time of sample
Urea	Urea
Sodium	Sodium
Potassium	Potassium
TCO <sub>2</sub>	TCO <sub>2</sub>
Creatinine	Creatinine
eGFR	eGFR
Bilirubin	Bilirubin
ALT	ALT
Alk Phos	Alk Phos
GGT	GGT
Albumin	Albumin
Hb	Hb
MCV	MCV
WCC	WCC
Platelets	Platelets
INR	INR
Plasma paracetamol	Plasma paracetamol
concentration	concentration
Other	Other
Initials date / time	Initials date / time

Multi Disciplinary Care Pathway for
INGESTION OF A THERAPEUTIC EXCESS OF
PARACETAMOL
Date:
Hospital: Borders General Hospital

ADDRESSOGRAPH, or

Name: DoB:

CHI:

Hospital number:

Clinical area: ED MAU 🗖

**D** 41

Please tick boxes as appropriate and initial / time in conjunction with the 'Inpatient record'.

#### **STAGE 2 – INITIATION OF TREATMENT WITH ACETYLCYSTEINE**

#### FOR OBESE PATIENTS WEIGHING more than 110 kg

Calculate acetylcysteine dose using 110 kg rather than the patient's actual weight

#### FOR PREGNANT PATIENTS

Calculate acetylcysteine dose using the patient's actual pregnant weight

#### THIS SNAP BASED DOSAGE TABLE IS ONLY FOR USE IN **BORDERS GENERAL HOSPITAL** Adult acetylcysteine prescription (each ampoule = 200 mg/mL acetylcysteine) Regimen **First Infusion** Second Infusion Infusion fluid 200 mL 5% glucose or 1000 mL 5% glucose or sodium chloride 0.9% sodium chloride 0.9% Duration of infusion 2 hours 10 hours 100 mg/kg 200 mg/kg Drug dose acetylcysteine acetylcysteine Patient Weight Ampoule volume<sup>4</sup> Infusion Rate Ampoule volume<sup>2</sup> Infusion Rate mL mL/h mL mL/h Kg 30-39 18 109 35 104 40-49 23 112 45 105 50-59 28 55 114 106 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 <sup>1</sup> Dose calculations are based on the weight in the middle of each band <sup>2</sup> Ampoule volume has been rounded up to the nearest whole number. Dosing table taken from TOXBASE<sup>®</sup>. Extended treatment – continue acetylcysteine at the dose and infusion rate used in the 2<sup>nd</sup> treatment bag . . .

Patient's weight	•••	кд						
Prescription and Administration record completed								
Date/time treatment commenced				Initial				
REACTION to acetylcysteine			COMPLICATIONS of paracetamol ingestion					
None		Wheeze		Abnormal liver function		Encephalopath	у	
Flushing		Hypotension		Acute kidney injury		Haemorrhage		
Vomiting		Other		Hypoglycaemia		Other		
Rash		Specify		Acidosis		Specify		
Date and time of reaction		Initial		Date and time of reaction	on		Initial	

Care Pathway (Ingestion of a Therapeutic Excess of Paracetamol) SNAP Regimen November 2019 page 5 of 8

#### Multi Disciplinary Care Pathway for INGESTION OF A THERAPEUTIC EXCESS OF PARACETAMOL

Date:

#### Hospital: Borders General Hospital

Clinical area: ED 🖵 MAU 🗖

ADDRESSOGRAPH, or

Name: DoB: Hospital number: CHI:

STAGE 3 – END OF TREATMENT WITH ACETYLCYSTEINE			
End bag 2 bloods (10 hour bloods) U&Es, LFTs, FBC, INR & PARACETAMOL CONCENTRATION			
<b>End of bag 2 bloods</b> (10 hour bloods) obtained 2 hours before the end of bag 2 Bloods results documented in table below <b>Results reviewed by medical staff (of grade FY2 and above)</b>		Initial/time	
END OF BAG 2 (10 hour) bloods review			
Criteria for DISCONTINUING acetylcysteine after Bag 2 are:			
INR 1.3 or less AND			
ALT less than 100 U/L AND			
ALT not more than double the admission measurement AND			
PARACETAMOL concentration less than 20 mg/L			
Decision to continue or discontinue acetylcysteine documented on page 7			

