DERBYSHIRE JOINT AREA PRESCRIBING COMMITTEE (JAPC)

Derbyshire Nebuliser Guidelines for COPD patients
Assessment and initiation

For patients with chronic respiratory conditions including COPD but excluding asthma

- All **routine** requests for a nebuliser should be sent to the relevant community respiratory team
- Patients purchasing their own nebulisers are responsible for provision of disposables required for that device and arranging the servicing as per manufacturers guidance
- All palliative care requests for nebulisers to treat patients without COPD/Asthma should be dealt with by the community clinician involved in their end of life care (i.e. District nurse, Macmillan nurse)
- Existing COPD patients using nebulisers that have never undergone a formal assessment can be referred into this service if there is doubt about clinical appropriateness.
- COPD patients not benefiting from nebuliser treatment over the long term can be re-referred into the service for assessment

Please note that these guidelines are available on:
http://www.derbyshiremedicinesmanagement.nhs.uk/clinical-guidelines/chapter_3/

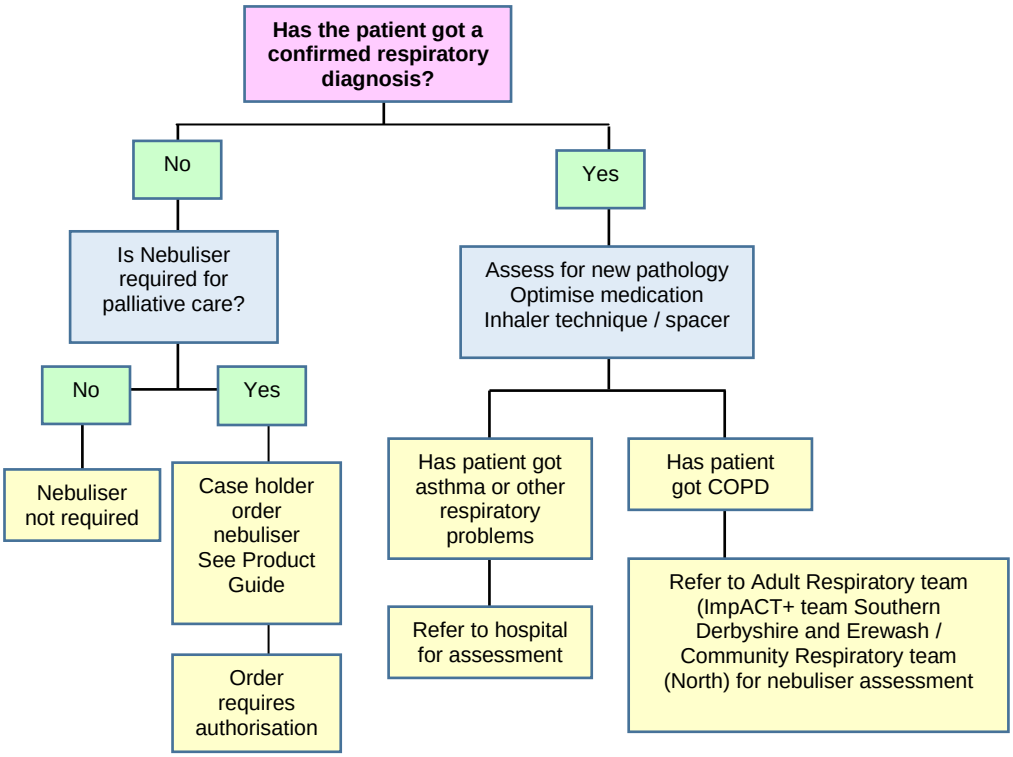
Date Produced:	June 2009
Original Authors:	Vanessa Vale, Jenny Russell, Jean Sugden
Updated:	January 2020
Next review date:	December 2022
Revised by:	Marion Gibson and Heather Stroud
Prepared for:	Derby City and Derbyshire Community Health Services

