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.

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®. 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** **Hospital: Borders General Hospital** ED presentation date: …… Time …… MAU admission date: …….. Time …… Admitting Consultant: ……	*ADDRESSOGRAPH, or* Name: DoB: Hospital number: 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 **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 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……

Ingestion time……

List all the drug(s) ingested

……

……

……

……

……

Alcohol ingested? Yes ❑ No ❑

Was paracetamol bought for overdose: Yes ❑ No ❑

Total paracetamol ingested ……g

Patient's weight……kg

CALCULATE
The amount of paracetamol ingested ……..mg / kg

Notes	**For obese patients weighing more than 110 kg**, the toxic dose in mg/kg should be calculated using 110 kg, rather than the patient's actual weight. **For pregnant patients** the toxic dose in mg/kg should be calculated using the patient's pre-pregnancy weight.

There is a dosage calculator on TOXBASE® 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 – 0-8 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

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 <u>WITHIN 8 HOURS</u> 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** Charcoal administered (50 g for adults) Yes ❑ No ❑ If no give reason……	Initial & time

4 - 8 hours post-ingestion

Clinical priorities are**:** Blood samples: U&Es, TCO_2, LFTs, GGT, FBC, INR & paracetamol concentration ❑	Initial & time
On receipt of blood results assess the risk of liver damage: by plotting the paracetamol concentration on the graph on page 4 ❑ Date, time & blood results documented on page 4 ❑	
Decision Commence acetylcysteine if the plasma paracetamol concentration is on or over the treatment line (Refer to SNAP based dosage table on page 5) ❑ Consider use of acetylcysteine if the patient has an ALT above the limit of normal even if the paracetamol 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 rapidly and is commonly abnormal at first presentation to hospital Haemodialysis may be indicated alongside acetylcysteine if the patient has a paracetamol concentration of 700 mg/L or more and an elevated lactate. For advice contact local toxicologist or the National Poisons Information Service Tel 0344 892 0111 out of hours

Acetylcysteine is not indicated if the plasma paracetamol concentration is under the treatment line, the INR and ALT are normal, the patient is asymptomatic **AND** there is no doubt about the time of ingestion. ❑ If creatinine is abnormal and the above criteria are met acetylcysteine is not required but renal function should be monitored as an inpatient ❑	Initial & time

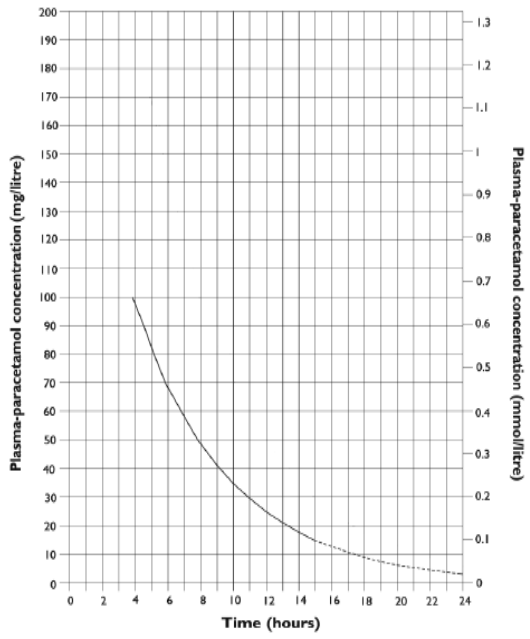
If treatment with acetylcysteine is <u>not</u> indicated and further blood tests are <u>not</u> required, go to Stage 4 ‘Subsequent Management & Discharge’ [page 8]

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

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

Plot patient's paracetamol concentration on the graph to assess if patient is at risk of liver damage

WARNING: PLEASE CHECK THE UNITS CAREFULLY AND USE THE CORRECT SCALE



Graph taken from TOXBASE ®

Blood Results
Date/Time of sample
Urea
Sodium
Potassium
TCO_2
Creatinine
eGFR
Bilirubin
ALT
Alk Phos
GGT
Albumin
Hb
MCV
WCC
Platelets
INR
Plasma paracetamol concentration…….. **at……..……hours post ingestion**
Other

