Area Drug and Therapeutics Committee

Intravenous Acetylcysteine Prescribing and Administration Chart for patients ≥40kg*

Write or attach label

CHI No .....

Surname: .....

Forename: ..... Sex: .....

DOB: .....

NHS Ayrshire & Arran

This chart is to be used when there has been determined a need to treat a paracetamol excess with acetylcysteine. To determine the need for acetylcysteine please consult TOXBASE®

*If the patient is under 13 years of age but >40kg consider discussion with paediatrician

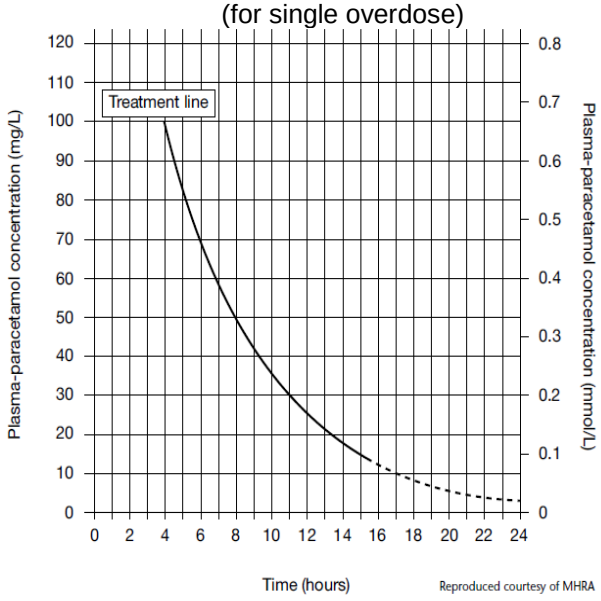
Date: ..... Time: ..... Allergies: .....

Total paracetamol ingested: .....g
Patient weight: .....kg
Calculated paracetamol ingested: ..... mg/kg

For **patients >110kg** use 110kg to calculate toxic dose and acetylcysteine dose.

For **pregnant patients** use pre-pregnancy weight to calculate toxic dose – and **actual pregnant weight when prescribing acetylcysteine**

Acetylcysteine Treatment Nomogram
(for single overdose)



Reproduced courtesy of MHRA

For all paracetamol overdose cases, when administration is required please use table 1 below.

Note: Do not use the treatment nomogram to decide **whether** to treat if:

- timing of ingestion is unreliable
- there has been ingestion over a period of more than one hour – 'staggered overdose'
- there has been more than 24 hours lapsed since ingestion
- if there has been therapeutic excess

Please see specific guidance for these conditions on TOXBASE ® www.toxbase.org (password required)

Table 1: Acetylcysteine intravenous dosing and administration

Regimen	First infusion		Second infusion	
Infusion fluid	200mL 5% glucose or sodium chloride 0.9%		1000mL 5% glucose or sodium chloride 0.9%	
Preparation	Use a 250mL infusion bag and remove 50mL prior to adding in the required volume of acetylcysteine		Add the required volume of acetylcysteine to the 1000mL infusion bag	
Duration of infusion	2 hours		10 hours	
Drug dose	100 mg/kg acetylcysteine		200 mg/kg acetylcysteine	
Patient weight (kg)	Ampoule volume (mL)	Infusion rate (mL/hour)	Ampoule volume[2] (mL)	Infusion rate (mL/hour)
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

Each ampoule = 200mg/mL Acetylcysteine. Dose calculations based on weight in middle of each band and ampoule volume rounded to nearest whole number.

Prescribe acetylcysteine on the inpatient patient prescription chart or Electronic Prescribing System 'Acetylcysteine as charted'.

Previous anaphylactoid reactions to acetylcysteine are **not** contraindications for a further treatment course. The 'SNAP' regimen does offer the benefit of lower rates of reactions than the previous regimen.

When IV treatment is not appropriate/possible please see TOXBASE® or contact the National Poisons Information Service, 0344 892 0111. Note TOXBASE contains information on giving acetylcysteine orally.

Write or attach label
CHI No .....
Surname: .....
Forename: ..... Sex: .....
DOB: .....

NHS Ayrshire & Arran

Intravenous Acetylcysteine Prescribing and Administration Chart for patients ≥40kg

Infusion device:	Serial/Equipment Number:

Infusion 1 — **Acetylcysteine 100 mg/kg over 2 hours**

Batch No – Ampoule(s):

Batch No – diluent:

Prescription						Preparation	Administration checks after 10 minutes and every hour			
Date	Time 00:00	Dose (mL)# See table 1	Diluent (200mL)	Infusion rate (mL/hour) See table 1	Prescribers signature	Prepared by / Checked by	Date/ Time	Vol remaining (mL)	Vol infused (mL)	Checked by

Each mL contains 200mg acetylcysteine

Infusion 2 — **Acetylcysteine 200 mg/kg over 10 hours**

Batch No – Ampoule(s):

Batch No – diluent:

Prescription						Preparation	Administration checks after 10 minutes and every hour			
Date	Time 00:00	Dose (mL)# See table 1	Diluent (1000mL)	Infusion rate (mL/hour) See table 1	Prescribers signature	Prepared by / Checked by	Date/ Time	Vol remaining (mL)	Vol infused (mL)	Checked by

Monitoring Record	
Date sample due	
Time sample due (2hrs before infusion end)	

Each mL contains 200mg acetylcysteine

If no instruction provided to continue or discontinue infusion – seek medical review