CONTENTS

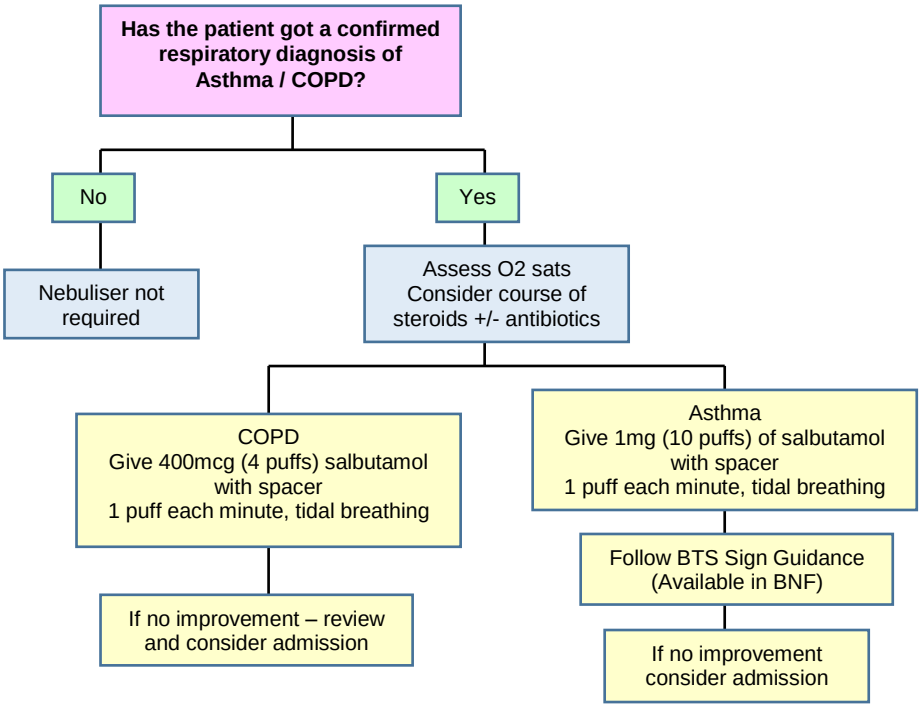
1) Nebuliser Pathway and Guide to Product Selection

This is a guide and should be used in conjunction with clinical judgement

1.1 Ordering a nebuliser for long-term use



1.2 Considering Nebulisers for Acute Use



2) Summary

2.1 Introduction

Nebulisers are considered for patients when large doses of inhaled drugs are needed to gain an improvement in symptoms, or when the patients are too ill or otherwise unable to use hand held inhalers. Nebuliser therapy delivers a therapeutic dose of a desired drug in the form of respirable particles which are delivered within a fairly short period of time, 5 - 10 minutes [British Thoracic Society, Nebuliser Treatment Best Practice Guideline 1997]. Nebulised medication is delivered at a high dose which increases the risks of side effects and is also costly. Prior to commencing regular nebulised therapy it is recommended that all patients should be assessed by a trained respiratory clinician, to ensure that nebulisers are used appropriately and that the addition of the therapy gives clear benefits to the patient [NICE NG115 2019].

The full NICE guidance (p94) states that there is little benefit in using doses of salbutamol above 1mg in COPD. This can be delivered using either a handheld inhaler or a nebuliser. Deposition of the medication depends on the particle size of the medication and the effectiveness with which the device is used. In patients experiencing a mild exacerbation of COPD, treatment with a hand held inhaler should be sufficient, using 200-400mcg salbutamol 4-6 hourly, and delivered one dose at a time, thirty seconds / a minute apart. A metered dose Inhaler (MDI) and Volumatic spacer may be the most helpful device, as little effort or coordination is required.

Some patients may benefit from using nebulised bronchodilators routinely. These patients must have demonstrated proven benefit, following a nebuliser trial. Consider patients who are unable to use a handheld device, patients reaching end stage COPD, and those who exacerbate frequently. For patients in this category Salbutamol 2.5mg is the preferred nebulised dose (NICE) as no further benefit has been demonstrated when an increased dose is used. In routine situations it is preferable to continue using Tiotropium through the hand held device rather than transferring to Ipratropium nebules. However when Ipratopium is preferred, care should be taken to ensure inhaled Tiotropium is stopped during the period of therapy.

Respiratory Teams

Community Specialist Respiratory Team, work in North Derbyshire
Base – Welbeck Suite, Walton Hospital, Whitecotes Lane, Walton, Chesterfield, S40 3HW
Tel - 01246 253067

The ImpACT+ team, work in Southern Derbyshire and Erewash
Base – London Road Community Hospital, London Road, Derby, DE1 2QY
Tel – 01332 788225

2.2 Purpose

The purpose of these guidelines is to provide staff who administers nebulised therapy with a standardised framework of when to use nebulisers and how they can be obtained.