	<u>Pre</u> Treatment	End of bag 2	End of extended treatment bloods	End of extended treatment bloods
		10 hour bloods		
Notes	* Copy from page 4	Blood samples 2 hours before the end of bag 2	Blood samples 2 hours before the end of the extended bag	Blood samples 2 hours before the end of the extended bag
		Date/time taken	Date/time taken	Date/time taken
		Initial	Initial	Initial
Urea				
Sodium				
Potassium	*			
TCO <sub>2</sub>				
Creatinine	*			
eGFR				
Bilirubin				
ALT	*			
Alk. Phos				
Hb				
WCC				
Platelets				
INR	*			
Paracetamol	*			
Reviewed by		Initial	Initial	Initial
Decision		Continue / stop	Continue / stop	Continue / stop

#### Multi Disciplinary Care Pathway for INGESTION OF A THERAPEUTIC EXCESS OF PARACETAMOL Date:

Hospital: Borders	General	Hospital
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Clinical area: ED 🖵 MAU 🖵

ADDRESSOGRAPH, or Name: DoB: Hospital number: CHI:

STAGE 3 – END OF TREATMENT WITH ACETYLCYSTEINE				
If criteria for discontinuing acetylcysteine at end of Bag 2 are met: Discontinue acetylcysteine once bag 2 infusion is <u>complete</u> Acetylcysteine discontinued at		Initial/time		
FOR ALL PATIENTS: Results reviewed by medical staff (of grade FY2 and above or specialist nurse				
trained in Nurse-Led Discharge)				
If creatinine is abnormal or is 10% greater than at presentation, further acetylcysteine is not required function should be monitored as an inpatient. Re-check 12 hours later.	d but	renal		
If monitoring of renal function is required obtain blood samples 12 hours later and review by medical team		Initial/time		
If extended treatment is required		date/time		
Continue acetylcysteine at the dose and infusion rate used in the 2 <sup>nd</sup> treatment bag (Page 5)				
Recheck U&Es, LFTs, FBC and INR every 10 hours to assess the course of liver injury (2 hours before the of each extended bag). Document results on page 6	end			
Discontinue extended treatment when: INR 1.3 or less; OR falling towards normal on two consecutive blood tests, and less than 3. Note, the discontinuation criteria once on extended treatment do not include ALT measurements; howe should still be checked to assess the course of liver injury. There is no clinical advantage to treating ALT rises after this normalisation in INR (indicating restoration synthetic function)				
Extended treatment with acetylcysteine was required Yes No I If YES, number of extended bags required		date/time		
Once treatment with acetylcysteine is discontinued go to Stage 4 'Subsequent Management & Discharge' (p	age	8)		

#### **NHS Borders**

Multi Disciplinary Care Pathway for
INGESTION OF A THERAPEUTIC EXCESS OF
PARACETAMOL
Date:
Hospital: Borders General Hospital

ADDRESSOGRAPH, or

Name: DoB:

CHI:

Hospital number:

Clinical area: ED 🗅 MAU 🗅

	STAGE 4 – SUBSEQUENT MANAGEMENT	& DISCH	ARGE			
						Initial/time
Target				NI-		
	ent with acetylcysteine tolerated Patient eating and drinking.	N/A 🗖	Yes □ Yes □	No No		
	Seen by Psychiatry team member	N/A 🗖	Yes 🗖	No		
	nment					
	Is the patient suitable for Nurse-Led-Discharge*		Yes 🗖	No		
lf Ye	es, ensure Nurse Led Discharge documentation is initiated					
Notes	*Nurses must have achieved Nurse Led Discharge competence	es				
						Initial/time
Dischar	-					
	Treatment complete	N/A ⊑			_	
	Criteria for discharge met		Yes 🗖	No		
(	Comment					
	Discharge advice given, including paracetamol patient discha TOXBASE <sup>®</sup> )	arge sheet	(available	on		
	,			NI.		
	NOK informed nment		Yes 🗖	No		
	department Date Time					
	·					
						Initial/time
Follow-						
	Has follow-up been arranged? oment	N/A 🗖	Yes 🗖	No		
COII				• • • • • • • •		
Notes	Medical follow-up arrangements are not normally required if blo	od results a	are within	accep	table	range

