NHS
Greater Glasgow and Clyde

NHSGGC Adult Paracetamol Overdose Protocol and Shortened NAC Administration Chart

PILOT

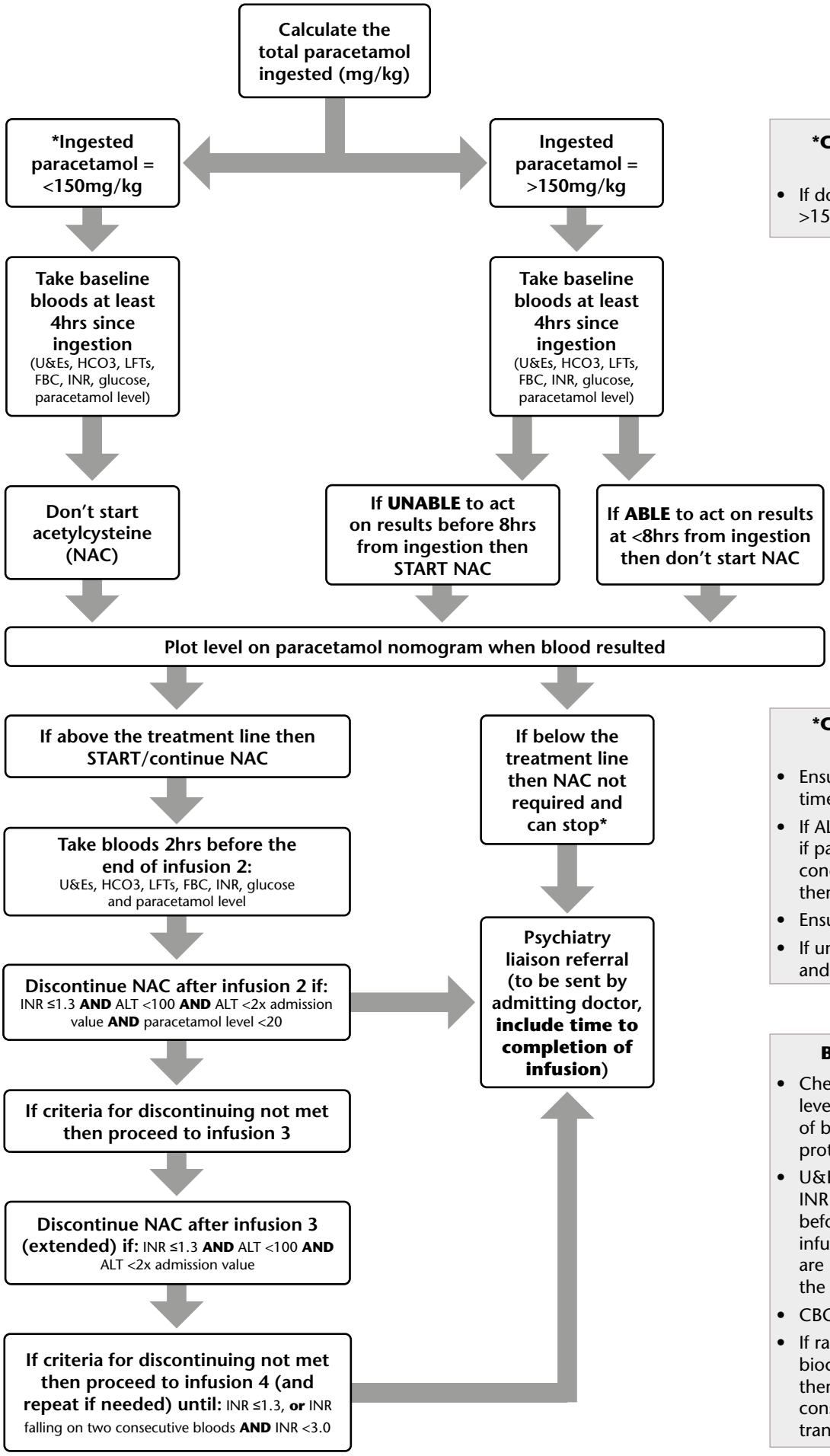
March – June 2020

NOTE: This protocol differs from advice on TOXBASE, however the general paracetamol overdose guidance still applies.

Please ensure the EDLs/IDLs are given a diagnosis of paracetamol overdose to allow auditing of this pilot.

