



Revised OPC IV Acetylcysteine (NAC) Dosing Protocol for Acetaminophen Poisoning

Launch date: April 1, 2026

1-bag method

For institutions with programmable smart pumps (automatic switch from loading to maintenance infusion) and using single admixture preparation

1. Prepare a single admixture at a standard concentration of 30 mg/mL (3%) NAC in dextrose 5% in water, normal saline or ½ normal saline (see next page to be posted on website)
2. In patients > 100 kg, use a maximum weight of 100 kg (220 lbs) for dosing.
3. **Step 1** - Loading dose: 150 mg/kg (5 mL/kg of 3% NAC solution) over 1 hour.
4. **Step 2**- Maintenance dose: 15 mg/kg/hour (0.5 mL/kg/hour of 3% NAC solution) for a minimum of 12 hours, and until “Stopping Criteria are met”.

2-bag method

For institutions using separate admixture for loading dose and maintenance infusion

1. Prepare a single admixture at a standard concentration of 30 mg/mL (3%) NAC in dextrose 5% in water, normal saline or ½ normal saline (see next page to be posted on website)
2. Prepare the following admixture volumes:

Patient weight	Loading dose admixture volume	Maintenance infusion admixture volume
	(150 mg/kg or 5 mL/kg of 3% NAC over 1 hour)	(15 mg/kg/hour or 0.5 mL/kg/hour of 3% NAC minimum of 12 hours)
20 kg or less	100 mL	250 mL
21-40 kg	250 mL	250 mL
41-100 kg	500 mL	1000 mL
101 kg or greater	500 mL	1000 mL

Note: Institutional protocols for admixture volumes based on patient weight may differ. Follow your institution's protocol and guidelines. For patients > ~83 kg, the total NAC volume required over 12 hours exceeds what can be practically prepared in a single 500 mL bag; therefore, a 1000 mL admixture or two consecutive 500 mL bags may be required for the maintenance infusion.

3. In patients > 100 kg, use a maximum weight of 100 kg (220 lbs) for dosing.
4. **Step 1** - Loading dose: 150 mg/kg (5 mL/kg of 3% NAC solution) over 1 hour.
5. Discard remaining fluid in loading dose bag after the infusion is complete.
6. **Step 2**- Maintenance dose: 15 mg/kg/hour (0.5 mL/kg/hour of 3% NAC solution) for a minimum of 12 hours, and until “Stopping Criteria are met”.



Preparation of a 3% IV Acetylcysteine Admixture

As part of the Poison Centre's treatment recommendations for acetaminophen-poisoned patients, a 3% acetylcysteine solution should be prepared.

The following are instructions on how to prepare this solution in D5W, NS or ½ NS.

The following instructions describe how to apply this to both “1-bag” and “2-bag” methods, based on institutional preference.

Admixture volumes:

“1-bag method”: Prepare a single admixture based on patient weight.

Patient weight	Single admixture volume.
20 kg or less	250 mL
21-40 kg	500 mL
41-100 kg	1000 mL
101 kg or greater	1000 mL

“2- bag method”: Prepare separate loading and maintenance infusion bags.

Patient weight	Loading dose admixture volume (150 mg/kg or 5 mL/kg of 3% NAC over 1 hour)	Maintenance infusion admixture volume (15 mg/kg/hour or 0.5 mL/kg/hour of 3% NAC minimum of 12 hours)
20 kg or less	100 mL	250 mL
21-40 kg	250 mL	250 mL
41-100 kg	500 mL	1000 mL
101 kg or greater	500 mL	1000 mL

See next page for admixture preparation instructions.



3% IV NAC admixture preparation instructions (all methods):

100 mL admixture:

- Remove 15 mL from a 100 mL bag of D5W, NS, or 1/2 NS.
- Add 15 mL of 20% IV NAC (200 mg/mL) to the remaining 85 mL
- Calculation: $15 \text{ mL} \times 200 \text{ mg/mL} = 3000 \text{ mg NAC}$
- Final volume 100 mL; concentration $3000 \text{ mg} \div 100 \text{ mL} = 30 \text{ mg/mL (3\%)}$

250 mL admixture:

- Remove 37.5 mL from a 250 mL bag of D5W, NS, or 1/2 NS.
- Add 37.5 mL of 20% IV NAC (200 mg/mL) to the remaining 212.5 mL
- Calculation: $37.5 \text{ mL} \times 200 \text{ mg/mL} = 7,500 \text{ mg NAC}$
- Final volume 250 mL; concentration $7,500 \text{ mg} \div 250 \text{ mL} = 30 \text{ mg/mL (3\%)}$

500 mL admixture:

- Remove 75 mL from a 500 mL bag of D5W, NS, or 1/2 NS.
- Add 75 mL of 20% IV NAC (200 mg/mL) to the remaining 425 mL
- Calculation: $75 \text{ mL} \times 200 \text{ mg/mL} = 15,000 \text{ mg NAC}$
- Final volume 500 mL; concentration $15,000 \text{ mg} \div 500 \text{ mL} = 30 \text{ mg/mL (3\%)}$

1000 mL admixture:

- Remove 150 mL from a 1000 mL bag of D5W, NS, or 1/2 NS.
- Add 150 mL of 20% IV NAC (200 mg/mL) to the remaining 850 mL
- Calculation: $150 \text{ mL} \times 200 \text{ mg/mL} = 30,000 \text{ mg NAC}$
- Final volume 1000 mL; concentration $30,000 \text{ mg} \div 1000 \text{ mL} = 30 \text{ mg/mL (3\%)}$

Notes:

1. 20% IV N-Acetylcysteine is equivalent to 200 mg/mL
2. The 3% solution is slightly hyperosmolar but still safe for peripheral vein administration.
3. Some IV fluid bags may contain slightly more volume than stated; this has **minimal impact**. Use the advertised volume for calculations.
4. Mix thoroughly after preparation to ensure uniform distribution of NAC.
5. Change each bag every 24 hours to guarantee solution stability.