For additional information – not held anywhere else in the document	Date/time Initial

VARIANCES: <u>all</u> staff to identify & record variances. Types of Variance - break down into types: A - Patient/Relative, B - Clinician, C - Hospital System, D - Community/External.						
Record of Va	ariance					
Date	Time	Description of issue	Reason	Action	Initials	Var. code
<b>EXAMPLE</b> 01.12.17	17.15	Flushing	Reaction to acetylcysteine	Infusion stopped for 30 minutes Chlorphenamine administered	BS	A

**NHS Borders** 



ADDRESSOGRAPH, or Name: DoB: Hospital number: CHI:

### Multi Disciplinary Care Pathway for STAGGERED PARACETAMOL OVERDOSE

(Repeated doses taken over more than 1 hour, in the context of self-harm)

# This care pathway includes the SNAP based regimen for acetylcysteine and is ONLY for use at the Borders General Hospital

This version is not available on TOXBASE<sup>®</sup>. For advice contact the on-call toxicologist at the RIE via switchboard (Monday – Friday 8.30am-6pm) or the National Poisons Information Service (NPIS) out of hours

Multi Disciplinary Care Pathway for	ADDRESSOGRAPH, or
STAGGERED PARACETAMOL OVERDOSE	Name:
Hospital: Borders General Hospital	DoB:
ED presentation date:Time	Hospital number:
MAU admission date:Time	CHI:
Admitting Consultant:	

Expected length of stay: approx 24 hours

#### To be initiated once a PARACETAMOL overdose is suspected Staggered overdose

#### (Repeated doses ingested over more than one hour, in the context of self-harm)

KEY TO INITIALS OF <b>ALL</b> STAFF COMPLETING THIS CARE PATHWAY				
Print name	Designation	Initials	Signature	Date
1				
2				
3				
4				
5				
6				
7				
8				

PATIENT: This document is a supplement to your record of treatment for an admission with a suspected or confirmed paracetamol overdose.

Should be completed in addition to the Inpatient Record (nursing admission, medical STAFF: clerking, Toxicology Questionnaire), NEWS observation chart, ED shock chart, Infusion charts and Prescription & Administration Record.

SUMMARY			Initials & time	
Ingestion date(s)	Was para	acetamol bought for overdose: Yes $\Box$	No	
Ingestion time(s)	Total paracetamol ingestedg (in any 24 hour period)			
Last ingestion date/time		weight	kg	
List all the drug(s) ingested	CALCULATE The amount of paracetamol ingestedmg / kg			
	Notes	For obese patients weighing more than toxic dose in mg/kg should be calculated u rather than the patient's actual weight. For pregnant patients the toxic dose in m be calculated using the patient's pre-pregn	sing 110 kg, g/kg should	
Alcohol ingested? Yes 🛛 No 🖵	There is a	a dosage calculator on TOXBASE <sup>®</sup> for calcu	llating mg/kg.	

This document represents the care expected for a majority of your patients. It is to be expected that some patients will need care other than that noted. This is referred to as a 'Variance' and should be noted as 'Var' in the appropriate space & explained fully on the 'Variance' sheet, page 8. Clinicians are free to exercise their own professional judgements as appropriate. However, any alteration to practice noted in this document should be noted as a 'Variance' in notes.

