



Acacium Group

**Administration of a Nebuliser
through a Ventilator Circuit**

Procedure Reference | SOP VENT 08

Version | V4.1

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| Procedure Name | Administration of a Nebuliser through a Ventilator Circuit |
| Purpose of Document | To ensure that the correct preparation, procedure & outcome are achieved by implementing a consistent and systematic approach to administration of a Nebuliser through a Ventilator circuit. |
| Target Audience | All Nurses & appropriately trained carers |
| Version | V4.1 |
| Author | Karen Matthew-Shard |
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| Lead Director | Karen Matthew-Shard |
| Review Frequency | 2 yearly or when clinical or operation guidelines change |
| Last Reviewed | July 2024 |
| Next Review Date | July 2026 |
| Equality Impact Assessment (EIA) Form | Acacium Group is committed to Equality, Diversity and Inclusion and in line with our values, we strive to ensure that everyone that is part of the Acacium community is not disadvantaged or discriminated against given their individual need or characteristics. To support this, an Equality Impact Assessment has been undertaken on this policy/procedure. This information is held centrally and can be requested from the Clinical Governance Team. |
| About Acacium Group | Details of all Acacium Group trading companies that this policy applies to are detailed within Appendix A |

| Document History | | | |
|------------------|----------|---|-------------------------|
| Version | Date | Changes made/comments | By whom |
| V1 | Dec 2016 | Implementation of document history page | KNF/VM |
| V1 | Jul 2018 | Review | KMS/VM |
| V1.1 | Feb 2020 | Updated to new Template | CC |
| V2 | Jun 2020 | 2 yearly review | Clinical Advisory Group |
| V2.1 | Oct 2020 | Updated re rebrand | CC |
| V3 | Dec 2022 | Review and update | Clinical Advisory Group |
| V4 | Jan 2024 | Rebrand | Clinical Advisory Group |
| V4.1 | Jul 2024 | Review and update | Clinical Advisory Group |
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1. Introduction

Ventilated children and adults may require medication to be delivered via a nebuliser. Nebulisers work by converting therapeutic solutions into a fine aerosol mist for inhalation into the respiratory system. Nebulisers can be administered through a nebuliser device which uses air, or via an oxygen cylinder. Relatives, parents or carers may wish to be taught the procedure in order to manage the care of their child or close family member, it is not the responsibility of Acacium Group carers to teach or deem family members/carers competent in the administration of nebulisers.

2. Aim

To administer medications via a nebuliser, promoting safety for the client at all times.

3. Nebulised Therapy

The client can be prescribed various medications to be administered via a nebuliser:

- 0.9% Sterile Sodium Chloride (management of secretions)
- Hypertonic Saline 3% - 7% Sodium Chloride Solution (management of secretions in mucous consolidation (e.g. cystic fibrosis))
- Bronchodilators such as Salbutamol/Atrovent (management of wheeze)
- Antibiotics such as Colomycin/Tobrimycin (treatment of long-term chest infection)
- This list is not exhaustive

Please note if administering antibiotics, they have a different nebuliser pot and some may require separate filters and giving sets. This must be risk-assessed, please refer to the care plan and risk assessment.

4. Equipment

- The chamber (also called the 'pot' or 'acorn')
- A T-Piece connector
- Tubing to connect the compressor and the chamber.
- Drug to be nebulised.
- Gloves and appropriate PPE as per current guidelines
- The compressor, nebuliser machine or oxygen to deliver the drug.
- MAR sheet and care plan.

Staff to be aware that the chamber comes in three parts:

- The base of the chamber has a gas inlet. This is the part of the chamber that the solution should be put into and to the bottom of which the tubing is attached.
- Over the gas inlet, there is a detachable piece of plastic (the dispersal component). Without it the nebuliser would not work properly.
- The top of the chamber is designed to screw back onto the base. It is also designed to accept either a mask or a mouthpiece for administration of the nebuliser.

