resolution and prevent serious sequelae.^{13,14} The EPOS 2012 guidelines have stricter recommendations and stratify treatment based on case categorisation;

- 1) common cold/acute viral rhinosinusitis
- 2) acute post-viral rhinosinusitis (moderate symptoms – recommend intranasal steroids but no antibiotics), and
- 3) acute bacterial rhinosinusitis (severe symptoms – antibiotics and intranasal steroids recommended).²

For antibiotic rates to decrease, we need to continue to educate medical providers. In addition, there must be changes in societal expectations, since patient demand is a strong barrier to limiting prescription rates. Subjects in this study by Stjärne and colleagues reported poor QoL.⁶ They noted high rates of pain/discomfort and limitation to usual activities, so understandably they desired symptom relief. But antibiotics are not always beneficial and can cause harm. Physicians should be aided by national programmes to educate both healthcare providers and the general population.¹⁵

This is a timely message. The American Academy of Allergy, Asthma, and Immunology has recently updated its teaching slides on both acute and chronic rhinosinusitis. This was an international effort involving experts from around the world from the fields of allergy and immunology, otolaryngology, and radiology. These new teaching slides provide a review of the epidemiology, diagnosis and management of rhinosinusitis, and can be accessed without charge at: <http://education.aaaai.org/courses>. Additional teaching slides are available on a wide variety of respiratory conditions, providing Continuing Medical Education (CME) credits for trainees, primary care physicians and specialists.

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Obesity, airflow limitation, and respiratory symptoms: does it take three to tango?

See linked article by Zutler *et al.* on pg 194

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Respiratory symptoms such as dyspnoea and chronic cough are common in the general population¹ and are associated with reduced health status even in people without any disease of the airways.² The presence of objective lung function impairment or bronchial hyperresponsiveness does not alter this association,² indicating that other factors contribute to dyspnoea and chronic cough in the general population. Unravelling these factors remains a relevant challenge and a prerequisite to prevention and treatment of respiratory symptoms. One of the factors which probably contributes to the presence of respiratory symptoms is obesity, defined as a body mass index (BMI) of ≥ 30 kg/m².

The increasing prevalence of obesity is one of the major global

public health problems of the current decade. It is projected that this obesity epidemic will escalate even further, especially as a result of a dramatic rise in obesity in low- and middle-income countries.³ In 2008, an estimated 500 million adults around the world were obese.⁴ Obesity substantially raises the risk of morbidity and mortality. It is related to the development of cardiovascular risk factors such as reduced HDL, non-insulin dependent diabetes mellitus and hypertension,⁵ and to the incidence of cardiovascular events.⁶ In addition, obesity is a major risk factor for gallbladder disease, osteoarthritis, accidents, and certain types of cancer. In 2009, the World Health Organization (WHO) estimated that obesity was the fifth leading risk factor for death, accounting for nearly 3 million deaths per year.

A link between obesity and the respiratory system is well established. Obesity affects pulmonary function at rest, with a reduction in functional residual capacity (FRC)⁷ as its most prominent effect. However, the effects of obesity on airway function are limited. Forced expiratory volume in one second (FEV₁) and forced vital capacity (FVC) are usually preserved,⁸ and so the FEV₁/FVC ratio often remains normal. However, obese subjects are at increased risk of expiratory flow limitation as a result of their breathing at lower lung volume,⁷ and small airways airflow obstruction may be present. Diffusing lung capacity of carbon monoxide (DLCO) is also in the normal range or increased in obesity.⁹ Obese subjects free of respiratory disease report decreased ability to perform daily physical activities due to increased breathlessness in comparison with healthy age- and gender-matched normal weight subjects.¹⁰ In addition, breathing discomfort is significantly higher at any given submaximal cycle work rate in obese subjects.¹⁰

In addition to the 'physiologic' effects of excess body fat mass on the lungs, obesity is increasingly linked to chronic respiratory conditions. Obesity predisposes to obstructive sleep apnoea,¹¹ pulmonary embolism,¹² and asthma.¹² Furthermore, obesity probably contributes to heterogeneity in pulmonary and systemic manifestations in patients with chronic obstructive pulmonary disease (COPD).¹³ Like obesity, COPD is a major cause of worldwide morbidity and mortality, and the burden of COPD will increase over the next few decades. The degree of airflow limitation in COPD is a poor predictor of patient-related outcomes including dyspnoea, cough, exercise tolerance and health status.¹⁴ Therefore, it is important to understand the impact of concomitant conditions, including obesity, on relevant outcomes in COPD. While it was recently reported that obese COPD patients have increased dyspnoea at rest and poorer health status compared to normal weight patients,¹⁴ some favourable effects of obesity in COPD have been described. Obesity results in a reduction of static lung hyperinflation in COPD, irrespective of the severity of disease.¹⁵ Also, peak cycling capacity is preserved in obese COPD patients compared to non-obese patients with a comparable degree of airflow limitation,¹⁵ although the distance covered during a 6-minute walk test (6MWT) is reduced.¹⁶ Moreover, dyspnoea ratings are consistently lower during cycling in obese patients, probably due to the beneficial effects of the excessive fat mass on dynamic ventilatory mechanics.¹⁵ Finally, in patients with severe COPD, obesity is associated with improved survival,¹⁷ while its contribution to the

increased cardiovascular morbidity and mortality in less advanced disease remains to be established.¹⁸