ADDRESSOGRAPH, or

MAU 🛛

Clinical area: ED

All Name: DoB: Hospital number: CHI:

#### **STAGE 1 - IMMEDIATE ASSESSMENT AND MANAGEMENT**

**Staggered overdose** (excessive amounts of paracetamol ingested over a period of more than one hour, in the context of self-harm). Ingestion of a licensed dose (e.g. in adults 4 g in a 24 hour period) is not an overdose

In cases of uncertainty about risk from staggered overdose discuss with on-call toxicologist at the RIE Monday-Friday 8.30am-6pm or the National Poisons Information Service(NPIS) out of hours Tel 0344 892 0111

	11
Assessment for risk of liver damage Paracetamol ingestedmg/kg (see calculation on page 2)	Initial & time
Last ingestion datetimetime.	
START ACETYLCYSTEINE (Refer to SNAP based dosage table on page 5) without delay in ALL patients in whom there is a strong clinical suspicion of a staggered paracetamol overdose.	
Blood sampling Obtain blood samples at least 4 hours after the last paracetamol ingestion for paracetamol concentration, U&Es, TCO <sub>2</sub> , LFTs, GGT, FBC and INR	
On receipt of blood results assess risk of hepatotoxicity (document on page 4)	
<ul> <li>Clinically significant hepatotoxicity is unlikely if at least 4 hours or more after the most recent paracetamol ingestion:</li> <li>the paracetamol concentration is less than 10 mg/L, AND</li> <li>the ALT is within the normal range (50 UL), AND</li> <li>the INR is 1.3 or less, AND</li> <li>the patient has no symptoms suggesting liver damage</li> </ul>	
Acetylcysteine can be discontinued if <b>ALL</b> the above criteria are met	
Acetylcysteine should be <b>continued or started</b> if any of the above criteria are not met	
Haemodialysis may be indicated alongside acetylcysteine if a patient has a very high paracetamol concentration greater than with elevated lactate. For advice contact local toxicologist or NPIS Tel 03 892 0111 out of hours	344
Assessment of renal function If creatinine normal and the patient is not considered to be at risk of clinically significant liver damage no further action is required	
If creatinine abnormal and the patient is not considered to be at risk of clinically significant liver damage, acetylcysteine may be discontinued and the patient should be managed conventionally, and may need monitoring as an inpatient	
Medical staff of grade FY2 or above <u>must</u> review blood results prior to discontinuing there	ару
Results reviewed byTimeDateDateDateTime Acetylcysteine discontinued Yes D No	•••••
If acetylcysteine is not indicated or discontinued and further blood sampling is not required, go to Stage 4 'Subse Management & Discharge' [page 8]	equent

Multi Disciplinary Care Pathway for	ADDRESSOGRAPH, or
STAGGERED PARACETAMOL OVERDOSE	Name:
Date:	DoB:
Hospital: Borders General Hospital	Hospital number:
Clinical area: ED MAU	CHI:

If you complete an entry on this page, initial as you complete each aspect of care then complete the 'KEY TO INITIALS' table on page 1 sign/print/designation.

Assessment blood results Date/Time of sample	Repeat blood results (if required) Date/Time of sample
Urea	Urea
Sodium	Sodium
Potassium	Potassium
TCO <sub>2</sub>	TCO <sub>2</sub>
Creatinine	Creatinine
eGFR	eGFR
Bilirubin	Bilirubin
ALT	ALT
Alk Phos	Alk Phos
GGT	GGT
Albumin	Albumin
Hb	Hb
MCV	MCV
WCC	WCC
Platelets	Platelets
INR	INR
Paracetamol concentrationmg/L	Paracetamol concentrationmg/L
hours after last ingestion	hours after last ingestion
Glucose	Glucose
Other	Other
Initials date / time	Initials date / time

Multi Disciplinary Care Pathway for STAGGERED PARACETAMOL OVERDOSE Date: Hospital: Borders General Hospital

Clinical area: ED 🔲 MAU 🖵

ADDRESSOGRAPH, or

Initial

Hospital number:

CHI:

Name:

DoB:

Please tick boxes as appropriate and initial / time in conjunction with the 'Inpatient record'.

