

Tuberculosis in primary care

It is likely that the average general practitioner (GP) and the primary care team will be seeing more people with tuberculosis (TB) in the near future. The recent outbreaks in Leicester, London, and elsewhere have highlighted this infection, which is as insidious as it is infectious. Consequently, it is prudent to review the condition, update our thinking, and reflect on our responsibilities. These responsibilities include early identification, support, treatment, and monitoring of the patient, the family, and the wider community.

Tuberculosis is classically pulmonary, although extra-pulmonary sites, such as lymph nodes, the gastrointestinal tract, bones, and the brain can often be involved. The commonest respiratory symptoms are a persistent cough, fever, haemoptysis, night sweats, and weight loss.

Worldwide, there are approximately eight to ten million new cases annually and about three million deaths — making it the single biggest infectious disease globally.¹⁻³ As in many conditions associated with poverty, the developing world shoulders a heavy burden, especially in Africa and South-East Asia. Factors contributing to this high level of morbidity and mortality include population migration, poverty and poor social conditions, lack of basic public health infrastructure and, crucially, co-existing HIV infection.

Europe, which had one of the lowest notification rates in 1997 (39.9 per 100 000 population) continues to register almost 350 000 new cases a year. In England and Wales in 1998, there were a thousand more cases compared with 1987 — a rise of 20% in just over ten years.^{1,4} In addition, in 2000 there was the biggest year-on-year increase in recent times, with the number of cases rising by 11% in just 12 months.⁴ In the United Kingdom, tuberculosis is a condition associated with metropolitan areas — London has almost half of all current UK notifications and numbers have risen by 17% within one year in the capital.^{1,3,4} Other areas are also affected; for example, a recent outbreak occurred in Cardiff.⁵ Overall, in the UK as in many developed countries, TB is increasingly a disease which is localised in certain areas and in certain population groups.⁶

Tuberculosis is almost exclusively spread by airborne respiratory secretions. Thus identifying and treating individuals as well as implementing control procedures is fundamental to effective infection control. Any person who is in contact with another with infectious TB is at risk but some groups are especially vulnerable; for example, the young, the old, and individuals who are immunocompromised, including those with HIV infection and those on long-term steroids.⁴ In addition, asylum seekers and refugees are also deemed a high-risk group, as exemplified by the fact that over half of new cases of TB occur in people born outside of the UK (although the majority in this group have lived in the UK for over five years).^{1,4,6-8} Many of this group originate from high-prevalence TB countries throughout the world.⁶⁻¹²

According to the British Thoracic Society guidelines on control and prevention of TB, immigrants should be screened on entry to the UK; however, it is known that this

system performs poorly and up to half of all new entrants either have no initial checks or the results of these are not passed on to the districts of intended residence.^{4,8} These procedures are currently being reviewed by the inter-departmental Working Group on TB (www.doh.gov.uk/tbguide.htm). There are several factors which militate against a comprehensive programme of TB screening in the UK. For instance, port authorities cannot provide adequate surveillance on every person who arrives in the UK. By definition, illegal immigrants are discounted, yet are thought to be a significant number.^{1,8} Nevertheless, there have been attempts to screen for TB in primary care.^{13,14} However, the more pragmatic GP will probably adopt a passive case-finding approach: that is, responding to patients who consult. Regarding asylum seekers and refugees, there is often a high turnover of such patients in practices, especially following the 'dispersal programme' which saw new entrants to the UK being 'distributed' to many parts of the UK — again complicating the often necessary surveillance in TB care.^{3,6,10} The result of this confusion, perhaps compounded by a lack of public health guidance, is that there is no systematic method for early identification, treatment, and follow-up of people with TB which is exhaustively effective.^{7-10,12} This is why, for example, a newer enhanced TB system has just been instituted by the Department of Health for all clinicians who make a diagnosis of TB (www.phls.co.uk/facts/TB/outcome%20surveillance.htm). General practitioners need to know about this enhanced system, which is activated on formal notification of the case as is statutorily required in TB.

It is important to acknowledge the link between HIV infection and TB. There is currently controversy about how strongly these two infections are linked in the UK. In one study, over 11% of people who presented with newly diagnosed TB and unknown HIV status were subsequently found to be HIV positive in South London.¹⁵ However, there is great variation in rates, even in different areas within a large city.^{4,15,16} The fact that the two infections can co-exist with implications for both is the single most important message for those working in primary care. Moreover, TB should alert the clinician — GPs included — to individuals with undiagnosed HIV infection, of whom there are still significant numbers in the UK.¹⁷ For this group it is sensible and appropriate to be at least offering HIV testing.