Paracetamol overdose presenting 0-8hrs

(Ingested total overdose in ≤1 hour time period)



***Clinical judgement required**

- If doubt then assume >150mg/kg

***Clinical judgement required**

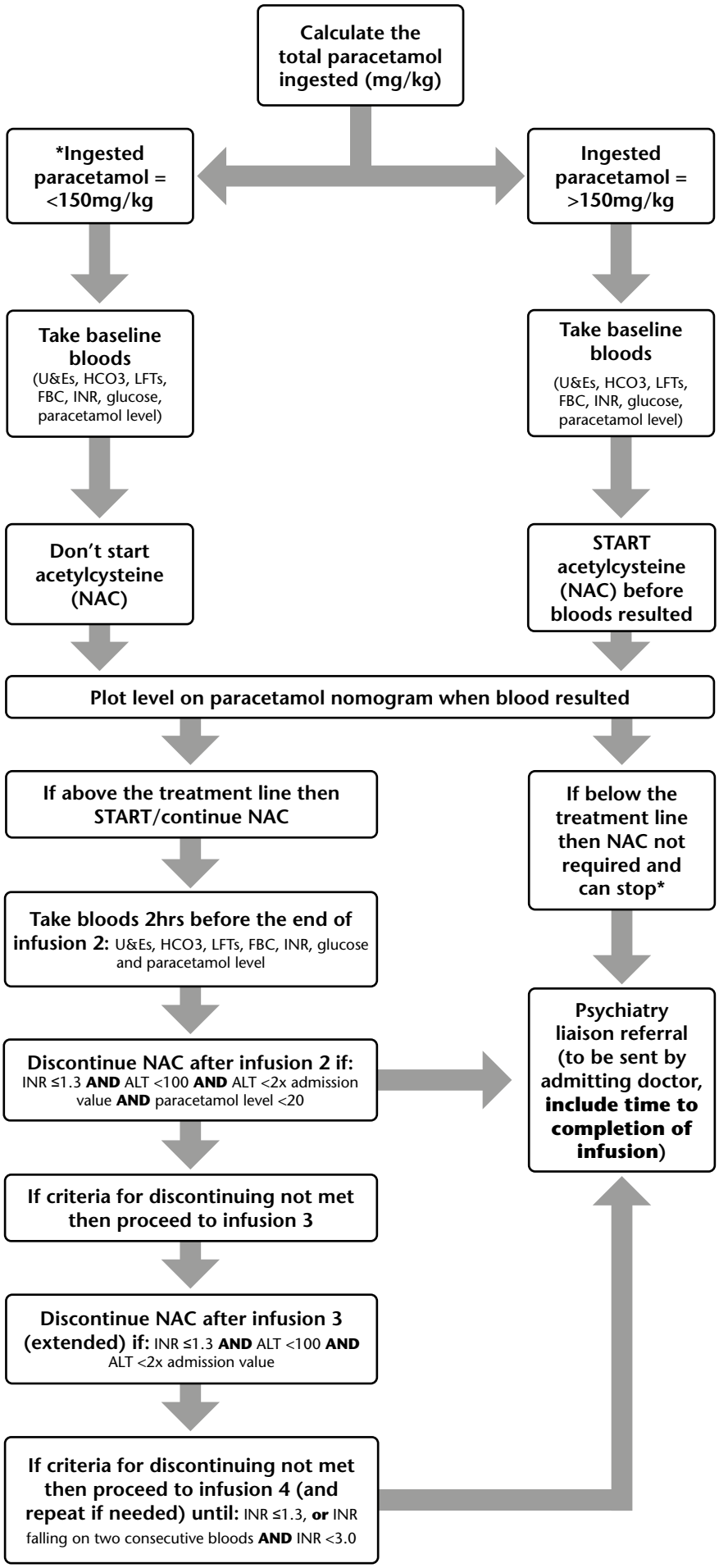
- Ensure no doubt about time of ingestion or type
- If ALT abnormal even if paracetamol concentration normal then consider treating
- Ensure INR normal
- If uncertainty then treat and review

Blood monitoring

- Checking a paracetamol level 2hrs before the end of bag 2 is **NEW** for this protocol
- U&E, HCO3, LFTs, FBC and INR should be done 2hrs before the end of each infusion 2. Ensure results are **READY** for the end of the infusion.
- CBG 6 hourly while on NAC
- If rapid or progressive biochemical deterioration then discuss with senior and consider referral to regional transplant centre.

