

MAJOR CONDITIONS DELIVERY GROUP ADVICE ON NEBULISER TREATMENT FOR COPD AND ASTHMA

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1. In general most people are able to use an inhaler device (dry powder or pressured meter dose inhaler) or a pressured meter dose inhaler with a spacer device with adequate technique and good clinical effect. Some people (for example with a stroke, significant physical disability or memory impairment) may require nebuliser therapy as opposed to usual inhaler therapy.
2. There are a very small number of people who would benefit from nebuliser therapy in acute situations but these are rare.
3. **Risks of Nebuliser Use**
Most respiratory interested clinicians are very worried about overuse of nebulisers as there are well documented concerns:
 - Good evidence in the BTS/SIGN Asthma guidance that in all but severe/life threatening asthma (who should be clinically evaluated and often admitted) use of salbutamol pressured meter dose via spacer is equally effective as a nebuliser at a much lower dose of medication¹.
 - Well documented that even people with hospital reviewed nebulisers and reviewed regularly have more exacerbations of COPD (by a factor of two) compared to those with similar severity who don't and the majority of these carefully reviewed nebulisers harbour potential pathogenic bacteria in the machine that increases this risk (cultured in research studies). The risk of infection within the nebuliser is likely to be greater in older, less well maintained nebulisers especially where hygiene has not been taught (though this has not been researched). The patient will be nebulising and inhaling potentially pathogenic bacteria along with their medication²⁻⁵.
 - Many people with severe respiratory disease have or at risk of cardiovascular disease. Higher doses of salbutamol and ipratropium increase the heart rate (and leave people more prone to cardiac arrhythmias). Salbutamol reduces serum potassium levels (nebulised salbutamol is commonly used to treat hyperkalaemia). Hence people using this in or outside a hospital setting should have close supervision and consideration of cardiac monitoring and close hospital supervision and monitoring need to have their cardiac and potential electrolyte imbalances considered and plans put in place to monitor pulse rate and bloods along with safety netting⁶⁻¹¹.
 - There are rare reportings (but not uncommon) of allergic reactions to salbutamol and ipratropium – similarly some people have worsening breathlessness and wheeze with this treatment (though usually identified at time of emergency presentation)^{11,12}.
 - Acute narrow angle glaucoma is a rare but well recognised problem with ipratropium (severe eye pain, reduced vision and often nausea)¹².

- People with asthma who are treated with just short acting beta-agonists have a higher mortality risk (not treating the underlying inflammation which is increasing) hence caution in allowing any persistent treatment of asthma with just bronchodilators.
 - People with severe COPD who are using nebulisers acutely, again may have other conditions worsening their symptoms and the nebuliser will increase their heart rate, lower potassium levels and fail to manage the underlying problem.
4. Clinicians should not initiate nebuliser therapy on the following basis:
- Bought a nebuliser at car boot sale or on line from Amazon or Aldi (prescription drugs need medical evaluation as to their appropriateness).
 - A friend/relative of the patient told them it would be useful.
 - Recommended by GP, nurse, pharmacist, paramedic, emergency hospital doctor or clinician
 - Any clinician who has assessed the patient as suitable for long term nebuliser treatment should document this carefully (frequency of use, monitoring requirement and when the clinician will review). The numbers requiring nebulisers are very low and should probably all remain under specialist care. This should be in writing rather than word of mouth for clarity.
5. Nebuliser initiated as an in patient
- It would be very rare that respiratory specialist colleagues would initiate long term nebuliser therapy whilst an inpatient. In this situation it should be clear about the rationale in the discharge summary and paperwork would be completed, along with teaching the patient and carers on how to use. They will be provided with information on how to use/clean the equipment.
 - Follow up for replacing the loan nebuliser and annual servicing (via Medequip) along with annual consumables (from the hospital) will continue.
 - Directions on use and type of nebuliser suggested for prescription will be clear on the discharge summary and to be prescribed by the GP surgery.
 - If in doubt refer back to the hospital discharge team for further assessment.
 - Patient discharged on a nebuliser will have at least a telephone follow up following discharge. Further follow up recommendations will be clear in hospital correspondence in the longer term and as very few benefit, many of these will require specialist follow up.
6. Temporary nebuliser use for patients discharged to Hospital@Home
- Temporary nebuliser use may be recommended on hospital discharge and followed up by the hospital at home team.
 - The hospital at home team will remove the nebuliser when no longer needed. Prescriptions if required in the community will be communicated on each occasion by the hospital at home team.
 - If it appears that longer treatment may be required, the patient will be referred back to the hospital respiratory team.

7. Referral to specialist for recommendation of nebuliser
Clinicians referring for nebuliser suitability assessment (and recognising inherent risk) should ensure there has

- Had a clinical assessment to exclude other causes of breathlessness and that the diagnosis is right.
- The patient has been assessed for alternative inhalers.

The patient will have three appointments

- A one hour assessment.
- Telephone follow up at week 2.
- 30 minute face to face at week 4.

Assuming eligible the specialist team will

- Complete paperwork/loan agreement.
- Teach patient and family/carers on how to use.
- Provide patient information (leaflet and advice) on how to use clean equipment and possible side effects.
- Write to the primary care team clearly identifying the rationale for benefit and advise on nebuliser prescriptions along with appropriate review.

Conclusion

There are significant risks with nebuliser therapy as well as in a small number of people potential benefits. Nebulisers should be carefully initiated and their long term maintenance and review carefully considered. Our guidance is designed to help clinicians and improve patient safety.

References

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The following will be added as appendices when agreed across the Somerset Foundation Trust footprint (in process at the moment between Musgrove Park and Yeovil Hospital teams)

Appendix 1 – How to use a nebuliser

Appendix 2 – Loan agreement with patient for use of nebuliser

Appendix 3 – The nebuliser trial pathway used in specialist care including protocols