Gender and mortality following hospitalisation for COPD

We read with interest the article by Gonzalez *et al*¹ on gender differences in survival following hospitalisation of chronic obstructive pulmonary disease (COPD) patients in a large cohort of a Canadian population. There are limited data on gender differences and mortality in COPD. Despite women having worse dyspnoea and health status, they appear to have a lower mortality rate than men.² The study conducted by Gonzalez and coworkers demonstrated an interesting finding of a significantly better mean survival and time to rehospitalisation in female patients. We conducted a study of COPD patients to evaluate the predictors of mortality and readmission after an acute exacerbation.³ The study included 402 episodes in 205 patients admitted to our university hospital. We examined a number of factors in relation to mortality and readmission after an exacerbation. The potential predictors evaluated in the study included FEV₁% predicted, Medical Research Council dyspnoea scale, performance status, respiratory medications, comorbidities, social circumstances, smoking status and blood parameters including white cell count and C reactive protein. The main demographics and characteristics of the study population are shown in table 1.

The cumulative mortality of our study population was 6.8%. In terms of the cause of death, the majority of our study population died of respiratory causes, predominantly COPD, a finding very similar to that found by Gonzalez *et al*. Men had a higher rate of admissions than women, comprising 56% of total hospitalisation episodes. Social isolation was the only significant predictor of mortality in our cohort. Reduced physical activity in association with social isolation may be related to increased mortality. The factors associated with increased risk of readmission included lower FEV₁% predicted

and continued smoking. Contrary to the findings of Gonzalez *et al*, we found no significant difference in mortality in relation to gender, following hospitalisation for COPD. This could be because of a number of factors. First, we had a significantly smaller sample size. Second, our study may have represented a different population altogether with diversity in ethnic background and genetic makeup. Finally, the patients were younger in our cohort that may have had an effect on the overall mortality.

In our opinion, Gonzalez and coworkers have evaluated a very unique aspect of COPD outcome after hospitalisation. The immediate period after an acute exacerbation is a very significant time for interventions such as smoking cessation, and if utilised effectively, it may have a positive impact on mortality in this disabling disease.

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Competing interests None.

Ethics approval This study was a retrospective analysis of a COPD database, so approval was obtained from the Hull and East Yorkshire Hospital audit committee.

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Authors' response

We thank Dr Fahim and colleagues¹ for their interest in our paper examining gender differences in survival following chronic obstructive pulmonary disease (COPD) hospitalisation.² Their group has previously examined possible predictors of mortality and readmission in a group of patients hospitalised for COPD.

Fahim *et al* report a cumulative mortality of 6.8% although the duration of follow-up in their study is not specified. In our cohort of patients hospitalised for COPD, mortality

in women and men was 12.6% and 18.3% at 1 year, and 43.8% and 56.2% at 5 years, respectively. Male gender was associated with a significantly increased risk of death (HR 1.45, 95% CI 1.42 to 1.49).

Fahim *et al* did not observe significant gender differences in mortality. We agree that this is probably due to a significantly smaller sample size and perhaps a younger patient population. The analysis of large health administrative databases has limitations, in particular the absence of smoking status or lung function data. Yet their use provides much strength in numbers. The older age of our cohort is based on the selection of subjects aged ≥ 66 years, to ensure at least 1 year of prescription information prior to the index hospitalisation.

We agree with Fahim and colleagues that the period immediately following an exacerbation of COPD provides a key window for interventions. Awareness of the high death rate in older patients hospitalised for COPD and increasing recognition of gender differences in mortality and clinical expression of COPD^{3–4} ultimately may lead to more targeted interventions and better outcomes.

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CORRESPONDENCE

Atoll sign or reversed halo sign? Which term should be used?

We read with great interest the article by Walsh and Robertson¹ reporting a case of cryptogenic organising pneumonia. The authors included wonderful images of a CT pattern they called the 'atoll sign', which has

Table 1 Selected demographics of study participants*

Subjects (n)	205
Age in years (median, range)	69 (47–93)
Gender (n, %)	
Male	106 (52)
Female	99 (48)
Admission episodes (n, %)	
Male	225 (56)
Female	177 (44)
FEV ₁	1.9 $\pm$ 0.7
FEV ₁ % predicted	42 $\pm$ 16.2
Smoking (pack years)	27.5 $\pm$ 9.8
Mortality (%)	
Male	7.6
Female	6.0

*The data are presented as mean and SD, unless otherwise stated.
FEV₁, forced expiratory volume in one second.

been described by other authors as the 'reversed halo sign'.

