

Sodium phosphate Intravenous infusion for adults

Who can administer

SODIUM phosphate

- May be administered by registered competent doctor or nurse/midwife.

Important information

- There is a separate IV monograph for Potassium phosphate - ensure you have chosen the correct IV guide
- **Suggest: Senior doctor review before administration of intravenous phosphate, as it's use can be dangerous**
 - **Caution:** the response to any given dose cannot be predicted, and IV use can cause hypocalcaemia (tetany), calcium-phosphate precipitation in the kidneys, and fatal arrhythmias ^(ref 1)
- Patients with **HYPOcalcaemia** should have their calcium corrected before replacing phosphate ^(ref 5)
- Patients with **severe HYPERcalcaemia** who require phosphate replacement: seek specialist advice
- **Renal impairment:** Requires dose adjustment- see below
- **Give in a dedicated line** as it may precipitate with other drugs

Available preparations

Phosphate salt	Volume	Phosphate content per vial/ampoule/bag	Sodium content per vial/ampoule/bag	Potassium content per vial/ampoule/bag
Natriumphosphat Braun (sodium phosphate)	20ml	12mmol	20mmol	nil
Phosphate polyfusor pre-mixed bag - very severe hypophosphataemia. Supplied only on request.	500ml	50mmol	81mmol	9.5mmol

Reconstitution

Already in solution

Ampoules should be diluted further prior to administration

Infusion fluids

Sodium chloride 0.9% (preferred)

Glucose 5% may also be used if clinically appropriate

Methods of intravenous administration

Intermittent intravenous infusion (using an electronically controlled infusion device)

- Administer as per guidelines below

Dose in adults

Table 1: Guidance on route given below but clinical judgement is always required^(ref 1)

Route of administration	Phosphate level
Oral/enteral replacement	PREFERRED >0.32mmol/L and asymptomatic or if level >0.48mmol/L and symptomatic
Intravenous route preferred	<0.32mmol/L or <0.48mmol and symptomatic or if unable to tolerate oral supplementation

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Table 2: Dosing strategies: SODIUM PHOSPHATE - via peripheral line^(ref 1,2,3)

<ul style="list-style-type: none">• It is difficult to provide concrete guidelines for the treatment of severe hypophosphataemia as regimens vary greatly across hospitals in the UK and Ireland - we have tried to provide guidelines below but clinical judgment is always required• Use caution when interpreting phosphate levels. Changes in phosphate levels may be transient - treating underlying causes may be sufficient to correct level. Review medications which may contribute e.g. sevelamar, antacids, diuretics^(ref 5)• Caution: the response to any given dose cannot be predicted, and IV use can cause hypocalcaemia (tetany), calcium-phosphate precipitation in the kidneys, and fatal arrhythmias^(ref 1)• Prescribe dose in terms of phosphate dose required and then the phosphate salt required<ul style="list-style-type: none">◦ e.g. '9mmol phosphate as sodium phosphate'• Rate of administration: there are no concrete guidelines so we suggest any dose (up to a max of 50mmol) should be given over at least 6 hours^(ref 2,3)					
Gentle replacement		9mmol over 12 hours, and repeat as necessary ^(ref 2,3)			
More individualised dosing ^(ref 1)	Phosphate level	Phosphate dose	Maximum initial phosphate dose	Rate ^(ref 2,3)	Example: 70kg, normal renal function
	less than 0.32mmol/L	0.4mmol/kg	50mmol	Administer over 12 hours. May be given over 6 hours if deemed clinically appropriate	28mmol (47ml sodium phosphate)
	0.33 to 0.44mmol/L	0.3mmol/kg	30mmol		21mmol (35ml sodium phosphate)
	greater than 0.45mmol/L	0.2mmol/kg	20mmol		14mmol (23ml sodium phosphate)
Critically ill patients		Can give up to 0.5mmol/kg (to a max of 50mmol)			
Infusion volume		Up to 25mmol- add to 250ml infusion fluid Up to 50mmol - add to 500ml infusion fluid			
Renal impairment		Use with great caution, consider specialist advice Generally avoid in severe renal impairment ^(ref 6) Suggest use half the phosphate doses specified above, with careful monitoring ^(ref 4)			
Critical care/Fluid restriction		Higher doses and rates may apply in the Critical Care setting			
Polyfusor		Generally supplied to critical care areas only			
Repeated doses		<ul style="list-style-type: none">• May require repeat infusions over subsequent days• Usual maximum is 50mmol phosphate per 24 hours^(ref 1)			
Switch to oral route		Consider switch to oral route once level >0.48mmol/L			

Monitoring

- Monitor the following electrolytes every 6 to 12 hours: Phosphate, Calcium, Potassium, Sodium, MagnesiumÂ ^(ref 1)Â
- Monitor fluid balance and blood pressure

Storage

- Sodium phosphate is NOT treated as a controlled drug.
- Store below 25°C

References

1. Uptodate. Hypophosphataemia: Evaluation and Treatment March 2024. Accessed online 23/01/2025
2. Martindale- accessed online 23/01/2025
3. BNF- accessed online 23/01/2025
4. UpToDate Sodium Phosphate monograph - accessed March 2025
5. Maidstone and Tunbridge Wells NHS Trust 'Treatment of acute hypophosphataemia in adults. Review date August 2027
6. Local specialist opinion - email on file 25/06/2025

These local guidelines were also consulted in the preparation of guide (to try and create a consensus from different sources)

- Grampian staff guideline for the management of hypophosphataemia in adults July 2024
- Worcestershire acute hospitals NHS Trust 'guideline for the treatment of hypophosphataemia in adults, March 2023
- Liverpool University Hospitals NHS TrustÂ
- UKMI Leeds hospital 'How is acute hypophosphataemia treated in adults
- Adults Therapeutic Handbook (NHS Greater Glasgow and Clyde), May 2023 Management of hypophosphataemia