British Thoracic Society Bronchiectasis Audit 2010

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Thank you to everyone who participated in the first BTS secondary care audit of non-cystic fibrosis bronchiectasis. The audit captured data from the period of 1 Oct 2010 till 30 Nov 2010. The audit was carried out following the publication of the BTS guidelines on non cystic fibrosis bronchiectasis.[1] Standards for the audit were drawn from the BTS Guideline for non-CF Bronchiectasis and is available from: http://www.brit-thoracic.org.uk/guidelines.aspx. We present the gold standards and the results from the National Audit.

Patient profile

There were 1,501 records throughout the UK. 60% of those included were female with a mean (SD) age of 66 ± 15 years. From the sputum microbiology in the preceding year, *Pseudomonas aeruginosa* was isolated in 21%, of which 28% were resistant to ciprofloaxacin and 14% to gentamicin. In the last year the mean (SD) number of exacerbations was 2.6 (2.5).

Standard 1

90% of patients diagnosed with bronchiectasis should have had the diagnosis confirmed with a chest CT.

In this audit, 93% were diagnosed with a CT of the chest, 1% by bronchogram, 3% had a clinical diagnosis only and 3% there was no data.

The first standard was met.

Standard 2

90% of patients diagnosed with bronchiectasis should see a chest physiotherapist.

In this audit, 65% of patients had seen a chest physiotherapist, 23% had not and in 12% there was no data. (Figure 1)

The second standard was *not* met which is in keeping with clinical experience that not all patients with bronchiectasis have seen a chest physiotherapist to be taught chest clearance techniques.

Standard 3

All patients being seen should have a record of cough, sputum purulence, estimated or measured 24 hour sputum volume and breathlessness when clinically stable.

In this audit, 70% had a record of cough, 68% of sputum colour, 49% of 24 sputum volume and 55% of breathlessness.

The third standard was not met. These questions are designed to allow a consistent assessment to help the ongoing management of such patients.

Standard 4

All patients diagnosed with bronchiectasis should have their immunoglobulins and protein electrophoresis checked along with Immunoglobulin E (IgE) and IgE to aspergillus or skin prick testing to aspergillus and for those aged <40 years old tests to exclude cystic fibrosis (CF).

In this audit, 77% had their immunoglobulins checked, 58% had serum sent for protein electrophoresis, 75% had IgE measured and 53% had aspergillus fumigates RAST or skin prick test to aspergillus. For those aged <40, 30% had CF gene analysis and 46% had a sweat test carried out.

The fourth standard was *not* met. This is an area that would merit improvement to standardise baseline investigations in secondary care for all patients with bronchiectasis. The management of patients may differ if an immunodeficiency or CF was identified.

Standard 5

All children who are old enough (usually age over 5 years) and adults should have measures of FEV_1, FVC and PEF.

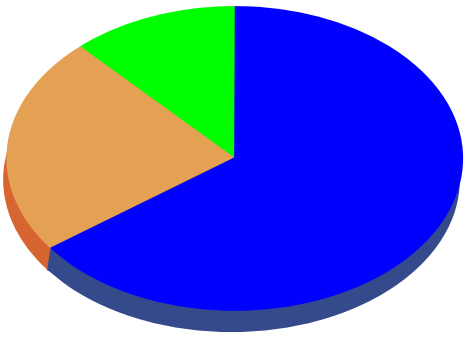
Repeat assessment of FEV_1, FVC and PEF should be made at least annually in those patients attending secondary care.

FEV_1 and FVC should be measured before and after intravenous (IV) antibiotic therapy as this may give objective evidence of improvement.

Spirometry and lung volumes should be measured in all patients before and after commencing long term oral or nebulised antibiotic therapy.

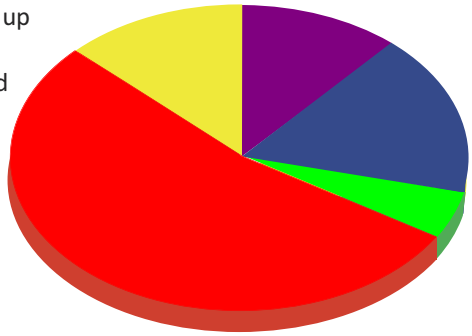
In this audit, 60% had spirometry measured on the day of consultation but no data in 4%. For those that did not have spirometry on the day, the median (interquartile range) months that there was the most recent record of spirome-

Figure 1. Has the patient ever seen a specialist respiratory physiotherapist?



