

## Background

Spirometry is currently available through the physiology outreach service in Greater Glasgow, and by some individual practices, particularly in Clyde. The Respiratory MCN has provided updated guidelines on management of COPD<sup>1</sup>, with new inhaler device protocols<sup>2</sup> and specific advice about different classes of inhalers. COPD is diagnosed using spirometry, and management relies in part on a knowledge of the degree of airflow obstruction. Spirometry is also sometimes used in the diagnosis of asthma. With new guidelines and changes to the COPD LES, the respiratory MCN felt it would be helpful to issue a guide to the use of spirometry in NHSGGC.

## Accessing and performing spirometry

Practices in Greater Glasgow can access the spirometry outreach service using a SCI Gateway referral. Spirometry will then be performed in one of the lung function labs at sites around the city. There is a spirometry service at the Vale of Leven hospital and a service at Inverclyde is under development. Some practices may choose to perform their own spirometry.

Poorly performed spirometry produces misleading results. Anyone performing spirometry should be appropriately trained and should undertake regular updates. Audit should also be part of routine practice. Spirometry equipment should be regularly maintained, cleaned, calibrated, and disinfected according to the manufacturer's guidance. See link to GOLD guideline for more specific detail<sup>3</sup>

## Spirometry to diagnose COPD

The diagnosis of COPD should be considered in patients aged over 35 years who smoke or have smoked, and have appropriate chronic symptoms of breathlessness, cough or sputum. The diagnosis is confirmed by demonstrating airflow obstruction (FEV1/FVC of <0.7 post bronchodilator) using spirometry<sup>4</sup>. Improvement after

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<sup>1</sup> NHS GGC Primary Care COPD guideline 2013

<http://www.staffnet.ggc.scot.nhs.uk/Info%20Centre/PoliciesProcedures/GGCclinicalGuidelines/GGC%20Clinical%20Guidelines%20Electronic%20Resource%20Direct/NHSGGC%20Primary%20Care%20COPD%20Guideline.pdf>

<sup>2</sup> [http://www.ggcprescribing.org.uk/media/uploads/prescribing\\_resources/copd\\_inhaler\\_device\\_guide\\_-\\_1309.pdf](http://www.ggcprescribing.org.uk/media/uploads/prescribing_resources/copd_inhaler_device_guide_-_1309.pdf)

<sup>3</sup> SPIROMETRY FOR HEALTH CARE PROVIDERS  
Global Initiative for Chronic Obstructive Lung Disease (GOLD)  
[http://www.goldcopd.org/uploads/users/files/GOLD\\_Spirometry\\_2010.pdf](http://www.goldcopd.org/uploads/users/files/GOLD_Spirometry_2010.pdf)

<sup>4</sup> Management of chronic obstructive pulmonary disease in adults in primary and secondary care - NICE clinical guideline 101 <http://www.nice.org.uk/nicemedia/live/13029/49397/49397.pdf>

bronchodilator can be used to differentiate between asthma and COPD. The severity of airflow obstruction in COPD can also be measured and influences management.

If there is no evidence of airflow obstruction on spirometry (FEV1/FVC >0.7) then other conditions, such as fibrosis, should be considered.

### **Spirometry in COPD monitoring**

Annual FEV1 measurement is no longer a QOF indicator. Repeat spirometry can be helpful in certain situations if there has been a clear decline in symptoms and MRC breathlessness grade. A change in treatment may be required if a previously mild patient has declined to a FEV1 of < 50% predicted, as this cut off is currently used in both NICE and NHSGGC COPD guidance. Repeating spirometry is unlikely to directly change patient management if previous results have shown FEV1 < 50% predicted. Rate of decline in FEV1 in COPD is fairly slow – averaging 30-40ml per year. The MCN feels that spirometry performed within the previous 5 years can be relied upon as a fairly accurate measure of the patient's degree of airflow obstruction.

### **Spirometry in asthma**

The diagnosis of asthma is based on clinical assessment and demonstrating *reversible* airflow obstruction. Clinical assessment involves recognising a characteristic pattern of symptoms and signs, in the absence of an alternative explanation for them. The key is to take a careful clinical history. In those able to undertake it, spirometry is now preferred over PEFr measurement for confirmation of reversible obstruction of airways in the diagnosis of asthma, in adults and children with an *intermediate* probability of asthma<sup>5</sup>. It is felt to offer clearer identification of airway obstruction and to be less effort dependent. Normal spirometry does not necessarily exclude asthma and secondary care referral, or considering a steroid trial with peak flow measurement would be appropriate if there was a high clinical suspicion. Repeated spirometry measurements are not felt to be helpful in primary care following a diagnosis of asthma.

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<sup>5</sup> *BTS / SIGN British Guideline on the Management of Asthma 2011* <http://www.sign.ac.uk/pdf/grg101.pdf>