Initials	date / time	Initials	date / time

Multi Disciplinary Care Pathway for **PARACETAMOL OVERDOSE – 0-8 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 Infusion		Second Infusion	
Infusion fluid	200 mL 5% glucose or sodium chloride 0.9%		1000 mL 5% glucose or sodium chloride 0.9%	
Duration of infusion	2 hours		10 hours	
Drug dose	100 mg/kg Acetylcysteine		200 mg/kg acetylcysteine	
Patient Weight[1]	Ampoule volume[2]	Infusion Rate	Ampoule volume[2]	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

[1] Dose calculations are based on the weight in the middle of each band

[2] Ampoule volume has been rounded up to the nearest whole number.

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

Patient's weight …….. kg	
Prescription and Administration record completed ☐	Infusion chart completed ☐
Date/time treatment commenced	Initial

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		Initial	

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

		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

	Pre Treatment	**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 Initial	Date/time taken Initial	Date/time taken Initial
Urea				
Sodium				
Potassium	*			
TCO_2				
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 – 0-8 HOURS** Date: **Hospital: Borders General Hospital** **Clinical area:** ED ❑ MAU ❑	*ADDRESSOGRAPH, or* Name: DoB: Hospital number: CHI:

STAGE 3 – END OF TREATMENT WITH ACETYLCYSTEINE

	Initial/time
If criteria for discontinuing acetylcysteine at end of Bag 2 are met: **Discontinue** acetylcysteine once bag 2 infusion is **complete** ❑ Acetylcysteine discontinued at ……..	
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) ❑ 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 as an inpatient. Re-check 12 hours later.	
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

	date/time
If extended treatment is required: Continue acetylcysteine at the dose and infusion rate used in the 2nd 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, and 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 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 8)	

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

STAGE 4 – SUBSEQUENT MANAGEMENT & DISCHARGE

	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 ❑ 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 competences	
Discharge Treatment complete N/A ☐ Yes ❑ No ❑ Criteria for discharge met Yes ❑ No ❑ Comment…… Discharge advice given, **including paracetamol patient discharge sheet** (available on TOXBASE®) ❑ NOK informed Yes ❑ No ❑ Comment…… Left department Date…….. Time……..	Initial/time
Follow-up Has follow-up been arranged? N/A ❑ Yes ❑ No ❑ Comment……	Initial/time
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	Date/time Initial

VARIANCES: all 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
EXAMPLE *01.12.17*	*17.15*	*Flushing*	*Reaction to acetylcysteine*	*Infusion stopped for 30 minutes* *Chlorphenamine administered*	*BS*	*A*

ADDRESSOGRAPH, or
Name:
DoB:
Hospital 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

Hospital: Borders General Hospital

ED presentation date: …… Time ……

MAU admission date: …… Time ……..…

Admitting Consultant: ……

ADDRESSOGRAPH, or

Name:
DoB:
Hospital number:
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 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……

Ingestion time……

List all the drug(s) ingested

……

……

……

……

……

Alcohol ingested? Yes ❑ No ❑

Was paracetamol bought for overdose: Yes ❑ No ❑

Total paracetamol ingested ……g

Patient's weight……kg

CALCULATE
The amount of paracetamol ingested ……..mg / kg

Notes	
	For obese patients weighing more than 110 kg, the toxic dose in mg/kg should be calculated using 110 kg, rather than the patient's actual weight. **For pregnant patients** the toxic dose in mg/kg should be calculated using the patient's pre-pregnancy weight.