#### **STAGE 2 – INITIATION OF TREATMENT WITH ACETYLCYSTEINE**

#### FOR OBESE PATIENTS WEIGHING more than 110 kg

Calculate acetylcysteine dose using 110 kg rather than the patient's actual weight

#### FOR PREGNANT PATIENTS

Calculate acetylcysteine dose using the patient's actual pregnant weight

#### THIS SNAP BASED DOSAGE TABLE IS ONLY FOR USE IN

#### BORDERS GENERAL HOSPITAL

#### Adult acetylcysteine prescription

(each ampoule = 200 mg/mL acetylcysteine)

Regimen	First In	First Infusion Second Infusion				
Infusion fluid	200 mL 5%	glucose or	1000 mL 5% glucose or			
	sodium chlo	oride 0.9%	sodium chloride 0.9%			
Duration of infusion	2 ho	ours	10 hours			
Drug dose	100 m	0. 0	200 mg/kg			
	Acetylc	ysteine	acetylcy	steine		
Patient Weight <sup>1</sup>	Ampoule volume <sup>2</sup>	Infusion Rate	Ampoule volume <sup>2</sup>	Infusion Rate		
Kg	mL	mL/h	mL	mL/h		
30-39	18	109	35	104		
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		
<sup>1</sup> Dose calculations are based on the weight in the middle of each band						
Ampoule volume has be	een rounded up to the ne	arest whole number.				
			Dosing table take	n from TOXBASE		

Extended treatment – continue acetylcysteine at the dose and infusion rate used in the 2<sup>nd</sup> treatment bag

Patient's weight kg		
Prescription and Administration record completed	Infusion chart completed	

Date //	1	
Date/time	treatment	commenced

REACTION to acetylcysteine			COMPLICATIONS of paracetamol ingestion				
None		Wheeze		Abnormal liver function		Encephalopathy	
Flushing		Hypotension		Acute kidney injury		Haemorrhage	
Vomiting		Other		Hypoglycaemia		Other	
Rash		Specify		Acidosis		Specify	
Date and time of reaction		Initial		Date and time of reaction	on	Initial	

Care Pathway for Staggered Paracetamol Overdose SNAP Regimen November 2019 page 5 of 8

#### Multi Disciplinary Care Pathway for **STAGGERED PARACETAMOL OVERDOSE** Date:

Name:

DoB:

ADDRESSOGRAPH, or

Hospital: Borders General Hospital

Clinical area: ED 🛛 MAU 🖵

CHI:

	<u>STAGE</u>	<u>3 – END OF TREATI</u>	MENT WITH ACETYLCYSTE	INE	
End bag 2 b	l <b>oods</b> (10 hour blo	ods)			
U&Es,	LFTs, FBC, INR &	A PARACETAMOL CO	ONCENTRATION		
Bloods	results document	ed in table below	d 2 hours before the end of bag	g 2 🔲	Initial/time
Result	s reviewed by me	edical staff (of grade	FY2 and above)		
END OF BA	<u>G 2 (10 hour) l</u>	<u>oloods review</u>			
Criteria for I	DISCONTINUING	acetylcysteine after I	Bag 2 are:		
INR 1	.3 or less AND				
ALT I	ess than 100 U/L	AND			
ALT I	not more than dou	ole the admission mea	surement AND		
PAR	ACETAMOL conce	entration less than 20 r	ng/L		
Decisi	on to continue or	discontinue acetylc	ysteine documented on page	7	
	Pre	End of bag 2	End of extended	End of extended	

	<u>Pre</u> Treatment	End of bag 2	End of extended treatment bloods	End of extended treatment bloods
		10 hour bloods		
Notes	* Copy from page 4	Blood samples 2 hours before the end of bag 2	Blood samples 2 hours before the end of the extended bag	Blood samples 2 hours before the end of the extended bag
		Date/time taken	Date/time taken	Date/time taken
		Initial	Initial	Initial
Urea				
Sodium				
Potassium	*			
TCO <sub>2</sub>				
Creatinine	*			
eGFR				
Bilirubin				
ALT	*			
Alk. Phos				
Hb				
WCC				
Platelets				
INR	*			
Paracetamol	*			
Reviewed by		Initial	Initial	Initial
Decision		Continue / stop	Continue / stop	Continue / stop

Date:     DoB:       Hospital: Borders General Hospital     Hospital number:       Clinical area:     ED     MAU	Multi Disciplinary Care Pathway for STAGGERED PARACETAMOL OVERDOSE	ADDRESSOGRAPH, or Name:
	Hospital: Borders General Hospital	

