Notification of tuberculosis: how many cases are never reported?

Tower Hamlets is not the only London borough to report significant recent undernotification of tuberculosis (27%) (December 1992;47:1015–8). Hickman *et al*[1] reported 26% undernotification of non-HIV associated tuberculosis and 60% undernotification of HIV related tuberculosis for the Riverside DHA for the period April 1990 to March 1991. Riverside have tightened procedures to reduce or prevent undernotification and hopefully Tower Hamlets have done so too. Correction of undernotification from these districts, and possibly others, may be contributing to the recent rise in tuberculosis notifications in England and Wales, particularly since 1989. The use of pathology and microbiology services to supplement notification has been reported.[2]

An integrated and centralised tuberculosis service for a district would overcome many of these problems, but it is easier to implement in a DHA or Trust without multiple units. In the Blackburn, Hyndburn and Ribble Valley DHA, served by two acute hospitals of 400 and 550 beds, there is no undernotification because of our integrated system which has three key components:

1. There is agreement that all cases of adult tuberculosis of whatever type are treated by the two thoracic physicians, and children by the paediatricians, with agreed regimens.
2. All notifications for tuberculosis are made from the Chest Clinic.
3. Copies of all histology reports of definite or possible tuberculosis are sent to the thoracic physicians, as are details of all isolates of mycobacteria, before they are sent to the reference laboratory. Any patients not already known to the thoracic physicians are then seen automatically by them, and treated and notified if appropriate.

This system prevents non-notification and gives optimum management to patients with tuberculosis. It may be appropriate in the new purchaser/provider split for the purchasers to stipulate that the guidelines of the Joint Tuberculosis Committee,[3] which include notification, be a condition of any contract. This would also require thoracic physicians to notify all cases. The elements required for effective tuberculosis control are well described; it is their uniform and full application which is now required.

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AUTHORS' REPLY We thank Dr Ormerod for his interest in our study. It is significant that the incidence of undernotification in our study and in the study by Hickman *et al*[1] showed remarkably similar levels in two different areas. This level of undernotification is thus likely to be representative of the situation throughout the country and not just an aberrant result. Although Dr Ormerod says there is no undernotification in his area (and he may well be correct), he does not report that he has audited this as we have, and therefore he cannot be sure. It is also true to say that the situation we are reporting is now some three years old.

The system Dr Omerod has instituted in Blackburn would pick up bacteriologically or histologically proven cases of tuberculosis, but not cases of tuberculosis is treated purely on clinical grounds, nor does it address the problem of those patients found to have tuberculosis at a hospital or Coroner's postmortem examination.

While correction of undernotification may account for some of the apparent increased local incidence of tuberculosis, we do not think this is the whole explanation as the rise in the number of cases of tuberculosis in Tower Hamlets is greater than that which would be explained by more efficient notification.

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Diagnosis of *Pneumocystis carinii* pneumonia in HIV antibody positive patients by simple outpatient assessments

We share the enthusiasm of Dr DE Smith and colleagues for methods that may allow non-invasive investigation of pulmonary disease in individuals with HIV infection (December 1992;47:1005–9). They have proposed an algorithm for the diagnosis of *Pneumocystis carinii* pneumonia (PCP), with oxygen desaturation during exercise oximetry as a central component. This pragmatic approach to diagnosis is similar to one proposed previously in which measurement of carbon monoxide diffusion capacity (TLCO) or alveolar to arterial oxygen tension gradient ($P[A-a]O_2$) after exercise was used in place of exercise oximetry.[1]

A reduction in TLCO, an extremely sensitive though not specific indicator of acute PCP,[1,2] is not included in Dr Smith's algorithm and is the preferred method of non-invasive screening for PCP in our unit. In one study, TLCO below 70% predicted had a sensitivity of 92% and a specificity of 72% for acute PCP[3] compared with 74% and 73% respectively for oxygen desaturation as reported by Dr Smith and colleagues. Measurement of TLCO is readily available in most hospitals, inexpensive, quick to perform, and provides immediate results. In addition, measurement of TLCO in individuals with HIV infection does not require an unwell patient to exercise, a factor that, in our experience, limits the usefulness of exercise oximetry, and it is of note that only 38% of patients with PCP were able to complete a 10 minute exercise test in Dr Smith's study.

It is our practice to measure TLCO on all HIV seropositive individuals at the time of the first positive HIV antibody test, and to repeat this measurement during the course of their HIV illness.[4] This allows a documented fall in TLCO, in the presence of new respiratory symptoms, to be investigated appropriately. Although we consider abnormal TLCO to be superior to exercise induced oxygen desaturation in the respiratory assessment of seropositive individuals, the pulmonary manifestations of HIV infection are many and varied, with specific and increasingly effective treatments. Current non-invasive tests are therefore unlikely to obviate the need for definitive investigation, and we have a low threshold for offering bronchoscopy and lavage to our seropositive patients with suspected respiratory disease.

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AUTHORS' REPLY We agree that measurement of the diffusion coefficient for carbon monoxide (TLCO) could replace exercise oximetry in the diagnostic algorithm we have proposed, but this test was not readily available in our hospital. Although TLCO is sensitive it is non-specific with reduced levels seen in asymptomatic intravenous drug users and in HIV infected patients with other respiratory diseases.[1,2] A previous study in this journal shows that a reduction in TLCO failed to differentiate 13 patients with *Pneumocystis carinii* pneumonia (PCP) from 22 patients with other respiratory problems. The authors concluded that "the combination of lung clearance of 99m-technetium labelled and oxygen desaturation on exercise seemed to be the most useful screening test in selecting patients for further investigation for possible pneumocystis pneumonia".[3]

Although it is true that a number of patients cannot tolerate exercise testing for a 10 minute period, 80% of patients in this study who desaturated did so within the first three minutes of the test.

We believe that the use of this non-invasive test does reduce the need for more definitive investigations. While there are many reasons for wishing to confirm a diagnosis of PCP in a patient defined as highly likely to have this condition, the rationale behind the proposed algorithm was twofold: firstly, to predict which patients had such a high probability of having PCP that treatment could be initiated immediately and, secondly, to define that group of patients with respiratory symptoms with such a low probability of having PCP that they could be treated for presumed bacterial chest infections and observed without having to subject them to further unnecessary investigations.

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