2.3 Responsibility and Accountability

It is the responsibility of all Health Care Professionals who administer nebulised therapy to be aware of and adhere to these guidelines.

2.4 Patients Covered

These guidelines are applicable to all patients with confirmed Chronic Obstructive Pulmonary Disease, **(excluding asthma)**, who are treated as inpatients, outpatients and within their own homes.

2.5 Colomycin

Patients requiring a nebuliser for Colomycin therapy should all be referred to secondary care

All patients thought to require a nebuliser for long term management of their Asthma should be referred directly to secondary care for assessment.

3) Nebuliser Referrals

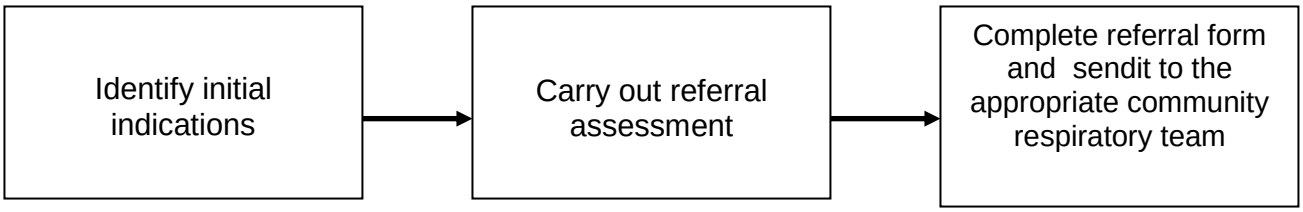
Referrals for nebuliser assessments have been separated into three categories: Routine, Palliative Care, and Urgent situations.

3.1 Routine referrals

All **routine** requests for a nebuliser should be sent to the relevant community respiratory team. This will ensure that all assessments for nebulised therapy and ordering of equipment are carried out by an appropriate respiratory clinician.

It is necessary for **ALL** referrers to identify initial indications and carry out an assessment prior to referral to ensure that it is appropriate.

Routine Referral Process



STEP ONE - Initial Indications

Patients should be identified from the following indications **BEFORE** being referred for an assessment:

1. Experiencing persistent symptoms despite optimised bronchodilator therapy
2. Frequent exacerbations
3. Inability to use inhalers

STEP TWO - Referral Assessment

Carry out the following assessment **BEFORE** referring patients for a nebuliser assessment:

1. Confirm COPD diagnosis
2. Carry out treatment review - see Derbyshire COPD guidelines
3. Confirm patient has optimal therapy with hand held inhalers and check they are used correctly with good technique
4. Confirm that the patient, or carer, has a good level of understanding and dexterity required to take part in a nebuliser trial

STEP THREE - Referral to Community Respiratory Team

1. Complete a referral form to the relevant service, including as much information as possible
2. Email referral to dhft.ImpACT-plus@nhs.net:
   North Derbyshire (Derbyshire Community Health Services)
   Tel 01246 253070 / 253067 Email referral to DCHST.Respiratory@nhs.net
3. The community team will arrange to see the patient within four weeks

Referrals for nebulisers are accepted from:

1. Primary Care

GPs and Practice nurses or any other Health Care Professional

2. Secondary Care

If a patient is admitted to hospital and given nebulised therapy, the treatment should be changed back to hand held inhaler devices and the patient observed for 24 hours before discharge from hospital. [British Thoracic Society, Nebuliser Treatment Best Practice Guideline, 1997]. The patient understands of their inhalers and their technique should be checked prior to discharge.

If a patient requires a nebuliser to assist discharge from hospital, it is the responsibility of the ward staff / secondary care clinician to carry out a formal assessment and issue a nebuliser accordingly. The ward staff must ensure that patient and carers are given instructions on using and cleaning the nebuliser prior to discharge.

All COPD patients discharged home with a nebuliser should be referred by the hospital to the relevant respiratory community team and they will be reviewed within one month of the referral.

3. Community Hospitals

Ideally patients previously managed with a nebuliser should be weaned back onto hand held devices prior to discharge. **If this is unsuccessful or inappropriate then a referral should be emailed to the appropriate respiratory team 2 weeks prior to discharge so an assessment can be arranged.**

3.2 PALLIATIVE CARE REFERRALS

All **palliative care** requests for nebulisers to treat patients **without COPD/Asthma** should be dealt with by the community clinician involved in their end of life care (i.e. District nurse, Macmillan nurse) that have a PIN number for Medequip orders. They do not need to be referred to specialist respiratory services.