STAGE 3 – END OF TREATMENT WITH ACETYLCYSTEINE	
If criteria for discontinuing acetylcysteine at end of Bag 2 are met:       Image: Discontinue acetylcysteine once bag 2 infusion is complete         Discontinue acetylcysteine discontinued at       Image: Discontinue acetylcysteine discontinued at	Initial/time
If criteria for discontinuing acetylcysteine at the end of Bag 2 are NOT met:       Image: Continue acetylcysteine treatment at the dose and infusion rate of bag 2 (page 5)         Obtain discharge bloods 2 hours before the end of the extra bag of acetylcysteine U&Es, LFTs, FBC & INR       Image: Continue acetylcysteine treatment at the dose and infusion rate of bag 2 (page 5)	
FOR ALL PATIENTS:         Results reviewed by medical staff (of grade FY2 and above or specialist nurse trained in Nurse-Led Discharge)	
If creatinine is abnormal or is 10% greater than at presentation, further acetylcysteine is not required b function should be monitored as an inpatient. Re-check 12 hours later.	ut renal
Decision         If further treatment or blood sampling is not required go to Stage 4 'Subsequent Management & Discharge'(page 8)         If monitoring of renal function is required obtain blood samples 12 hours later and review by medical team         If extended acetylcysteine is indicated follow advice below	Initial/time
If extended treatment is required:	date/time
Continue acetylcysteine at the dose and infusion rate used in the 2 <sup>nd</sup> treatment bag (Page 5) Recheck U&Es, TCO <sub>2</sub> , LFTs, FBC and INR every 10 hours to assess the course of liver injury (2 hours before the end of each extended bag) Document results on page 6	
Discontinue extended treatment when: INR 1.3 or less; OR falling towards normal on two consecutive blood tests, and less than 3.0 Note, the discontinuation criteria once on extended treatment do not include ALT measurements; however should still be checked to assess the course of liver injury. There is no clinical advantage to treating ALT rises after this normalisation in INR (indicating restoration of synthetic function)	

Extended treatment with acetylcysteine was required If YES, number of extended bags required	Yes	No		date/time
Once treatment with acetylcysteine is discontinued go to Stage 4 'Subsequent Ma	inagement & Di	ischarge	' (page	e 8)

#### Multi Disciplinary Care Pathway for **STAGGERED PARACETAMOL OVERDOSE** Date:

Clinical area: ED 📮 MAU 📮

	ADDRESSOGRAPH, or
Name:	
DoB:	
Hospital nu	mber:
CHI	

STAGE 4 – SUBSEQUENT MANAGEMENT & DISCHARGE								
Target						Initial/time		
	nt with acetylcysteine tolerated	N/A 🛛	Yes 🛛	No				
Patient eating and drinking.			Yes 🛛 Yes 🗖	No No				
Seen by Psychiatry team member		N/A 🛛		INO				
Comment				• • • • • •				
Is the patient suitable for Nurse-Led-Discharge*			Yes 🛛	No				
If Yes, ensure Nurse Led Discharge documentation is initiated								
Notes	*Nurses must have achieved Nurse Led Discharge competence	s						
<b>.</b>						Initial/time		
	Discharge		Yes 🛛	Na				
	Treatment complete			No No				
	Criteria for discharge met			INO				
	Comment							
	Discharge advice given, <b>including paracetamol patient discharge sheet</b> (available on TOXBASE or Base 6)							
NOK informed			Yes 🛛	No				
	Comment							
Left	Left department Date Time Time							
						Initial/time		
Follow-up			V. D	N	П			
Has follow-up been arranged?			Yes 🛛	-				
Comment								
Notes	Medical follow-up arrangements are not normally required if blood results are within acceptable range							

For additional information – not held anywhere else in the document				

VARIANCES: <u>all</u> staff to identify & record variances. Types of Variance - break down into types: A - Patient/Relative, B - Clinician, C - Hospital System, D - Community/External.											
Record of Variance											
Date	Time	Description of issue	Reason	Action	Initials	Var.					
						code					
<b>EXAMPLE</b> 01.12.17	17.15	Flushing	Reaction to acetylcysteine	Infusion stopped for 30 minutes Chlorphenamine administered	BS	A					