There is a dosage calculator on TOXBASE® 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 – 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 1 - IMMEDIATE ASSESSMENT

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

Give acetylcysteine **IMMEDIATELY** to all patients if it is thought that more than **150 mg/kg** body weight paracetamol has been ingested. **DO NOT WAIT for the plasma paracetamol concentration.**

The efficacy of the antidote declines rapidly during this period and it must therefore be started **URGENTLY**

	Initial & time
Assessment for risk of liver damage **Paracetamol ingested……mg/kg (see calculation on page 2)** ❑	
Clinical priorities Is it thought that **more than 150 mg/kg** has been ingested Yes ❑ No ❑ **If Yes,** **START ACETYLCYSTEINE IMMEDIATELY** DO NOT WAIT FOR BLOOD RESULTS ❑ (Refer to SNAP based dosage table on page 5) **If No,** **Wait** for blood results before starting acetylcysteine ❑	
Blood sampling Obtain urgent blood samples for paracetamol concentration, U&Es, TCO_2, LFTs, GGT, FBC and INR ❑	
On receipt of blood results assess the risk of liver damage: by plotting the paracetamol concentration on the graph on page 4 ❑ Date, time & blood results documented on page 4 ❑	
If treatment has not already been initiated: Commence acetylcysteine if paracetamol concentration is plotted on or over the treatment line (Refer to SNAP based dosage table on page 5) ❑ Consider the use of acetylcysteine if the patient has an ALT above the limit of normal even if the paracetamol concentration is below the treatment line ❑ Acetylcysteine is not indicated if the plasma paracetamol concentration is under the treatment line, the INR and ALT are normal, and the patient is asymptomatic **AND** there is no doubt about the time of ingestion ❑ If creatinine is abnormal and the above criteria are met acetylcysteine is not required but renal function should be monitored as an inpatient and if required, treated conventionally ❑	

Notes	
	A rise in ALT can suggest acute liver injury and in cases of severe poisoning the ALT rises rapidly and is commonly abnormal at first presentation to hospital Haemodialysis may be indicated alongside acetylcysteine if the patient has a very high paracetamol concentration and an elevated lactate. For advice contact local toxicologist or the National Poisons Information Service. Tel 0344 892 0111 out of hours

	Initial & time
If treatment has already been initiated: Continue acetylcysteine if paracetamol concentration is plotted over the treatment line ❑ Discontinue acetylcysteine if paracetamol concentration is plotted below the treatment line; the INR and ALT are normal; patient is asymptomatic; **AND** there is no doubt about the time of ingestion ❑ If creatinine is abnormal and the above criteria are met acetylcysteine is not required but renal function should be monitored as an inpatient and if required, treated conventionally ❑	

Medical staff of grade FY2 or above <u>must</u> review blood results prior to discontinuing therapy

Results reviewed by ……Date……..Time……

If treatment with acetylcysteine is not indicated or discontinued and further blood tests are not required, go to Stage 4 ‘Subsequent Management & Discharge’ [p 8]

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

Hospital: Borders General Hospital

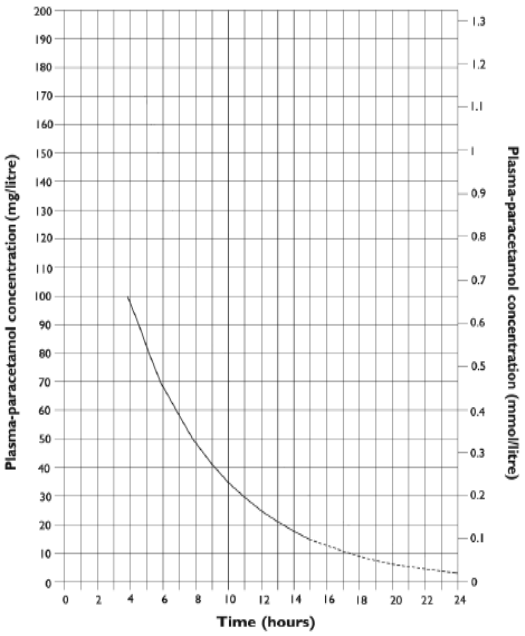
Clinical area: ED ❑ MAU ❑

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

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

Plot patient's paracetamol concentration on the graph to assess if patient is at risk of liver damage