Paracetamol overdose presenting 8-24hrs

(Ingested total overdose in ≤1 hour time period)



***Clinical judgement required**

- If doubt then assume >150mg/kg

***Clinical judgement required**

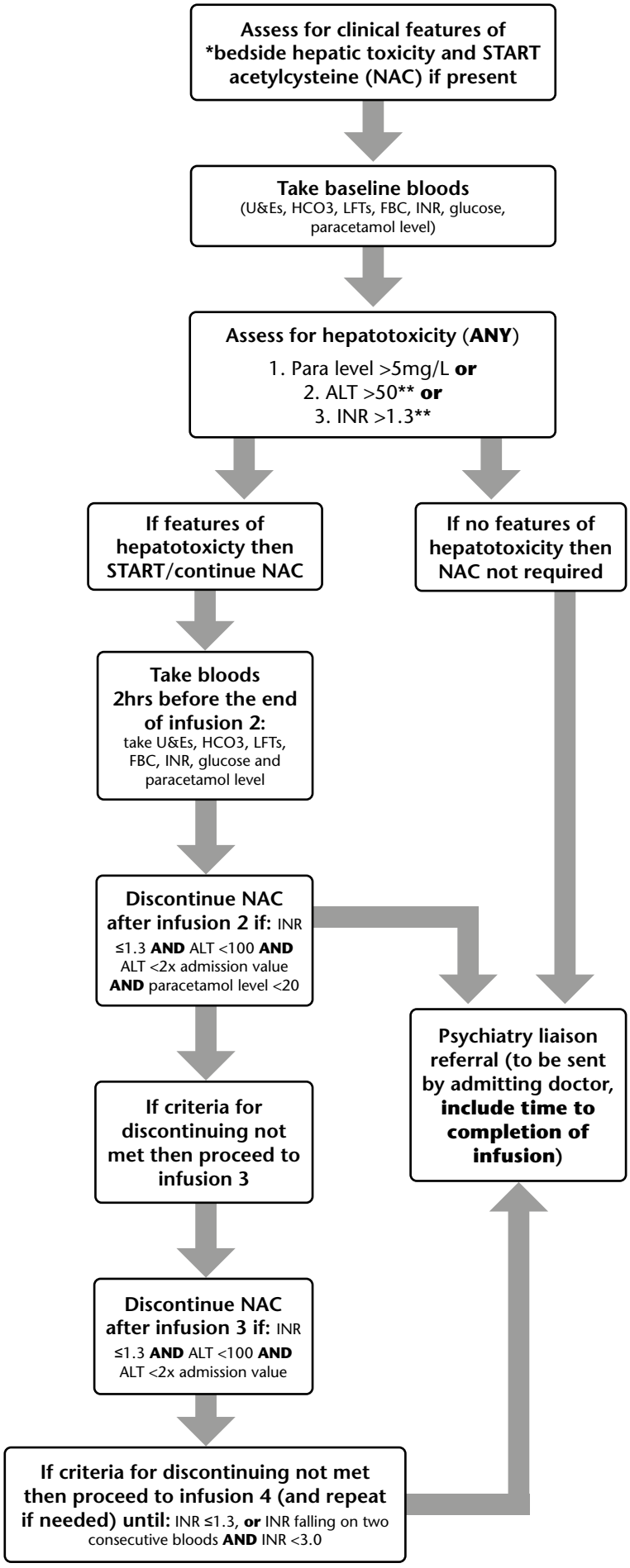
- Ensure no doubt about time of ingestion or type
- If ALT abnormal even if paracetamol concentration normal then consider treating
- Ensure INR normal
- If uncertainty then treat and review

Blood monitoring

- Checking a paracetamol level 2hrs before the end of bag 2 is **NEW** for this protocol
- U&E, HCO3, LFTs, FBC and INR should be done 2hrs before the end of each infusion 2. Ensure results are **READY** for the end of the infusion.
- CBG 6 hourly while on NAC
- If rapid or progressive biochemical deterioration then discuss with senior and consider referral to regional transplant centre.

Paracetamol overdose presenting >24hrs

(Ingested total overdose in ≤1 hour time period)



***Clinical judgement required**

- Bedside hepatic toxicity: Jaundice, tender liver, hypoglycaemia, encephalopathy, unexplained lactic acidosis.
- Ensure no doubt about time of ingestion or type.
- If uncertainty then treat and review with bloods.