Nebulisers for palliative care should be ordered using the equipment provider's website (currently Medequip). The equipment is listed under Respiratory items. During the ordering process, the site will ask for authorisation. A list of the nominated network leads allocated by each service will be offered and one should be selected, and then contacted to ensure they are aware of the order. The process is the same as when ordering any other items that require authorisation.

Prior to authorisation the answer to these questions will be checked by the network lead:

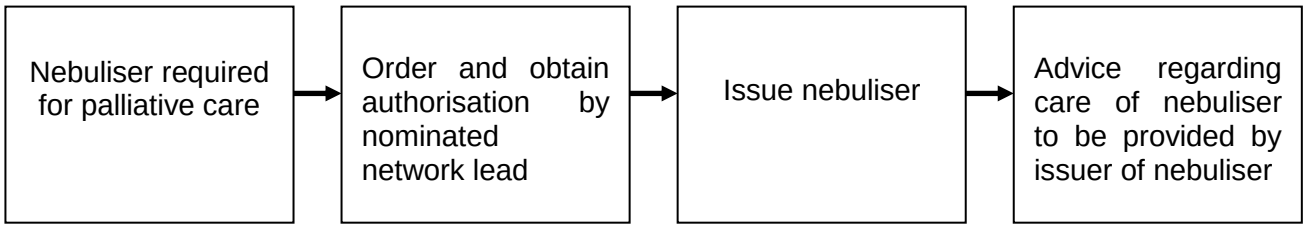
- Does the patient have a confirmed diagnosis of COPD or asthma?
- Is the nebuliser being used to deliver bronchodilators, ie salbutamol, Ipratropium.

If the answer to the above questions is yes - contact the relevant community respiratory team for further advice if needed.

If the answers to the above questions is no – Authorisation should go ahead.

After authorisation to order the equipment and the patient being issued with a nebuliser, it is the responsibility of the community clinician to provide a follow up and on-going care of patients.

Palliative Care Referral Process

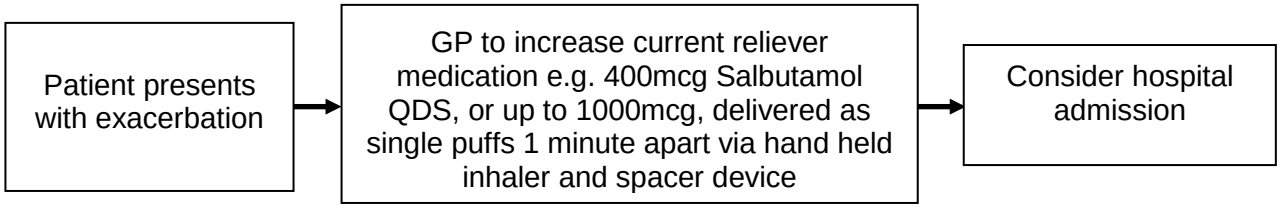


3.3 URGENT SITUATIONS

Patients who are acutely unwell, and who present at their surgery or walk in centre should be assessed and treated appropriately by the clinician at that time. If a nebuliser is used it is the responsibility of the clinician to ensure equipment has been serviced and cleaned appropriately.
In most cases, a nebuliser is not required. Increasing the dose of the patient's Salbutamol to 400mcg - 1mg, given one dose at a time at 1 minute intervals and repeated at 4 -6 hourly intervals, will provide sufficient symptom relief during their exacerbation (p98, NICE full guideline). It is important that their inhaler technique is checked and if patients have poor inspiratory effort and struggle using a dry powder device, consider transferring to a large volume spacer device (Volumatic) and MDI. This offers minimal resistance and co-ordination and tidal breathing can be used, thus increasing deposition of the bronchodilator. Patients requiring nebulisation should be referred on to the hospital for assessment.

In patients who do not respond to this, consider hospital admission.

Urgent Referrals Process



4. Provision of Equipment for Care Homes

Provision of equipment to Care Homes should be based on an assessment of need with the assessor. Assessment should be undertaken by a relevant professional and all staff assessing for equipment must be competent and confident, having received appropriate training.

CARE HOME REFERRALS

Care homes without qualified nursing staff
All patients in care [residential] homes without qualified nursing staff should be referred for a formal assessment via the relevant community respiratory team using the appropriate referral form.

Once a formal assessment has been undertaken the respiratory clinician will determine the best treatment and follow up the patient within an agreed timescale.