Zompatori *et al*² first used the term 'atoll sign' in 1999 to describe the imaging finding of a focal rounded area of ground-glass opacity surrounded by a more or less complete ring of consolidation.³ Although the abnormality frequently resembles an atoll, the Fleischner Society⁴ prefers the term 'reversed halo sign', as initially proposed by Kim *et al*.³ Although both terms adequately describe the imaging characteristics of the lesion, the term 'reversed halo sign' should be used to avoid confusion and to standardise the keywords used in literature searches. A review of the US National Institutes of Health digital archive of biomedical and life sciences journal literature (PubMed) found only three occurrences of the term 'atoll sign', whereas the term 'reversed halo sign' was found in 22 articles. The uniform use of descriptors is critical when reporting on lesions, to avoid the overlooking of otherwise important articles, such as the one presented by Walsh and Robertson, in literature reviews.

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UK immigrant screening is inversely related to regional tuberculosis burden

We read with interest the editorial by Moore-Gillon *et al*,¹ which advocated a more comprehensive system of immigrant screening/treatment for latent tuberculosis

infection (LTBI) as a means of augmenting tuberculosis (TB) control in the UK.

A recent comprehensive, national evaluation of local TB services/primary care organisations (PCOs) in the UK, which provides key insights into UK screening practices,² found that the existing National Institute for Health and Clinical Excellence (NICE) guidance from 2006 was often not followed. While all TB services would follow-up new entrants referred to them with suspected active TB, only just over half attempt to screen migrants with normal chest x-rays for LTBI; more pertinently it was those local TB services/PCOs that served the highest TB burden areas that were four times less likely to undertake LTBI screening. There was also deviation from NICE guidance in the LTBI screening methods employed (tuberculin skin test vs interferon gamma release assays). Therefore, there is a need for effective national coordination if a new strategy is to be effective in controlling TB.

Furthermore, while we agree with Moore-Gillon *et al* on the need to change policy, we believe that there needs to be an expanded evidence base to determine which specific immigrants we should screen, where we should screen them and what tools we should use as well as a change in attitude about the importance of tackling LTBI in migrants to drive down the UK's TB burden. Crucially, in an increasingly cost-constrained environment, comprehensive health-economic analyses will be required to determine which changes in policy are justified.

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Competing interests AL is inventor for patents underpinning T cell-based diagnosis. The IFN-gamma ESAT-6/CFP-10 ELISpot was commercialised by an Oxford University spin-out company (T.SPOT-TB, Oxford Immunotec Ltd, Abingdon, UK) in which Oxford University and AJ have minority shares of equity and royalty entitlements.

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Rethinking TB screening: politics, practicalities and the press

In support of the urgent need for improvements to new entrant TB screening,¹ which must encourage the diagnosis of both active and latent forms of TB, we would like to offer two audits of new entrant screening from an area with a low TB incidence (4.3/100 000).²

In 2006, we audited 29 new entrant referrals, all of whom had a chest x-ray reported by the Port Health Control Unit at Heathrow Airport as 'abnormal' (predominantly hilar calcification).³ Of the 29 referrals, 22 attended for local screening. Each received a tuberculin skin test (TST) and a repeat chest x-ray that was reported by a respiratory consultant and then by a consultant radiologist. Sixteen (73%) were subsequently reported as having a normal chest x-ray (and negative TST).

While the practical difficulties of screening large numbers of new entrants at the point of entry (in a short space of time) are high, inaccurate reporting of chest x-rays results in wasted resource and a financial burden that is passed on to both the new entrant and local TB services through the need for repeated screening.

Further, the NICE new entrant TB screening guidelines (2006)⁴ allow certain groups of new entrants to be screened solely via chest x-ray (CXR), limiting a TST to all those aged 0–15 and those aged 16–34 from sub-Saharan Africa. As the authors highlight, this potentially under-diagnoses the latent TB infection (LTBI).

To investigate this, we undertook a retrospective case-note analysis of 547 new entrants over a 44-month period (2006–2009).⁵ All patients were invited for screening using a locally adapted 'Dorset' algorithm that combined CXR and TST unless contraindicated. Each case was then re-evaluated using the NICE algorithm. This allowed direct comparison of each algorithm's ability to detect LTBI. Results: 397 (72%) new entrants attended screening, 41 (10.3%) patients were diagnosed with LTBI (all HIV negative). Comparison of the algorithms showed that only 27/41 cases (65.8%) were detected when using the NICE algorithm. This represents a 34.1% shortfall in LTBI detection when following NICE guidance (95% CI 19.63% to 48.67%, 99% CI 15.04% to 53.26%).

The results from these two audits lend strength to the authors' argument that over-reliance on CXR alone is inadequate;