WARNING: PLEASE CHECK THE UNITS CAREFULLY AND USE THE CORRECT SCALE



Graph taken from TOXBASE®

Blood Results
Date/Time of sample
Urea
Sodium
Potassium
TCO_2
Creatinine
eGFR
Bilirubin
ALT
Alk Phos
GGT
Albumin
Hb
MCV
WCC
Platelets
INR
Plasma paracetamol concentration…….. **at……..…hours post ingestion**
Other

Initials	date / time	Initials	date / time

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 Infusion		Second Infusion	
Infusion fluid	200 mL 5% glucose or sodium chloride 0.9%		1000 mL 5% glucose or sodium chloride 0.9%	
Duration of infusion	2 hours		10 hours	
Drug dose	100 mg/kg acetylcysteine		200 mg/kg acetylcysteine	
Patient Weight[1]	Ampoule volume[2]	Infusion Rate	Ampoule volume[2]	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

[1] Dose calculations are based on the weight in the middle of each band

[2] Ampoule volume has been rounded up to the nearest whole number.

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

Patient's weight …….. kg	
Prescription and Administration record completed ☐	Infusion chart completed ☐
Date/time treatment commenced	Initial

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		Initial	

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:

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

	Pre Treatment	**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 Initial	Date/time taken Initial	Date/time taken Initial
Urea				
Sodium				
Potassium	*			
TCO_2				
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 ❑ MAU ❑

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

STAGE 3 – END OF TREATMENT WITH ACETYLCYSTEINE

		Initial/time
If criteria for discontinuing acetylcysteine at end of Bag 2 are met:	❑	
Discontinue acetylcysteine once bag 2 infusion is **complete** Acetylcysteine discontinued at ……..	❑	
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 required but renal function should be monitored as an inpatient. Re-check 12 hours later.

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 2nd 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, and 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)

			date/time
Extended treatment with acetylcysteine was required	Yes ❑	No ❑	
If YES, number of extended bags required ……			

Once treatment with acetylcysteine is discontinued go to Stage 4 'Subsequent Management & Discharge' (page 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 number: CHI:

STAGE 4 – SUBSEQUENT MANAGEMENT & DISCHARGE

	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 ❑ 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 competences	
Discharge Treatment complete N/A ❑ Yes ❑ No ❑ Criteria for discharge met Yes ❑ No ❑ Comment…… Discharge advice given, **including paracetamol patient discharge sheet** (available on TOXBASE®) ❑ NOK informed Yes ❑ No ❑ Comment…… Left department Date…….. Time……..	Initial/time
Follow-up Has follow-up been arranged? N/A ❑ Yes ❑ No ❑ Comment……	Initial/time
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	Date/time initial

VARIANCES: all 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
EXAMPLE *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

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®. 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 – more than 24 HOURS** **Hospital: Borders General Hospital** ED presentation date: …… Time …… MAU admission date: …….. Time …… Admitting Consultant: ……	*ADDRESSOGRAPH, or* Name: DoB: Hospital number: 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……

Ingestion time……

List all the drug(s) ingested

……

……

……

……

……

Alcohol ingested? Yes ❑ No ❑

Was paracetamol bought for overdose: Yes ❑ No ❑

Total paracetamol ingested ……g

Patient's weight……kg

CALCULATE
The amount of paracetamol ingested ……..mg / kg

Notes	**For obese patients weighing more than 110 kg**, the toxic dose in mg/kg should be calculated using 110kg, rather than the patient's actual weight. **For pregnant patients** the toxic dose in mg/kg should be calculated using the patient's pre pregnancy weight

There is a dosage calculator on TOXBASE® 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** 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.