When a nebuliser has been provided to the care home and is no longer required by the person being cared for, it is the responsibility of the care home to notify the supplier immediately so that arrangements can be made to return the equipment.

Care homes with qualified nursing staff
All patients who meet the referral criteria for a nebuliser should be referred for assessment to the appropriate community respiratory team. **If a nebuliser is required it is the responsibility of the care home to purchase and service the equipment**.

Community matrons
Community matrons can now access their own nebulisers for appropriate patients on their caseloads. The nebuliser assessment guidelines should be followed. If any guidance or additional respiratory assessment is required, please refer to the community respiratory team.

5. Nebuliser Assessments

It is recommended that a formal nebuliser assessment be conducted for all patients prior to commencing routine high dose bronchodilators via the nebuliser. This will ensure that objective evidence is gained and can confirm definite improvements as a result of the treatment.

The NICE COPD Guidelines [2018] state that nebuliser therapy should not be prescribed or continue to be prescribed without assessing and confirming that one or more of the following occurs:
- A reduction in symptoms
- An increase in the ability to undertake activities of daily living and exercise capacity
- An improvement in lung function

It also states that if therapy is prescribed, the patient should be provided with equipment, servicing, advice and support.

Continued Care of the nebulisers

It is the responsibility of the nebuliser prescribing clinician to ensure the patient/carer is educated in how to use the nebulisers, in regard to administering the medication, cleaning, and changing the filters. Each nebuliser has slight variations so it is important to check the manufacturers leaflet.

The equipment services, currently Medequip, are responsible for servicing the nebulisers annually and supplying a further year of consumables. They also provide urgent care should a nebuliser suddenly stop working.
Patients requiring replacement consumables should contact the clinician who placed initial order for further supplies. Medequip will not accept direct requests from patients for consumables at present.