End of treatment	Take U&Es, bicarbonate, LFTs, FBC, INR, glucose & Paracetamol level 2 hours before end of infusion 2.
Extended treatment	Continue treatment if ANY of the following criteria are met: • ALT above the upper limit normal (ULN) OR • ALT doubled or more from admission (even if normal) OR • Paracetamol concentration >10mg/L If any criteria above are met; CONTINUE extended treatment at the dose and infusion rate used in the 2nd treatment infusion and see infusion 3 advice and TOXBASE® for guidance of when to discontinue treatment thereafter. **Note: If ALT is normal and INR increased:** Patients who do not meet any of the criteria for continuation of treatment but have an increase of INR of 0.4 or less and with a normal ALT can be considered for discharge. Patients who have an increase in INR of 0.5 or more in the absence of an ALT rise, stop treatment and recheck INR and ALT after 4-6 hours. After this 4-6 hour period without treatment, consider discharge if the blood tests meet the following criteria: INR unchanged or falling AND ALT is less than two times the ULN. If criteria are not met- restart treatment at the dose and infusion rate used in the last treatment bag.

Write or attach label

CHI No .....

Surname: .....

Forename: ..... Sex: .....

DOB: .....

NHS Ayrshire & Arran

Intravenous Acetylcysteine Prescribing and Administration Chart for patients ≥40kg

For Extended Treatment infusion 3

Infusion 3	**Acetylcysteine 200 mg/kg over 10 hours**	Batch No – Ampoule(s):	Batch No – diluent:

Prescription						Preparation	Administration checks after 10 minutes and every hour			
Date	Time 00:00	Dose (mL)# See table 1	Diluent (1000mL)	Infusion rate (mL/hour) See table 1	Prescribers signature	Prepared by / Checked by	Date/ Time	Vol remaining (mL)	Vol infused (mL)	Checked by

Monitoring Record	
Date sample due	
Time sample due (2hrs before infusion end)	

Each mL contains 200mg acetylcysteine

If no instruction provided to continue or discontinue infusion – seek medical review

End of infusion 3	Take U&Es, bicarbonate, LFTs, FBC, INR, glucose, lactate (& Paracetamol level if >10mg/L after 2nd infusion) 2 hours before end of infusion 3.
Extended treatment	Continue treatment if ANY of the following criteria are met: • ALT >2x upper limit normal (ULN) OR • ALT >ULN and increased from previous AND doubled or more since admission OR • Paracetamol level remains >10mg/L if checked OR • INR >1.3 and increased from previous AND ALT >ULN If any criteria above are met; CONTINUE extended treatment at the dose and infusion rate used in the 2nd treatment infusion and see infusion 4 advice and TOXBASE® for guidance of when to discontinue treatment thereafter. Recheck U&Es, bicarbonate, LFTs, FBC and INR every 10 hours to assess course of liver injury. **NOTE: If ALT is normal but INR has increased:** Patients who do not meet any of the criteria for continuation of treatment but have an increase in INR of 0.4 or less and with a normal ALT can be considered for discharge. Patients who have an increase in INR of 0.5 more in the absence of an ALT rise, stop treatment and recheck INR and ALT after 4 - 6 hours. After this 4-6 hour period without treatment, consider discharge if the blood tests meet the following criteria: INR unchanged or falling AND ALT is less than two times the ULN. If criteria are not met – restart treatment at the dose and infusion rate used in the last treatment bag.

See over for infusion 4 onwards chart

Area Drug and Therapeutics Committee

Intravenous Acetylcysteine Prescribing and Administration Chart for patients ≥40kg

For Extended Treatment infusion 4 onwards

Write or attach label

CHI No .....

Surname: .....

Forename: ..... Sex: .....

DOB: .....

NHS Ayrshire & Arran

Infusion	**Acetylcysteine 200 mg/kg over 10 hours**	Batch No – Ampoule(s):	Batch No – diluent:

Prescription						Preparation	Administration checks after 10 minutes and every hour			
Date	Time 00:00	Dose (mL)# See table 1	Diluent (1000mL)	Infusion rate (mL/hour) See table 1	Prescribers signature	Prepared by / Checked by	Date/ Time	Vol remaining (mL)	Vol infused (mL)	Checked by

Monitoring Record	
Date sample due	
Time sample due (2hrs before infusion end)	

Each mL contains 200mg acetylcysteine

See guidance below regarding management at end of infusion.

If no instruction provided to continue or discontinue infusion – seek medical review

Infusion	**Acetylcysteine 200 mg/kg over 10 hours**	Batch No – Ampoule(s):	Batch No – diluent:

Prescription						Preparation	Administration checks after 10 minutes and every hour			
Date	Time 00:00	Dose (mL)# See table 1	Diluent (1000mL)	Infusion rate (mL/hour) See table 1	Prescribers signature	Prepared by / Checked by	Date/ Time	Vol remaining (mL)	Vol infused (mL)	Checked by

Monitoring Record	
Date sample due	
Time sample due (2hrs before infusion end)	

Each mL contains 200mg acetylcysteine

If no instruction provided to continue or discontinue infusion – seek medical review

End of infusion 4 onwards	Take U&Es, bicarbonate, LFTs, FBC, INR, glucose, lactate every 10 hours
Extended treatment	Continue treatment UNTIL: • INR 1.3 or less OR • INR falling towards normal on 2 consecutive tests, and is <3.0 There is no advantage to treating ALT rises after normalisation of INR If treatment continues to bag 5 or more, extended treatment at the dose and infusion rate used in the 2nd treatment infusion and see TOXBASE® for guidance of when to discontinue treatment thereafter.