Yes	974	64.9%
No	349	23.3%
No data	178	11.9%
Total:	1501	100%

Figure 2. If the patient is unable to keep up with peers walking on flat level (MRC3 breathlessness), have they been referred for pulmonary rehabilitation?



Yes	175	11.7%
No	256	17.1
No because unable to participate	72	4.8%
Not applicable	806	53.7%
No data	192	12.8%
Total:	1501	100%

try was 6 (3-13). 16% had received IV antibiotics in the past 1 year. For patients that received IV antibiotics, 22% had spirometry assessed before and after a course of IV antibiotics, 56% did not and for 22% there was no data. 10% had received nebulised antibiotics for more than 28 days within the past 12 months. Of those receiving nebulised antibiotics, 63% had spirometry checked at the start and later on during the treatment, 20% did not and for 17% there was no data. Of those receiving nebulised antibiotics, 82% had spirometry checked at least 6 monthly.

The fifth standard was *not* met. Spirometry may be useful to monitor disease progression and response to treatments.

Standard 6

This provided a snapshot view of patients' long term therapy. There were no specific recommendations regarding use of short and long acting bronchodilator therapy but routine inhaled corticosteroids were not recommended unless there is coexisting asthma or COPD. There is a lack of evidence base regarding the use of agents that improve mucociliary clearance and randomised controlled trials are needed. Patients having three or more exacerbations per year requiring antibiotic therapy or patients with fewer exacerbations causing significant morbidity should be considered for long term antibiotics.

Regarding bronchodilators, 66% were on a short acting beta 2 agonist and 11% were on a short acting anticholinergic. 65% were on a long acting beta 2 agonist and 29% on a long acting anticholinergic.

81% were on inhaled corticosteroids with a mean (SD) dose of 1252 (720) mcg/day (beclometasone diproprionate equivalent dose). The audit did not ask about co-existing conditions including asthma or COPD.

For agents that improve mucociliary clearance 27% used carbocysteine and 6% nebulised saline (38% used 0.9% saline and the remainder used higher concentrations varying from 3-7%) but there was no-one on inhaled mannitol or nebulised DNAase.

Regarding long term antibiotics 27% used long term oral antibiotics (>28 days) and 9% nebulised antibiotics (76% nebulised colomycin, 13% gentamicin and 5% tobramycin).

Standard 7

90% of patients with an exacerbation should have a sputum sample sent for microbiological culture prior to empirical antibiotic treatment.

In this audit, 55% did, 42% did not and there was no data recorded for 3%.

The seventh standard was *not* met. Monitoring sputum microbiology is key to providing appropriate antimicrobial prescribing.

Standard 8

Pulmonary rehabilitation should be offered to individuals who have MRC grade three breathlessness affecting their activities of daily living.

For 54% of cases included this was not applicable and for 13% there was no data recorded. 12% had been referred but 17% had not. 5% of cases were eligible but unable to participate in pulmonary rehabilitation. (Figure 2)

The eighth standard was *not* met. Pulmonary rehabilitation in such patients has the potential to improve patients exercise capacity and general wellbeing.

Summary

This national audit has provided a key snapshot how non-cystic fibrosis is managed in secondary care. The majority of standards were not met. In the past the profile of bronchiectasis has been very low and it is hoped that the creation of national guidelines, local changes in the organisation of care to promote good practice, and ongoing audit and research will raise the profile of the disease and quality of care. The standards from the BTS guideline are good quality indicators and will provide a useful tool for monitoring the quality of care in future years.

Reference

1. British Thoracic Society Guideline for non-CF bronchiectasis. Pasteur MC, Bilton D, Hill AT; British Thoracic Society Bronchiectasis non-CF Guideline Group. *Thorax*. 2010 Jul;65 Suppl 1:i1-58.