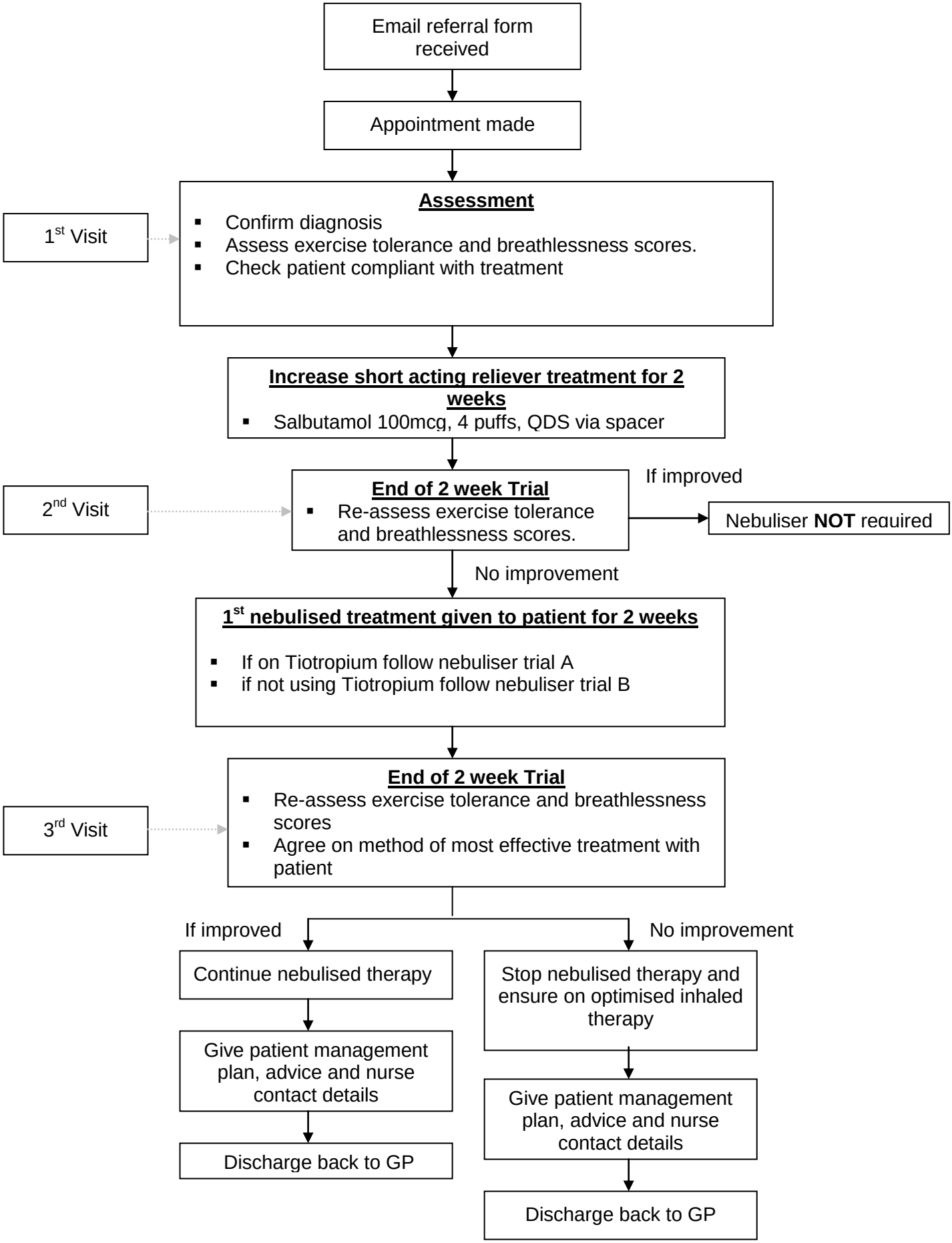
Factors to consider

If patient using Ipratropium bromide nebules, a mouth piece should be ordered to reduce risk of glaucoma. If unable to use mouthpiece instruct patient to wear eye protection if possible i.e. glasses.

There is no provision for portable nebulisers for holidays. Patients wishing access to this equipment should be advised they will need to purchase this themselves.

Patients purchasing their own nebulisers are responsible for provision of disposables required for that device and arranging the servicing as per manufacturers guidance.

6. NEBULISER ASSESSMENT PROCESS BY SPECIALIST TEAM



7. Nebuliser trial forms

Nebuliser Trial A - with Long Acting Muscarinic Antagonist (LAMA) prescribed i.e. Tiotropium

Patient Name:	Date of Birth: / /
NHS No:	Date:

YOUR TRIAL WILL LAST FOUR WEEKS

STEP ONE – week 1 and 2	
Medicine	**Dose**
Salbutamol 100mcg INHALER	4 PUFFS 4 times a day with SPACER DEVICE

ANSWER THE FOLLOWING QUESTIONS AT THE END OF WEEK 2

QUESTION	Y or N	COMMENTS
Has the treatment made a difference?		
Is your breathing easier in any way?		
Can you do some things that you couldn't do before?		
Can you do the same things but faster?		
Are you less breathless when you do things that you did before?		
Has your sleep improved?		

[Fill in MRC and Oxygen Cost Diagram]

STEP TWO – week 3 and 4	
Medicine	**Dose**
Salbutamol 2.5mg NEBULISER SOLUTION	1 Nebule 4 times a day in NEBULISER

ANSWER THE FOLLOWING QUESTIONS AT THE END OF WEEK 4

QUESTION	Y or N	COMMENTS
Has the treatment made a difference?		
Is your breathing easier in any way?		
Can you do some things that you couldn't do before?		
Can you do the same things but faster?		
Are you less breathless when you do things that you did before?		
Has your sleep improved?		

[Fill in MRC and Oxygen Cost Diagram]

Nebuliser Trial B - (without LAMA)

Patient Name:	Date of Birth: / /
NHS No:	Date:

YOUR TRIAL WILL LAST FOUR WEEKS

STEP ONE – week 1 and 2	
Medicine	**Dose**
Salbutamol 100mcg INHALER	4 PUFFS 4 times a day with SPACER DEVICE
Ipratropium 20mcg INHALER	4 PUFFS 4 times a day with Spacer Device

ANSWER THE FOLLOWING QUESTIONS AT THE END OF WEEK 2

QUESTION	Y / N	COMMENTS
Has the treatment made a difference?		
Is your breathing easier in any way?		
Can you do some things that you couldn't do before?		
Can you do the same things but faster?		
Are you less breathless when you do things that you did before?		
Has your sleep improved?		