5. Procedure

Administration of a Nebuliser through a Ventilator Circuit

| Action | Rationale |
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| 1. | Check MAR chart for the information of what should be administered at this time (and not a CO2 retainer) Check medication and expiry date. | To ensure safe administration. |
| 2. | Check care plan for client specific instructions | To confirm process of delivery of nebuliser. To establish if observations need to be monitored for example if the client has respiratory illnesses which may lead to CO2 retention. |
| 3. | Explain procedure to the client and any parents/guardian and gain Consent | To gain understanding of the procedure and obtain valid consent. |
| 4. | Assist the client into a comfortable position, preferably sitting upright, and advise to take normal steady breaths (tidal breathing). | |
| 5. | Wash and dry hands and put on appropriate PPE. | |
| 6. | Place medication into nebuliser chamber. | |
| 7. | Connect one end of the tubing to the gas delivery system and the other end to the nebuliser chamber. | |
| 8. | Place the nebuliser and T piece in the ventilator circuit as per care plan. NB: If on dry circuit remember to remove the HME. | NB: Nebuliser chambers must never be connected directly to a tracheostomy, always use the T piece. To prevent the Heat Moisture Exchange (HME) from becoming saturated with moisture which would hinder ventilation and the administration of the nebuliser. |
| 9. | If the ventilator has a nebuliser feature please activate this when the procedure has started. If the ventilator does not have that facility and alarms during treatment please escalate this to the appropriate clinical lead for the care package | |
| 10. | Switch compressor on or compressed air flow to 6 – 8 litres. Unless care plans state otherwise. | Only when prescribed. To ensure an adequate flow to administer the nebuliser. |
| 11. | Observe the client during the procedure for any change in condition. | To administer drug and to detect any problems. To prevent the nebuliser pot pulling on the client's tracheostomy. |
| 12. | Keep the nebuliser chamber upright. | |
| 13. | Switch off the compressor or flow meter. | |
| 14. | Ensure that the nebuliser t-piece and chamber are rinsed with water, between doses, when administering more than one type of medication via the nebuliser | |

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| 15. | <p>Nebuliser pots need cleaning and air dried daily as per care plan.</p> <p>Reconnect to the compressor and, if there is condensation present in the tubing, switch on and allow air to blow through the tubing.</p> | To prevent infection |
| 16. | When the compressor unit is switched off, wipe it with a slightly damp cloth and store it away. The compressor should not be stored on the floor or near water hazards. Compressors must be serviced annually. If cylinder oxygen is used, ensure the cylinder is turned off properly after use to prevent leakage. | |
| 17. | When finished with the nebuliser then remove PPE and wash hands. | |
| 18. | Sign the MAR chart and complete any paperwork such as suctioning chart and daily logs to accurately reflect the care given or any advice sought. | |

Administration of a Nebuliser via Aerogen

| | Action | Rationale |
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| 1. | Check MAR chart for the information of what should be administered at this time (and not a CO2 retainer) Check medication and expiry date. | To ensure safe administration. |
| 2. | Check care plan for client specific instructions | <p>To confirm process of delivery of nebuliser.</p> <p>To establish if observations need to be monitored for example if the client has respiratory illnesses which may lead to CO2 retention.</p> |
| 3. | Explain procedure to the client and any parents/guardian and gain Consent | To gain understanding of the procedure and obtain valid consent. |
| 4. | Assist the client into a comfortable position, preferably sitting upright, and advise to take normal steady breaths (tidal breathing). | Follow client care plan to ensure client is in the optimal position for administration of nebuliser |
| 5. | Wash and dry hands and put on appropriate PPE. | To reduce risk of infection. |
| 6. | Place medication into nebuliser chamber. | Follow MAR chart and medication management policies. To ensure correct drug is being administrated |
| 7. | Connect Aerogen to T piece. on dry side of Humidifier OR T piece on ventilator tubing | See client care plan for correct location of T piece in ventilator system. |
| 8. | <p>Press the on/off button on the Aerogen Controller for 1 second to select 30 minute mode.</p> <p>For continuous mode with the Aerogen Pro-X Controller, press and hold the on/off button for 3 seconds from the off position.</p> | To ensure the correct delivery of medication over a set time. Please refer to client care plan for correct time |

