# Hypertonic sodium chloride (for nebulisation)
(also known as Hypertonic saline)

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| **Form** | Mucoclear® 3% in 4ml solution<br>Nebusal® 7% in 4ml solution | Store below 25°C |
| **Reconstitution** | In solution | |
| **Indication** | Hypertonic sodium chloride is recommended for use in patients with a respiratory condition leading to retained bronchopulmonary secretions and where usual treatment (physiotherapy airway clearance, adequate systemic hydration, carbocisteine where indicated, dornase alpha for CF patients) is not sufficiently effective:<br>**Cystic Fibrosis (CF)**<br>**Bronchiectasis** *(for use prior to airway clearance to increase sputum yield, reduce sputum viscosity and increase ease of expectoration (BTS Bronchiectasis, 2019)*<br>**Complex COPD/Asthma** patients where above standard treatments are ineffective. Evidence of therapeutic value in patients with COPD comparative to CF/Bronchiectasis is currently lacking. Hypertonic saline may cause a reduction in lung function in COPD patients due to bronchoconstriction. Extra care should be taken in these patients | |
| **Mode of Action** | Works to humidify/hydrate airways via osmotic effect, thereby mobilizing secretions in lower respiratory tract of patients with persistent mucus production/sputum plugging | |
| **Contraindication** | Contraindicated if initial test dose not tolerated by patient<br>Should not be used in patients with haemoptysis | |
| **Dosage** | 4ml of hypertonic sodium chloride 3% or 7% (contents of one nebule) to be inhaled twice daily (standard dosing)<br>(Some centres use a 6% solution, not available in CUH, if prescribed please amend) | |
| **Administration** | **Nebulised via Nebulizer** | |
| | Hypertonic sodium chloride solution to be administered via a jet nebulizer i.e. Pari LC/Pari LC Sprint/Sidestream Plus with attached mouthpiece or facemask (mouthpiece preferable for hypertonic sodium chloride) and is driven by a compressor or supply of compressed air/oxygen. See **Policy & Procedure on the Management of Adult Nebulizer Therapy in CUHG** on QPulse for further guidance | |
| **Adverse effects/Warnings** | • Bronchospasm<br>• Temporary irritations (coughing, hoarseness) or reversible constriction of the bronchia may occur<br>• Suitability of the patient for treatment should be assessed using a test dose with lung function monitoring, particularly if the patient displays a tendency to develop dyspnoea or hypersensitivity | |
| **Interactions** | Hypertonic sodium chloride must not be mixed with any other nebulised drugs<br>No known interactions with other medicines<br>Due to its effect of increased bronchopulmonary clearance, it is advised not to inhale hypertonic sodium chloride immediately after other inhaled medications which need to remain in the airways to act (e.g. inhaled corticosteroids, nebulised antibiotics, dornase-alpha) | |
| **Additional Information** | Vials for single use and for inhalation only | |

*This information has been summarised to act as a guide for those administering IV medication. The monograph should be used in conjunction with the drug data sheet and BNF for information on dose, adverse effects, cautions and contra-indications. Further information is available from Pharmacy on 22146 or 22542*

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| | Individuals should be advised to complete Airway Clearance in the following order, if prescribed:<br>– Bronchodilator<br>– Mucoactive treatment i.e. hypertonic sodium chloride<br>– Airway Clearance<br>– Nebulised antibiotic and/or inhaled steroids |
| **References** | Bronchiectasis in Adults \| British Thoracic Society \| Better lung health for all<br><br>Nebulised 7% hypertonic saline improves lung function and quality of life in bronchiectasis<br><br>A randomised double blind 13 week crossover trial of hypertonic saline (HTS) (6%) vs isotonic saline (ITS) (0.9%) in patients with bronchiectasis \| Thorax<br><br>Inhaled hyperosmolar agents for bronchiectasis - PubMed<br><br>Cystic fibrosis: Overview of the treatment of lung disease - UpToDate<br><br>Mucus Clearance and Lung Function in Cystic Fibrosis with Hypertonic Saline |

**Information provided relates to Mucoclear®(PARI) and Nebusal®(Accord)**
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