[Fill in MRC and Oxygen Cost Diagram]

STEP TWO – week 3 and 4	
Medicine	**Dose**
Salbutamol 2.5mg [Nebuliser Solution]	1 NEBULE 4 times a day in NEBULISER
Ipratropium 500mcg [Nebuliser Solution]	1 NEBULE 4 times a day in NEBULISER

FILL THE FOLLOWING QUESTIONS AT THE END OF WEEK 4

QUESTION	Y / N	COMMENTS
Has the treatment made a difference?		
Is your breathing easier in any way?		
Can you do some things that you couldn't do before?		
Can you do the same things but faster?		
Are you less breathless when you do things that you did before?		
Has your sleep improved?		

[Fill in MRC and Oxygen Cost Diagram]

8. Referral forms

IMPACT+ REFERRAL FORM

Please return all forms to dhft.impact-plus@nhs.net

For referrals to pulmonary rehab (please complete the referral form and refer through e-Referral)

For referrals to secondary care referral (please refer through e-Referral)

For acute exacerbation management please ring the lung line on 01332 788225 (option1)

PATIENT DETAILS			
NHS Number:		Patient consents to TPP record sharing?	Yes ☐ No☐
Patient Name:		Potential safety risks:	
DOB:		Can patient attend clinic?	Yes ☐ No☐
Telephone No:		GP name:	
Address:		GP details:	

MEDICAL HISTORY	
Diagnosis:	
Reason for referral:	
Relevant Past Medical History:	

REASON FOR REFERRAL (tick all that apply)	
Post Hospital Discharge Support	☐
New Diagnosis (education, support and care planning)	☐
Management of On-going Symptoms /Treatment Plan (Nurse referral)	☐
Management of On-going Symptoms /Treatment Plan (Physio referral)	☐
Management of On-going Symptoms /Treatment Plan (OT referral)	☐
Home Oxygen Assessment **(needs 3 serial Sp02 on air % % %)** **Patient needs to be recorded as <92% on 3 separate occasions**	☐
Respiratory Palliative Clinic / End of Life Support / FAB group	☐
Frequent Exacerbations (3 or more exacerbations in last 12 months despite optimal treatment)	☐

REFERRER DETAILS		
Referring Clinician:		
Designation:		
Contact Details:	Phone Number	Email Address:
Date of Referral:		

University Hospitals of Derby and Burton NHS Foundation Trust
ImpACT+ (Improving Adult Respiratory Care Together)
London Road Community Hospital, London Road, Derby, DE1 2QY
Telephone: 01332 788225 dhft.impact-plus@nhs.net

Derbyshire Community Health Services NHS
NHS Foundation Trust

DCHS Community Respiratory Service Referral form

<table>
<tr><td colspan="2">Name:

DOB:</td><td>Address:

Post Code:</td><td>NHS Number:

Telephone number:</td></tr>
<tr><td>Reason for referral;</td><td>Risk Factors in home environment:</td><td>State Respiratory Diagnosis:

……

Has the patient consented to records being shared with ourselves

Yes/No</td><td>SPIROMETRY:
Please note we cannot accept referrals for COPD patients without evidence either from an attached Spirometry trace, CT scan report or correspondence from Respiratory Physician

Pulse Oximetry %
LTOT YES/NO
Flow rate L/per min
AO
Flow rate L/per min</td></tr>
<tr><td colspan="3">Referrers signature:
Print Name:
Designation:
Contact details:
Date:</td><td>GP Practice details</td></tr>
</table>

PLEASE ATTACH GP SUMMARY INCLUDING MEDICATION HISTORY

Form can be sent by Email: DCHST.Respiratory@nhs.net

By Post: Community Respiratory Team, Welbeck Suite, Walton Hospital, Whitecotes Lane, Walton, Chesterfield, S40 3HW. Tel No: 01246 253067

Referral Criteria

- Confirmed chronic respiratory disease is the primary diagnosis (COPD/Non CF Bronchiectasis/ILD)
- On Optimum drug therapy
- Complex chronic respiratory patients requiring case management
- Management advice and optimisation of patient's therapies and quality of life
- Support and education for patients and carers
- Specialist respiratory Physiotherapy not effectively managed by Community physiotherapy Teams.
- Patients with neuro-muscular problems are reviewed only by the specialist physiotherapists if the patients also have a respiratory condition.

Exclusion Criteria

- Referrals for home oxygen service please refer in the first instance to the home oxygen service directly
- Referrals for nebulised antibiotic therapy-these patients are initiated on therapy and managed by secondary care
- Acute Asthma
- Tuberculosis
- Pneumonia
- Lung Cancer
- Sarcoidosis

What is a nebuliser?
A nebuliser is a device which converts a drug solution into a continuous fine aerosol mist which can be inhaled directly into your lungs via a mask or a mouthpiece.