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| | For 6 hour mode with the AerogenUSB Controller press and hold the on/off button for 3 seconds from the off position. | |
| 9. | Observe the client during the procedure for any change in condition. | To administer drug and to detect any problems. To prevent the nebuliser pot pulling on the client's tracheostomy. |
| 10. | Keep the nebuliser chamber upright. | To ensure correct administration of nebuliser |
| 11. | Once nebuliser is finished Ensure that the nebuliser t-piece and chamber are rinsed with water, between doses, when administering more than one type of medication via the nebuliser | |
| 12. | Nebuliser pots need cleaning and air dried daily as per care plan Reconnect to the compressor and, if there is condensation present in the tubing, switch on and allow air to blow through the tubing. | To prevent infection |
| 13. | When finished with the nebuliser then remove PPE and wash hands. | |
| 14. | Sign the MAR chart and complete any paperwork such as suctioning chart and daily logs to accurately reflect the care given or any advice sought. | |

6. Associated Policies / SOPs

Policies

CLIN 02 Assisted Ventilation Policy
 CLIN 03 Medicines Management Policy
 CLIN 06 Consent Policy
 CLIN 12 Safe Use of Medical Devices Policy

SOPs

SOP VENT 01 Tracheostomy Dressing Change (Adult & Child)
 SOP VENT 02 Tracheostomy Care General Guidelines
 SOP VENT 03 Humidification of a Client's Tracheostomy
 SOP VENT 04 Tracheal Suctioning (Adult & Child)
 SOP VENT 05 Tracheostomy Tube Care (Adult)
 SOP VENT 06 Tracheostomy Tube Change (Adult)
 SOP VENT 07 Tracheostomy Tube Change (Child)
 SOP VENT 09 Assembling a Ventilator Circuit
 SOP VENT 10 Cleaning the Ventilator Equipment
 SOP VENT 11 Safe Management of a Ventilated Service User During Outings
 SOP VENT 12 Safe Management of a Ventilated Service User During Power Cuts
 SOP VENT 13 Safe use of Battery Packs
 SOP VENT 14 Assisted Airway Maintenance and Cough (Adult)
 SOP VENT 15 BiPAP
 SOP VENT 16 Oral and Nasal Suctioning
 SOP VENT 18 CPAP

SOP VENT 19 Mechanical Cough Assist
SOP VENT 20 Changing Tracheostomy Cotton Ties (Child)
SOP VENT 21 Changing Tracheostomy Velcro Tapes (Child)
SOP VENT 22 Phrenic Nerve Pacing
SOP VENT 23 Laryngectomy Care General Guidelines
SOP VENT 24 Emergency Tracheostomy Tube Change (Adult)
SOP VENT 25 Emergency Tracheostomy Tube Change (Child)
SOP VENT 26 Nasopharyngeal Airway Management (Adult & Child)
SOP VENT 27 Nebuliser Therapy

7. References

- DoH Consent
- NMC Code of Conduct & Consent
- Respiratory Care - How Should Aerosols Be Delivered During Invasive Mechanical Ventilation Oct 2017

Appendix A: About Acacium Group

Acacium Group consists of a number of trading companies, each providing services within core niche areas of the health and social care industries. Therefore, as this document is a Group Policy, the Policy herein applies to all trading companies detailed below:

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|  Part of Acacium Group |  Part of Acacium Group |
|  Part of Acacium Group |  Part of Acacium Group |

Appendix B Nebuliser



Appendix C Nebuliser - Aerogen



Appendix D Nebuliser via facemask