****Clinical judgement required**

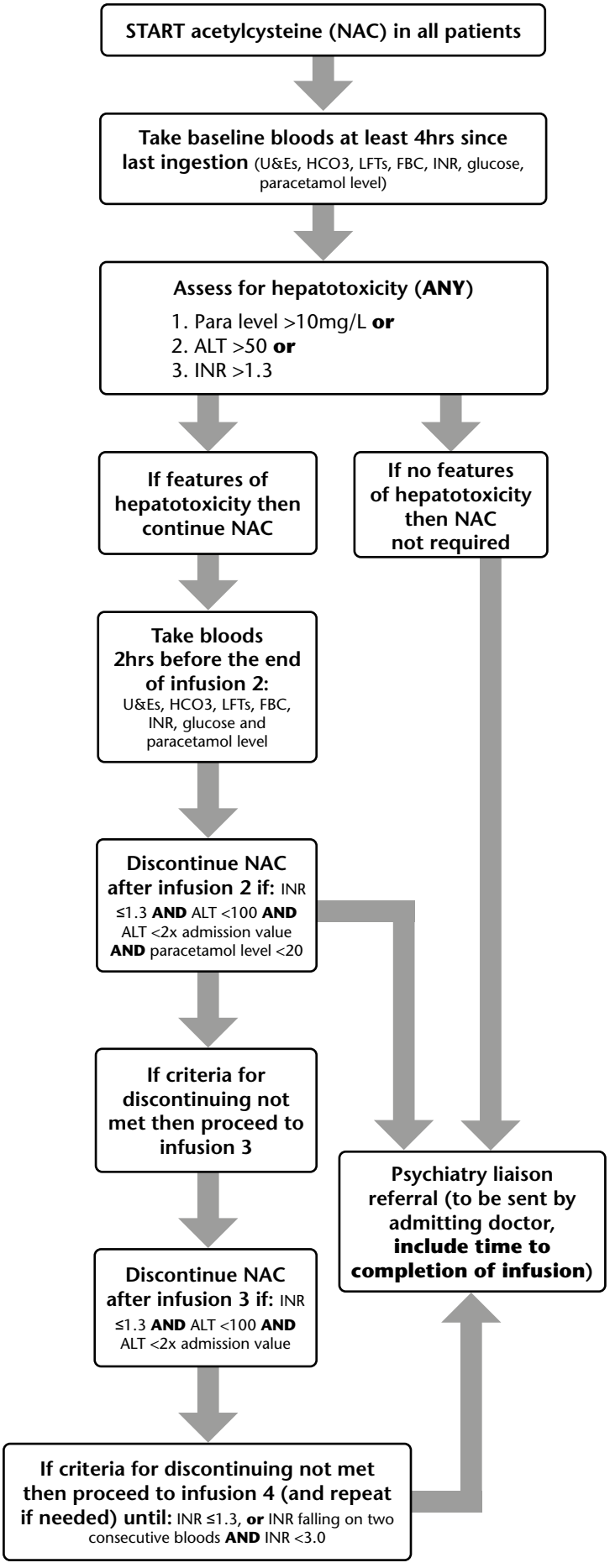
- Some patients have a chronically raised ALT/INR.
- Review old LFTs/INRs and if chronic derangement discuss with a senior clinician before proceeding to NAC.

Blood monitoring

- Checking a paracetamol level 2hrs before the end of bag 2 is **NEW** for this protocol
- U&E, HCO3, LFTs, FBC and INR should be done 2hrs before the end of each infusion 2. Ensure results are **READY** for the end of the infusion.
- CBG 6 hourly while on NAC
- If rapid or progressive biochemical deterioration then discuss with senior and consider referral to regional transplant centre.

Staggered paracetamol overdose

(Ingested total overdose in >1 hour time period in the context of self harm)