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

STAGE 1 - IMMEDIATE ASSESSMENT AND MANAGEMENT		Initial & time
Assessment of hepatic injury Clinical features of hepatic injury (jaundice or hepatic tenderness)? Yes ❑ No ❑ **If Yes,** **START ACETYLCYSTEINE IMMEDIATELY** DO NOT WAIT FOR BLOOD RESULTS (Refer to SNAP based dosage table on Page 5) **If no,** Wait for bloods results to determine if acetylcysteine is required	❑ ❑ ❑	
Blood sampling Obtain urgent blood samples for paracetamol concentration, U&Es, TCO_2, LFTs, GGT, glucose, FBC, INR	❑	

ON RECEIPT OF BLOOD RESULTS:		Initial & time
Date, time and blood results documented on page 4	❑	
If treatment has not been initiated START acetylcysteine if:		
Paracetamol concentration is detectable (5 mg/L or more) **OR**	❑	
INR is greater than 1.3 (in the absence of another cause, e.g. warfarin) **OR**	❑	
ALT 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 acetylcysteine treatment if the ALT and INR have not significantly changed from previously documented values. These cases should be discussed with the National Poisons Information Service (NPIS) Tel 0344 892 0111 Haemodialysis may be indicated alongside acetylcysteine if the patient has a very high paracetamol 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: Paracetamol concentration is not detectable (less than 5 mg/L) **AND** INR is 1.3 or less **AND** ALT is within normal range (50 U/L or less) **AND** The patient is asymptomatic with no clinical features suggesting liver damage		Initial & time
If these 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 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	❑	

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

Multi Disciplinary Care Pathway for **PARACETAMOL OVERDOSE – more than 24 HOURS** Date: **Hospital: Borders General Hospital** **Clinical area:** ED ❑ MAU ❑	*ADDRESSOGRAPH, or* Name: DoB: Hospital number: 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_2	TCO_2
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 concentration……. at……hours post ingestion	**Plasma paracetamol concentration……. at……hours post ingestion**
Glucose	Glucose
H+	H+
Lactate	Lactate
HCO_3	HCO_3
TCO_2	TCO_2
Other	Other
Initials date / time	Initials date / time

Multi Disciplinary Care Pathway for **PARACETAMOL OVERDOSE – more than 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 Infusion		Second Infusion	
Infusion fluid	200 mL 5% glucose or sodium chloride 0.9%		1000 mL 5% glucose or sodium chloride 0.9%	
Duration of infusion	2 hours		10 hours	
Drug dose	100 mg/kg Acetylcysteine		200 mg/kg acetylcysteine	
Patient Weight[1]	Ampoule volume[2]	Infusion Rate	Ampoule volume[2]	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

[1] Dose calculations are based on the weight in the middle of each band

[2] Ampoule volume has been rounded up to the nearest whole number.

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

Patient's weight …….. kg	
Prescription and Administration record completed ☐	Infusion chart completed ☐
Date/time treatment commenced	Initial

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		Initial	

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

		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 are:

INR 1.3 or less **AND**
ALT has decreased **AND**
PARACETAMOL not detectable (less than 5 mg/L)

		Initial/time
Decision to continue or discontinue acetylcysteine documented on page 7	❑	

Blood results

	Pre Treatment	**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 Initial	Date/time taken Initial	Date/time taken Initial
Urea				
Sodium				
Potassium	*			
TCO_2				
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 – more than 24 HOURS** Date: **Hospital: Borders General Hospital** **Clinical area:** ED ❑ MAU ❑	*ADDRESSOGRAPH, or* Name: DoB: Hospital number: CHI:

STAGE 3 – END OF TREATMENT WITH ACETYLCYSTEINE

		Initial/time
If criteria for discontinuing acetylcysteine at end of Bag 2 are met:	❑	
Discontinue acetylcysteine once bag 2 infusion is **complete** Acetylcysteine discontinued at ……..	❑	
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)	❑	
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 required but renal function should be monitored as an inpatient. Re-check 12 hours later.