Since the worldwide prevalence of both chronic airflow obstruction as well as obesity is increasing, and a large proportion of people with respiratory symptoms are currently undiagnosed and untreated,² unravelling the combined effects of these conditions is a major healthcare priority. The study by Zutler *et al.*¹⁹ in this issue of the *PCRJ* greatly enhances our understanding of the complex interactions between obesity, airflow obstruction and respiratory symptoms, and performance. In a cohort of 371 middle-aged subjects without an ICD9-CM diagnosis of COPD, respiratory symptoms including productive cough and exercise-induced dyspnoea were evaluated. Clinical assessment included pre-bronchodilator spirometry, and measurement of BMI, 6MWT, and lower extremity function. The frequencies of airflow obstruction (FEV₁/FVC < 0.70) and obesity were nearly 19% and 40%, respectively. Obese subjects were much less likely to have airflow limitation. Remarkably, not airflow limitation but obesity, was associated with increased respiratory symptoms, poor self-reported health and decreased functional performance.

The findings of this study are clinically relevant to healthcare professionals confronted with globally expanding populations of patients with dyspnoea, obesity, chronic airflow limitation or any combination of these. The study suggests that strategies aimed at improving respiratory symptoms and enhancing performance in obese patients *per se* in the general population might need to focus on weight reduction rather than on diagnosing and treating airflow limitation. Whether strategies aimed at reducing obesity are indeed effective, and what amount of weight loss would result in clinically important improvements in these outcomes, needs further investigation. Furthermore, it is not clear whether more severe impairment in lung function than was present in this study¹⁹ (median FEV₁ was 83% of predicted) would outweigh the impact of obesity on respiratory symptoms and functional capacity in a general population. Finally, it is currently unknown whether subjects with concomitant obesity and COPD would clinically benefit from weight reduction, since obesity is not necessarily associated with adverse outcomes in patients with COPD.^{15,17} Until the gaps in our understanding of the relationship between obesity, chronic airflow limitation and respiratory symptoms have been filled, the question as to whether it takes two or three to tango remains unanswered...

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education@pcrj: the launch of a new initiative for the *PCRJ*

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The *PCRJ* has two declared aims in the context of primary care respiratory medicine: firstly, to be an 'authoritative setting for the publication of high quality internationally-relevant research'; and secondly, to 'inform and educate healthcare professionals worldwide of the research and service developments' in this field.¹ This issue sees the launch of a new section in the *Journal*, education@pcrj, which will significantly promote the second of these two aims. As newly appointed Section Editors, we are delighted to accept the challenge laid down by the Editors-in-Chief, and look forward to delivering this core component of the *PCRJ*'s editorial strategy. Our aim is to 'satisfy the needs of "grass roots" primary care clinicians in

implementing and applying research findings in practice'.¹

Pre-empting this launch, journalwatch@pcrj first appeared in the March 2012 issue.² Produced by the Editors-in-Chief, this will be a regular feature of education@pcrj from now on, enabling busy primary care clinicians to keep up-to-date with the latest research evidence from the top respiratory and general medical journals worldwide. Guideline summaries have always been a popular feature of the *Journal*^{3,4} and these will appear in education@pcrj on a regular basis. Similarly, 'Evidence into practice' articles, short review articles of no more than 2000 words in length, will demonstrate how evidence from research can lead to changes in clinical practice.

The *PCRJ* has previously published Case-based learning⁵ articles similar to the traditional type of Case report, but in the future these will be incorporated into education@pcrj and re-formatted. The section in this issue on the importance of co-morbid rhinitis in patients with asthma demonstrates our new approach. It starts with a short clinical scenario – reflecting where we start as clinicians – and Scadding and Walker then provide a clinical overview of the management of the patient with co-morbid rhinitis and asthma together with an authoritative review of the evidence base.⁷ Exemplifying the fine balance between clinical practicalities and academic theory is the juxtaposition of a table summarising the academic evidence for a link between rhinitis and asthma with a practical illustration of how to use a nasal spray (which should be required reading for every primary care clinician and pharmacist...). This review is then followed by two Perspectives – a new article category for the *PCRJ*. Osman Yusuf highlights the issues when