

# Acetylcysteine (SNAP 12 hour regimen - PREFERRED in GUH) Intravenous Infusion for Adults

## Who can administer

May be administered by registered competent doctor or nurse/midwife

## Important information

- **This information applies to ORAL paracetamol overdoses, for INTRAVENOUS paracetamol overdoses contact the National Poisons Information Centre (NPIC)**
- The SNAP regimen can also be used in cases of **non-paracetamol associated hepatotoxicity (Unlicensed)** <sup>(ref 2)</sup>
- **SNAP** (Scottish and Newcastle Acetylcysteine Protocol) (Also known as **Modified 12-hour regimen**)
  - SNAP (modified 12-hour regimen) is an off label use of acetylcysteine albeit at its licensed dose
  - This regimen is endorsed by National Poisons Information Service (NPIS) and the Royal College of Emergency Medicine
  - This regimen is the preferred regimen for use in GUH for Adult patients (information on the 21 hour regimen may be found on **TOXBASE** if required)
  - **The total dose of intravenous acetylcysteine is the same as the standard 21-hour regimen (i.e. 300 mg/kg) but the rate and duration of treatment is different which results in a lower peak plasma acetylcysteine concentration and a significantly lower risk of anaphylactoid reactions** <sup>(ref 1)</sup>
- Anaphylactoid reactions may occur, particularly with initial loading dose. Patient should be carefully observed. Most anaphylactoid reactions can be managed by temporarily suspending the acetylcysteine infusion, administering appropriate supportive care and restarting at a lower infusion rate (e.g. administer the first bag over twice as long as usual) <sup>(ref 1)</sup>
- A previous anaphylactoid reaction to acetylcysteine may not be a contraindication for use. Contact NPIC <sup>(ref 1)</sup>

## Available preparations

Parvolex 2g per 10ml ampoule

Acetylcysteine 2g per 10ml ampoule

## Reconstitution

Already in solution

**Draw up using a 5 micron filter needle**

**Dilute further prior to administration**

## Infusion fluids

**Glucose 5% preferred** (or Sodium chloride 0.9%)

# Methods of intravenous administration

## Intermittent intravenous infusion

- Prepare the infusion to the correct concentration- as indicated in tables below
- Administer over the time specified in the tables below

## Dose in adults

### Paracetamol poisoning

- See TOXBASE to determine the management of the patient depending on the number of hours since ingestion.
- If Acetylcysteine is indicated, follow the tables below

### Non-paracetamol associated hepatotoxicity

- The SNAP regimen can also be used for this indication (unlicensed) <sup>(ref 2)</sup>

### SNAP (Also known as Modified 12-hour regimen)

- Give 100mg/kg (max 11g) over two hours
- Followed by 200mg/kg (max 22g) over ten hours
- See tables below
- Continued treatment with Acetylcysteine may be necessary (after these two bags have been given over twelve hours total) - see Toxbase for advice on the clinical assessment of the patient
- If further infusions are required, repeat Infusion 2

^

| Table 1: SNAP (Also known as Modified 12-hour regimen) Acetylcysteine for Adults WEIGHING 40KG OR MORE<br>Each ampoule contains 2g/10ml (200mg per ml) |  |               |   |               |
|--|--|---------------|---|---------------|
| 12 hour regimen  | First infusion   |               | Second infusion   |               |
| Infusion fluid   | Add required dose to <b>200ml</b> infusion fluid (discard 50ml from 250ml bag) |               | Add required dose to 1000ml infusion fluid (no need to withdraw any volume) |               |
| Duration of infusion   | <b>2 hours</b>   |               | <b>10 hours</b>   |               |
| Drug dose  | <b>100mg/kg</b>  |               | <b>200mg/kg</b>   |               |
| Patient weight   | Ampoule volume   | Infusion rate | Ampoule volume  | Infusion rate |
| kg   | mL   | mL/hour       | mL  | mL/hour       |
| less than 40kg- see table 2 below  | ^  | ^             | ^   | ^             |
| <b>40 to 49</b>  | 23   | 112           | ^ ^ ^ ^ ^ ^ ^ 45  | 105           |
| <b>50 to 59</b>  | 28   | 114           | ^ ^ ^ ^ ^ ^ ^ 55  | 106           |
| <b>60 to 69</b>  | 33   | 117           | ^ ^ ^ ^ ^ ^ ^ 65  | 107           |
| <b>70 to 79</b>  | 38   | 119           | ^ ^ ^ ^ ^ ^ ^ 75  | 108           |
| <b>80 to 89</b>  | 43   | 122           | ^ ^ ^ ^ ^ ^ ^ 85  | 109           |
| <b>90 to 99</b>  | 48   | 124           | ^ ^ ^ ^ ^ ^ ^ 95  | 110           |
| <b>100 to 109</b>  | 53   | 127           | ^ ^ ^ ^ ^ ^ ^ 105   | 111           |
| <b>110kg or more</b>   | 55   | 128           | ^ ^ ^ ^ ^ ^ ^ 110   | 111           |
| Dose calculations are based on the weight in the middle of each band<br>^ Figures have been rounded up to the nearest whole number                     |  |               |   |               |

**Table 2: SNAP (Also known as Modified 12-hour regimen)  
Acetylcysteine for Adults WEIGHING LESS than 40KGÂ**  
The volume of infusion fluid has been modified to take patient weight into account, as fluid overload is a potential danger  
Each ampoule contains 2g/10ml (200mg per ml)

| 12 hour regimen                          | First infusion  |               | Second infusion   |  |  |               |
|--|---|---------------|---|--|--|---------------|
| Duration of infusion                     | 2 hours   |               | 10 hours  |  |  |               |
| Drug dose                                | 100mg/kgÂ   |               | 200mg/kg  |  |  |               |
| Concentration of infusion                | 50mg/mL<br>(prepare by diluting each 10ml ampoule with 30ml infusion fluid) |               | Prepare as per table below  |  |  |               |
| Patient weight                           | Total infusion volume   | Infusion rate | Acetylcysteine injection solution (mL) to be added to infusion bag<br>(volume of infusion bag in next column) | Infusion volume<br>(remove excess from next bag size up, and then add drug volume as per previous column) - see example belowÂ | Total volume after addition of drug solution | Infusion rate |
| kg                                       | mL  | mL/hour       | mL  | Â  | Â  | mL/hour       |
| 20 to 24                                 | 44  | 22            | 22  | 418  | 440  | 44            |
| 25 to 29                                 | 54  | 27            | 27  | 513  | 540  | 54            |
| 30 to 34                                 | 64  | 32            | 32  | 608  | 640  | 64            |
| 35 to 39                                 | 74  | 37            | 37  | 703  | 740  | 74            |
| 40kg or greater-<br>use table 1<br>above | Â   | Â             | Â   | Â  | Â  | Â             |

**Example:Â patient weighs 37kg**

**First infusion:** administer 74mLÂ of drug infusionÂ (taken from an infusionÂ of 80mL,Â prepared by adding 2x10ml ampoules toÂ 60mLÂ infusion fluid)

**Second infusion:**Â Add 37mL of injection solution 200mg/mL to 703ml infusion fluid (remove 297mL from a 1000mL infusion bag).Â This produces a total of 7.4g in 740mL.Â Infuse at 74mL per hour

**Dose calculations are based on the weight in the middle of each band**

**Â Figures have been rounded up to the nearest whole number**

# Storage

Store below 25<sup>o</sup>C

Storage locations- [see antidote list](#)

Search Synonym: NAC

# References

SPC September 2019

1: Toxbase- accessed 29th Sept 2021

2: Email Communication with Prof L Egan, September 7th, 2023