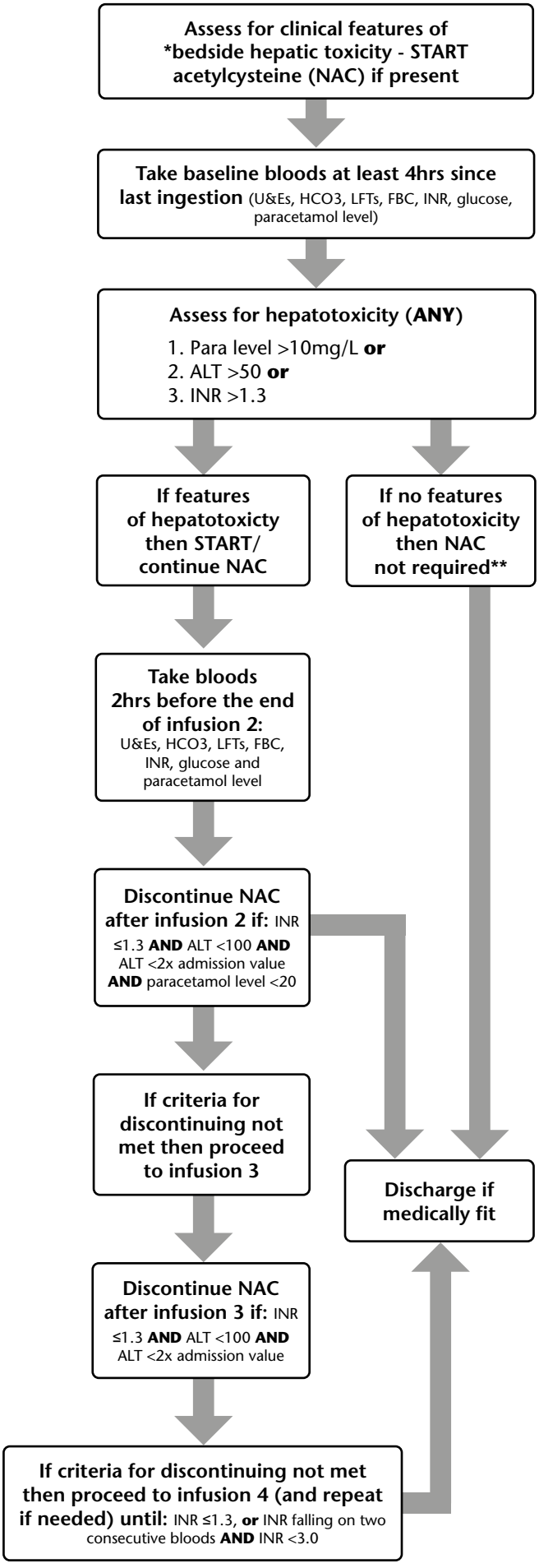


Blood monitoring

- Checking a paracetamol level 2hrs before the end of bag 2 is **NEW** for this protocol
- U&E, HCO3, LFTs, FBC and INR should be done 2hrs before the end of each infusion 2. Ensure results are **READY** for the end of the infusion.
- CBG 6 hourly while on NAC
- If rapid or progressive biochemical deterioration then discuss with senior and consider referral to regional transplant centre

Therapeutic excess paracetamol overdose

(Ingested total overdose in >1 hour time period with no self harm intent)



***Clinical judgement required**

- Bedside hepatic toxicity: Jaundice, tender liver, hypoglycaemia, encephalopathy, unexplained lactic acidosis.
- Ensure no doubt about time of ingestion or type.
- If uncertainty then treat and review with bloods.

****Clinical judgement required**

- Ensure no doubt about time of ingestion or type
- If uncertainty then treat and review with bloods

Blood monitoring

- Checking a paracetamol level 2hrs before the end of bag 2 is **NEW** for this protocol
- U&E, HCO3, LFTs, FBC and INR should be done 2hrs before the end of each infusion 2. Ensure results are **READY** for the end of the infusion.
- CBG 6 hourly while on NAC
- If rapid or progressive biochemical deterioration then discuss with senior and consider referral to regional transplant centre

Shortened Adult Acetylcysteine Prescribing and Administration Chart (SNAP regimen PILOT Mar-June)