Decision		Initial/time
If further treatment or blood sampling is not required go to 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:

		Initial/ time
Continue acetylcysteine treatment at the dose and infusion rate used in the 2nd 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, and 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)

			date/time
Extended treatment with acetylcysteine was required If YES, number of extra bags required ……	Yes ❑	No ❑	

Once treatment with acetylcysteine is discontinued go to Stage 4 'Subsequent Management & Discharge' (page 8)

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

STAGE 4 – SUBSEQUENT MANAGEMENT & DISCHARGE

	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 ❑ 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 competences	
Discharge Treatment complete N/A ❑ Yes ❑ No ❑ Criteria for discharge met Yes ❑ No ❑ Comment…… Discharge advice given, **including paracetamol patient discharge sheet** (available on TOXBASE®) ❑ NOK informed Yes❑ No ❑ Comment…… Left department Date…….. Time……..	Initial/time
Follow-up Has follow-up been arranged? N/A ❑ Yes ❑ No ❑ Comment……	Initial/time
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	Date/time Initial

VARIANCES: all 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
EXAMPLE *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

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®. 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
INGESTION OF A THERAPEUTIC EXCESS OF PARACETAMOL

Hospital: Borders General Hospital

ED presentation date: ……...Time……..

MAU admission date: …… Time……

Admitting Consultant: ……

ADDRESSOGRAPH, or

Name:

DoB:

Hospital number:

CHI:

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 Date..... Time……...…… Last dose ingested Date..... Time……...……	
List all drugs ingested (including brand names ie lemsip) and the quantity of each…… ……..…. Total paracetamol ingested…….....g over .....hours/days	
CALCULATE: Total paracetamol ingested (in any 24-hour period) ……..mg Patient's weight……..kg Amount ingested……..mg/kg Comments……..... .....…….	
Notes: **For obese patients weighing more than 110 kg**, the toxic dose in mg/kg should be calculated using 110 kg, rather than the patient's actual weight. **For pregnant patients** the toxic dose in mg/kg should be calculated using the patient's pre-pregnancy weight	
There is a dosage calculator on TOXBASE® 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 **INGESTION OF A THERAPEUTIC EXCESS OF PARACETAMOL** 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

Therapeutic excess (ingestions of a dose greater than the licensed daily dose AND more than or equal to 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 (if necessary) due to the increased risk of bleeding

STAGE 1 - IMMEDIATE ASSESSMENT AND MANAGEMENT

	Initial & time
Assessment of hepatic injury Clinical features of hepatic injury (jaundice or hepatic tenderness)? Yes ❑ No ❑ **If yes,** **START ACETYLCYSTEINE IMMEDIATELY** (Refer to SNAP based dosage table on Page 5) ❑ Obtain blood samples for paracetamol concentration, U&Es, TCO_2, LFTs, GGT, INR, FBC ❑	
If no, ASSESS FOR RISK OF LIVER DAMAGE Paracetamol ingested in any 24-hour period.....mg/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_2, 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** ❑ Risk of toxicity is extremely small but consider blood tests for paracetamol concentration, U&Es, TCO_2, LFTs, GGT, INR, FBC **at least 4 hours** after the last ingestion especially if: **there is doubt about the doses ingested, OR** ❑ **other factors are present that may increase the risk of hepatoxicity, such as:** o long term treatment with carbamazepine, phenobarbital, phenytoin, rifampacin, St John's Wort or other drugs that induce liver enzymes ❑ o regular consumption of alcohol in excess of recommended amounts ❑ o likely glutathione depletion e.g. eating disorders, cystic fibrosis, HIV, starvation, cachexia ❑ **If maximum dose is consistently less than the licensed 24-hour dose for the patient (e.g. 4g in an adult) AND consistently less than 75 mg/kg over the preceding 24-hour period** ❑ **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: - Paracetamol concentration less than 10 mg/L, **AND** - ALT is within normal range (50 U/L or less), **AND** - INR is 1.3 or less, **AND** - The patient has no clinical features suggesting liver damage 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 <u>must</u> review blood results prior to discontinuing therapy Results reviewed by ……Date……..Time……. Acetylcysteine discontinued Yes ❑ No ❑	Initial & time
If acetylcysteine is not indicated or discontinued and further blood sampling is not required, go to Stage 4 'Subsequent Management & Discharge' [page 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:

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_2	TCO_2
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 concentration……..……...	**Plasma paracetamol concentration……..……..……**
Glucose	Glucose
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** 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 Infusion		Second Infusion	
Infusion fluid	200 mL 5% glucose or sodium chloride 0.9%		1000 mL 5% glucose or sodium chloride 0.9%	
Duration of infusion	2 hours		10 hours	
Drug dose	100 mg/kg acetylcysteine		200 mg/kg acetylcysteine	
Patient Weight[1]	Ampoule volume[2]	Infusion Rate	Ampoule volume[2]	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

[1] Dose calculations are based on the weight in the middle of each band

[2] Ampoule volume has been rounded up to the nearest whole number.

Dosing table taken from TOXBASE®.

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

Patient's weight ……. kg	
Prescription and Administration record completed ☐	Infusion chart completed ☐
Date/time treatment commenced	Initial

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	Initial

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**

		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	❑	

	Pre Treatment	**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 Initial	Date/time taken Initial	Date/time taken Initial
Urea				
Sodium				
Potassium	*			
TCO_2				
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 **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

	Initial/time
If criteria for discontinuing acetylcysteine at end of Bag 2 are met: **Discontinue** acetylcysteine once bag 2 infusion is **complete** ❑ Acetylcysteine discontinued at ……..	
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) ❑ Obtain discharge 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)** ❑	
If creatinine is abnormal or is 10% greater than at presentation, further acetylcysteine is not required but renal function should be monitored as an inpatient. Re-check 12 hours later.	
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

	date/time
If extended treatment is required Continue acetylcysteine at the dose and infusion rate used in the 2nd 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, and 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 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 4 – SUBSEQUENT MANAGEMENT & DISCHARGE

	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 ❑ 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 competences	
Discharge Treatment complete N/A ❑ Yes ❑ No ❑ Criteria for discharge met Yes ❑ No ❑ Comment…… Discharge advice given, **including paracetamol patient discharge sheet** (available on TOXBASE®) ❑ NOK informed Yes ❑ No ❑ Comment…… Left department Date…….. Time……..	Initial/time
Follow-up Has follow-up been arranged? N/A ❑ Yes ❑ No ❑ Comment……	Initial/time
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	Date/time Initial

VARIANCES: all 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
EXAMPLE *01.12.17*	*17.15*	*Flushing*	*Reaction to acetylcysteine*	*Infusion stopped for 30 minutes Chlorphenamine administered*	*BS*	*A*

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®. 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 **STAGGERED PARACETAMOL OVERDOSE**	*ADDRESSOGRAPH, or* 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 **ALL** 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.

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(s) ……..
……

Ingestion time(s)……
……

Last ingestion date/time
……

List all the drug(s) ingested

……..

……..…..

Alcohol ingested? Yes ❑ No ❑

Was paracetamol bought for overdose: Yes ❑ No ❑

Total paracetamol ingested …….g
(in any 24 hour period)

Patient's weight…….kg

CALCULATE
The amount of paracetamol ingested ……..mg / kg

Notes	**For obese patients weighing more than 110 kg**, the toxic dose in mg/kg should be calculated using 110 kg, rather than the patient's actual weight. **For pregnant patients** the toxic dose in mg/kg should be calculated using the patient's pre-pregnancy weight

There is a dosage calculator on TOXBASE® 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 **STAGGERED PARACETAMOL OVERDOSE** 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 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

	Initial & time
Assessment for risk of liver damage **Paracetamol ingested……mg/kg (see calculation on page 2)** **Last ingestion date.....time.....**	
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.** ❑ **(serious toxicity may occur in patients ingesting >150mg/kg in any 24 hour period, rarely toxicity may occur in patients ingesting between 75 and 150 mg/kg in any 24 hour period)**	
Blood sampling Obtain blood samples **at least 4** hours after the last paracetamol ingestion for paracetamol concentration, U&Es, TCO_2, LFTs, GGT, FBC and INR ❑	
On receipt of blood results assess risk of hepatotoxicity (document on page 4) ❑ **Clinically significant hepatotoxicity is unlikely if at least 4 hours or more after the most recent paracetamol ingestion:** - the paracetamol concentration is less than 10 mg/L, **AND** - the ALT is within the normal range (50 UL), **AND** - the INR is 1.3 or less, **AND** - the patient has no symptoms suggesting liver damage Acetylcysteine can be discontinued if **ALL** the above criteria are met ❑ Acetylcysteine should be **continued or started** 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 0344 892 0111 out of hours