Why are nebulisers used?
1. A nebuliser is used to give a large dose of a drug simply and effectively.
2. To administer a drug to a patient who is too ill or too breathless to use an inhaler.
3. To administer drugs to the lungs that are not available in inhalers.

Who needs a nebuliser?
1. Someone who needs emergency treatment for asthma or COPD. (chronic obstructive pulmonary disease.)
2. Someone who needs long term treatment for COPD.
3. Some asthmatics for ongoing treatment.
4. Patients who have cystic fibrosis, bronchiectasis or HIV for antibiotic treatment.
5. Some people who have lung cancer use nebulised medication to relieve symptoms.

Does everyone with breathing problems need to use a nebuliser?
No. Most asthmatics and people with COPD can be well controlled using inhalers. Research shows that inhalers are as good as nebulisers and more convenient, particularly a metered dose inhaler and spacer device.

How often is it necessary to use a nebuliser?
If the medical condition is stable, a nebuliser can be used up to 4 times daily. In some circumstances it can be used more frequently following consultation with a Doctor or Nurse.

Does the compressor need to be replaced?
No, not unless it breaks down. However, it will need servicing annually and the service provider will do this, if they supplied the compressor. If you have bought the nebuliser yourself then you will need to take out a service contract with the manufacturer.

Why is it important to have the compressor serviced regularly?
Your compressor needs to run at a rate of 6 litres of air per minute to produce the right size droplets required to reach the base of your lungs. Larger droplets will stay in the back of the throat and very small droplets are breathed out. The compressor also has filters, which need changing.

How often do the nebuliser and masks/mouthpieces need replacing?
A nebuliser mask/mouthpiece is designed to be used by only you and should be changed as advised. Please check manufacturer's guidance on when to change these. Some nebuliser masks/mouthpieces are more durable and last up to one year **(pale blue)**.

How often should a nebuliser be cleaned?
At home, nebulisers and masks/mouthpieces should be washed in warm soapy water after each use or at least once a day. They should be rinsed and dried. 10 seconds of air must be blown through the system before further use. The tubing should be kept dry. **DO NOT IMMERSE THE TUBING IN WATER**. A moist environment will encourage the growth of bacteria which can cause chest infections.

Pale blue nebuliser pots (NOT SUPPLIED in Derby City) should be boiled in a pan of water for 10 minutes once a week with a small drop of washing up liquid. Filters should be changed when they become discoloured or according to the manufacturers instructions. (you should obtain replacements by telephoning the equipment service provider).

How do you know if you need a nebuliser?
If you have a hospital consultant he/she will discuss your requirements with you. Or your GP might suggest it. Ideally you should have a trial period to see if it gives you any benefit. Recent research has shown that a metered dose inhaler and a spacer device can be as effective as a nebuliser with none of the inconvenience.

How long does it take to nebulise medication?
For normal use it should take no longer than 10 minutes. However, thicker medication such as antibiotics may take longer.

Does all the liquid in the nebuliser get used up?
There is usually a small amount left in the chamber at the end of use. You should use the nebuliser until it starts to splutter then tap the chamber and continue for another minute.

Is a mask or mouthpiece better?
Bronchodilator response is the same for both. However, a mask should be tight fitting and you need to breathe through your mouth and wash your face following nebulisation. If using ipratropium or steroids, a mouthpiece should be used as there is a possibility of glaucoma or cataracts**.**

Is there a special way to breathe?
No, just breathe in and out normally.

Your nebulised medication is:

1. ……..……Dose……

   Frequency……

2. ……..……Dose……..

   Frequency……

3. ……..……Dose……..

   Frequency……

4. ……..……Dose……..……..

   Frequency……

Do not fill the nebuliser until you are ready to use it.

Nebuliser problems
If your nebuliser takes much longer than normal ie longer than ten minutes to run or it bubbles with no mist, repeat the cleaning process. If it still does not work, replace the nebuliser chamber. If your compressor breaks down, you should use your inhaler and spacer device until you can get help.

In case of breakdown contact:
Medequip on (01773) 604426 (24 hours)

If there is a power cut or the nebuliser has broken until repair use your short-acting reliever

……

……..

4 puffs through a spacer device.

Patient Information Leaflet

Nebulisers

What you need to know

Produced on behalf of Derbyshire Respiratory Services