NHS Greater Glasgow and Clyde

Name: _____

Address: _____

DoB: _____

CHI: _____

Affix patient data label

Ingestion date & time: _____

Quantity ingested (mg): _____

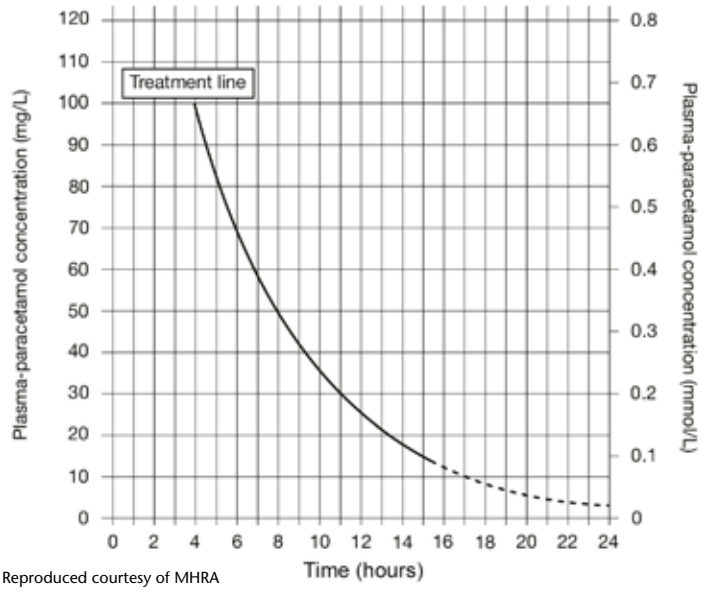
Weight (kg): _____

Calculated paracetamol ingested (mg/kg): _____

Serum paracetamol concentration (mg/L): _____

Hours between ingestion & sampling: _____

Paracetamol overdose treatment nomogram



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- **Refer to protocols overleaf for guidance.**
- If unclear which protocol to use, discuss with a senior clinician.
- Determine the need for acetylcysteine by plotting the measured plasma paracetamol concentration (in mg/L) against the time since ingestion. If plasma level falls **above the line** then give acetylcysteine as detailed below.
- Patients <30kg –this protocol is inappropriate, access paediatric dosing table through www.toxbase.org.
- For pregnant patients, use pre-pregnancy weight to calculate toxic dose and actual weight when prescribing acetylcysteine
- Reactions to acetylcysteine include flushing, nausea & vomiting. Consider pausing infusion for 30 minutes and symptomatic relief i.e. antiemetic and/or chlorphenamine.

Table 1. Acetylcysteine IV dosing & administration

Regimen	**First infusion**		**Second (& extended) infusion**	
Infusion fluid	200mL sodium chloride 0.9% or **5% glucose**		1000mL **sodium chloride 0.9%** or 5% glucose	
Preparation	Use 250mL infusion bag and remove 50mL and add required volume of acetylcysteine		Add required volume of acetylcysteine to 1000mL infusion bag	
Duration of infusion	2 hours		10 hours	
Drug dose	100mg/kg acetylcysteine		200mg/kg acetylcysteine	
Weight (kg)	Ampoule volume (mL)	Infusion rate (mL/h)	Ampoule volume (mL)	Infusion rate (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

Each ampoule = 200mg/L acetylcysteine. Dose calculation based on weight in middle of band. Ampoule rounded to nearest whole number.

Shortened Adult Acetylcysteine Prescribing and Administration Chart (SNAP regimen PILOT Mar-June)

Name: _____

Address: _____

DoB: _____

CHI: _____

Affix patient data label

Infusion 1	**Acetylcysteine 100mg/kg over 2 hours**									
Prescription						Preparation	Administration checks			
Date	Time	Dose (mL)	Diluent (200mL)	Infusion rate (mL/hr)	Prescriber's signature	Prepared/ Checked by	Date Time	Volume remaining (mL)	Volume infused (mL)	Checked by

Infusion 2	**Acetylcysteine 200mg/kg over 10 hours**									
Prescription						Preparation	Administration checks			
Date	Time	Dose (mL)	Diluent (1000mL)	Infusion rate (mL/hr)	Prescriber's signature	Prepared/ Checked by	Date Time	Volume remaining (mL)	Volume infused (mL)	Checked by

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Extended treatment

Extended treatment with acetylcysteine should be continued at the dose and infusion rate used for the second infusion (see overleaf).

Recheck U&Es, bicarbonate, LFTs, FBC and INR 2 hours before the end of each 10 hour infusion to reassess need to continue.

Refer to appropriate protocol regarding discontinuation of extended treatment

Shortened Adult Acetylcysteine Prescribing and Administration Chart (SNAP regimen PILOT EXTENDED Treatment)

Name: _____

Address: _____

DoB: _____

CHI: _____

Affix patient data label

Infusion 3 (extended treatment)	**Acetylcysteine 200mg/kg over 10 hours**

Prescription						Preparation	Administration checks			
Date	Time	Dose (mL)	Diluent (1000mL)	Infusion rate (mL/hr)	Prescriber's signature	Prepared/ Checked by	Date Time	Volume remaining (mL)	Volume infused (mL)	Checked by

Infusion 4 (extended treatment)	**Acetylcysteine 200mg/kg over 10 hours**

Prescription						Preparation	Administration checks			
Date	Time	Dose (mL)	Diluent (1000mL)	Infusion rate (mL/hr)	Prescriber's signature	Prepared/ Checked by	Date Time	Volume remaining (mL)	Volume infused (mL)	Checked by

If the patient meets criteria for a further infusion then repeat infusions 3 and/or 4 (extended). Refer to protocols for discontinuation criteria.