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 therapy

Results reviewed by ……Date……Time……

Acetylcysteine discontinued Yes ❑ No ❑

If acetylcysteine is not indicated or discontinued and further blood sampling is not required, go to Stage 4 'Subsequent Management & Discharge' [page 8]

Multi Disciplinary Care Pathway for
STAGGERED PARACETAMOL OVERDOSE
Date:
Hospital: Borders General Hospital
Clinical area: ED ❑ MAU ❑

ADDRESSOGRAPH, or
Name:
DoB:
Hospital number:
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_2	TCO_2
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 concentration.....mg/L **.....hours after last ingestion**	**Paracetamol concentration.....mg/L** **.....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
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 Infusion		Second Infusion	
Infusion fluid	200 mL 5% glucose or sodium chloride 0.9%		1000 mL 5% glucose or sodium chloride 0.9%	
Duration of infusion	2 hours		10 hours	
Drug dose	100 mg/kg Acetylcysteine		200 mg/kg acetylcysteine	
Patient Weight[1]	Ampoule volume[2]	Infusion Rate	Ampoule volume[2]	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

[1] Dose calculations are based on the weight in the middle of each band

[2] Ampoule volume has been rounded up to the nearest whole number.

Dosing table taken from TOXBASE®.

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

Patient's weight …….. kg	
Prescription and Administration record completed ☐	Infusion chart completed ☐
Date/time treatment commenced	Initial

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		Initial	

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

		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	❑	

	Pre Treatment	**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 Initial	Date/time taken Initial	Date/time taken Initial
Urea				
Sodium				
Potassium	*			
TCO_2				
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 **STAGGERED PARACETAMOL OVERDOSE** Date: **Hospital: Borders General Hospital** Clinical area: ED ❑ MAU ❑	*ADDRESSOGRAPH, or* Name: DoB: Hospital number: CHI:

STAGE 3 – END OF TREATMENT WITH ACETYLCYSTEINE

	Initial/time
If criteria for discontinuing acetylcysteine at end of Bag 2 are met: ❑	
Discontinue acetylcysteine once bag 2 infusion is **complete** ❑ Acetylcysteine discontinued at ……..	
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) ❑	
Obtain discharge 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) ❑	

If creatinine is abnormal or is 10% greater than at presentation, further acetylcysteine is not required but renal function should be monitored as an inpatient. Re-check 12 hours later.

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 2nd treatment bag (Page 5) ❑	
Recheck U&Es, TCO_2, 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 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)

	date/time
Extended treatment with acetylcysteine was required Yes ❑ No ❑ If YES, number of extended bags required ……	

Once treatment with acetylcysteine is discontinued go to Stage 4 'Subsequent Management & Discharge' (page 8)

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

STAGE 4 – SUBSEQUENT MANAGEMENT & DISCHARGE

	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 ❑ 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 competences	
Discharge Treatment complete N/A ❑ Yes ❑ No ❑ Criteria for discharge met Yes ❑ No ❑ Comment…… Discharge advice given, **including paracetamol patient discharge sheet** (available on TOXBASE or Base 6) ❑ NOK informed Yes ❑ No ❑ Comment…… Left department Date…….. Time……..	Initial/time
Follow-up Has follow-up been arranged? N/A ❑ Yes ❑ No ❑ Comment……	Initial/time
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	Date/time Initial

VARIANCES: all 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
EXAMPLE *01.12.17*	*17.15*	*Flushing*	*Reaction to acetylcysteine*	*Infusion stopped for 30 minutes* *Chlorphenamine administered*	*BS*	*A*