Reading between the COPD audits: have current GOLD standards lost their lustre?

Catherina L Chang, Robert J Hancox, Lutz Beckert

A decision can only be as good as the information it is based on. In that regard the audit published in this issue of the NZMJ helps us to reflect on our care and to improve outcomes for our patients with exacerbations of chronic obstructive pulmonary disease (COPD).

The Waitemata group can be congratulated for their detailed audit on the management of 155 patients admitted to North Shore and Waitakere Hospitals. The authors took a systematic approach using an international audit proforma and validated 18% of their data through blind re-auditing by another investigator. The authors comment that their audit could be compared to the 2006 audit at Waikato Hospital.

So how do their findings compare to Waikato in 2006 and what are the main lessons learned?

- The increasing numbers of women with COPD is highlighted by both cohorts, which include a much higher proportion of women than is traditionally expected. Other patient characteristics and markers of disease severity such as lung function are comparable between the two cohorts, suggesting similar referral and admission patterns. Unsurprisingly, nearly all were current or ex-smokers, but it is reassuring that the proportion of current smokers decreased from 36% in Waikato to 21% in Waitemata, which is the national average smoking rate.

This is still a high smoking rate and we must not forget that COPD is an essentially preventable disease and each contact with health care professionals is an opportunity to deliver the smoke-free message.

- It is pleasing to note that the mortality rate appears to be lower. The 30-day mortality of the Waikato cohort was 8% and the overall 12-month mortality was 31%; in contrast, the 30- and 90-day mortality of the Waitemata cohort were 4.1% and 6.7% respectively. While this fall in mortality remains unexplained and may be a chance observation, it is in keeping with trends in the UK where the mortality rate has dropped from 15.5% to 13.9%. However, both the mortality rate and the readmission rate of 70% over 2 years remind us that COPD carries significant morbidity and mortality.

- The authors are concerned that despite good evidence of benefit, none of the patients with hypercapnic respiratory failure received non-invasive ventilation (NIV). Several were treated with continuous positive airway pressure (CPAP), but there is little or no evidence for the use of CPAP in this situation and it is unlikely to be as effective as NIV. This is likely to be due to NIV machines being unavailable. NIV is now the standard of care for patients with hypercapnic respiratory failure.
Compared to many health interventions, NIV machines are not expensive and should be readily available. District Health Boards need to commit to providing a small number of machines for emergency use and train staff to use them.

- Despite similar lung function and comorbidity profiles, patients admitted to Waitemata DHB were less likely to have arterial blood gases performed (33% versus 70% for the Waikato audit). The reason for this is difficult to ascertain—it may reflect different hospital assessment protocols, or perhaps the increasing use of venous blood gases in the emergency department. As the authors point out, diagnoses of respiratory failure may have been missed because an arterial blood gas was not done. Based on a British COPD audit, it is likely that about 25% would have had respiratory acidosis and these patients may have benefited from NIV. Unless arterial blood gases are done whenever this is suspected, these patients will not be recognised.

- Waitemata DHB shares, with most hospitals in New Zealand, the problem of poor oxygen prescribing. Oxygen had only been prescribed for 13% of those receiving oxygen. This is an area of major concern, particularly as some patients were receiving high-flow oxygen. Tasmania data clearly demonstrate that high-flow oxygen during an acute exacerbation of COPD increases mortality. Oxygen is a potentially dangerous drug with specific indications. Like any drug it should be prescribed and the administration should be accurately documented.

- The final observation we wish to highlight is the length of the course of oral corticosteroids. The Waitemata audit reported a mean duration of 12 days, while the Waikato audit had a mean duration of just four days. A very recent randomised controlled trial has shown that a 5-day course of prednisone 40 mg is just as effective as a longer course of 14 days. This provides a welcome opportunity to minimise the iatrogenic harm from steroid use.

The data from Waitemata are important. We should be able to improve patients’ survival by ensuring the provision of NIV therapy as outlined in international guidelines. We can improve patients’ quality of life by referring to pulmonary rehabilitation, supporting smoking cessation, optimising inhaler therapy, and referring to a dietician where indicated. Importantly we can reduce the harm we do to our patients by avoiding uncontrolled oxygen therapy and shortening the course of systemic steroids to 5 days.

After many years of research we still only have three interventions that have been shown to improve survival in COPD:

- Smoking cessation (that could also prevent most COPD altogether),
- Non-invasive ventilation for hypercapnic respiratory failure, and
- Long-term oxygen therapy for patients who are chronically hypoxic.

While it is important to ensure our patients have access to these treatments, the impact of these on the overall survival is likely to be small.
New directions in therapy of COPD are desperately needed. Given that most patients with COPD die of cardiac disease rather than respiratory failure, looking after the cardiovascular system may be of as much benefit to our patients as our current respiratory drugs. In fact, emerging evidence suggest that both beta-agonist and anticholinergic bronchodilators may contribute to cardiac complications in COPD.

Even in the setting of acute exacerbations of COPD, there is emerging evidence that biomarkers of cardiac disease are better predictors of mortality than existing respiratory indicators of severity. Unfortunately it is not known whether the usual cardioprotective medications, such as beta-blockers, will reduce mortality in this population since many of the cardiac studies have excluded patients with COPD.

In conclusion, the data from Waitamata prompt us to reflect on our clinical management of exacerbations of COPD. The findings are broadly similar to the audit from Waikato in 2006 and it is likely they are representative of the care patients receive in other hospitals in New Zealand.

It is pleasing to see that smoking and mortality rates appear to be decreasing, but there are areas for improvement. By now, all DHBs should offer NIV services for patients with acute hypercapnic respiratory failure. We should do less harm by restricting oxygen therapy to those who are hypoxic and titrating the dose to the oxygen saturations. Recent evidence should provide us with confidence to use short, 5-day courses of steroids.

We can improve quality of life by referring patients to pulmonary rehabilitation courses, which should also be available to all patients with COPD. However all these interventions will not hugely improve the prognosis for most patients with COPD.

Furthermore, we need new treatment strategies and perhaps it is time to shift our focus to more achievable goals such as reducing the cardiac complications of COPD. Unfortunately, like most COPD treatments, evidence that this will improve survival is currently lacking.

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**Author information:** Catherina L Chang, Respiratory Physician, Respiratory Research Unit, Department of Respiratory Medicine, Waikato Hospital, Hamilton; Robert J Hancox, Respiratory Physician, Respiratory Research Unit, Department of Respiratory Medicine, Waikato Hospital, Hamilton; Lutz Beckert, Respiratory Physician; Respiratory Medicine; Canterbury District Health Board, Christchurch

**Correspondence:** Lutz Beckert, Department of Respiratory Medicine, Christchurch Hospital, PO Box 4345, Christchurch 8011, New Zealand. Fax: +64 (0)3 3640914; email: Lutz.Beckert@cdhb.health.nz

**References:**