One of the enduring lessons from HIV infection in the UK over the past 20 years is that where effective communication exists, care pathways are smoother for patients and GPs feel that they are part of the therapeutic team.¹⁸ Unless this happens, GPs will again feel de-skilled in looking after people with what is just another chronically troublesome infectious disease.

On the subject of treatment, it is wise to mention that, for some groups of patients, directly-observed treatment schedules (DOTs) have proved to be successful in enhancing compliance, leading to better individual outcomes.^{3,4} This can be either hospital or community-based, and hence GPs

need to know if their patients are in such a care pathway. Generally, GPs should not be expected to alter or determine DOT regimens. Equally, the index patient's failure to complete their treatment was thought to be a contributing factor in the Rhondda Valley outbreak in Wales that ultimately involved screening 85 contacts.⁵

In the prevention of TB there is a clear role for the GP. Bacillus Calmette-Guérin (BCG) vaccine, a live-attenuated strain of *Mycobacterium bovis*, is still an integral component of the childhood immunisation programme in the UK and is given to all schoolchildren aged 12 to 14 years.^{1,19} Furthermore, up to 60 000 neonates are immunised annually in selective programmes, usually where local communities have high TB prevalence rates. The vaccine offers between 70% and 80% efficacy and it protects against the more serious forms of TB, such as extra-pulmonary disease.¹ Unfortunately, there have been problems with supplies of the vaccine between September 1999 and July 2000 — the latter date is when it was re-started in London. In March 2001, the full programme was recommenced nationally (www.doh.gov.uk/tb). It is important to state that the outbreak in Leicester was not thought to be owing to this hiatus in supplies — indeed, the majority of children had been vaccinated.¹¹

As the Leicester example illustrates, perhaps the greatest threat to the public is a general lack of awareness brought about by a feeling that TB is a rarity in these modern times. As previously stated, the following factors determine those at higher risk — place of birth, increased exposure, decreased immunity and, latterly, increased virulence of infection.

For those patients who traditionally face major barriers in accessing health care, such as asylum seekers, refugees, prisoners, the homeless, and drug-users, a low index of suspicion is emphatically required for early identification of TB. It seems tragic that a disease associated with 'poverty, overcrowding, lack of hygiene and occupational hazards' almost two centuries ago should still be a problem in the UK today.²⁰ It is in this context that GPs and the primary care team should remain alert and vigilant — an outbreak of TB in a local community will have ramifications for all members, including the primary health care team.

SURINDER SINGH

*Clinical Lecturer in General Practice,
Department of Primary Care and Population Sciences,
Royal Free and University College Medical School*

SARA MADGE

*GP Fellow HIV/AIDS, Royal Free Hampstead NHS Trust,
Royal Free Hospital*

MARC LIPMAN

*Consultant Physician in Thoracic/HIV Medicine,
Royal Free Hampstead NHS Trust, Royal Free Hospital*

References

1. Public Health Laboratory Service. Facts and figures. <http://www.phls.co.uk/facts/TB/FAQ.htm> (Last updated October 2001.)
2. Mears C, Chowdhury S. *Health care for refugees and displaced people*. [Oxford Practical Health Guide No. 9.] Oxfam UK, 1994.
3. Department of Health. *Getting ahead of the curve: A strategy for combating infectious diseases*. A report by the Chief Medical Officer. London: DoH, December 2001.
4. Joint Tuberculosis Committee of the British Thoracic Society. Control and prevention of tuberculosis in the United Kingdom: Code of Practice. *Thorax* 2000; **55**: 887-901.
5. Mukerjee A, Butler CC. Outbreak of tuberculosis linked to a source case imprisoned during treatment. Should the courts tell GPs about prison sentences and should GPs tell prison doctors about medical diagnosis? *Br J Gen Pract* 2001; **51**: 297-298.
6. Ormerod P. More carrot or more stick or both? *Thorax* 1999; **54**: 96-97.
7. Hargreaves S, Holmes A, Friedland JS. Health-care provision for asylum seekers and refugees in the UK. *Lancet* 1999; **353**: 1497-1498.
8. Hargreaves S, Holmes A, Friedland A. Refugees, asylum seekers, and general practice: room for improvement? [Editorial.] *Br J Gen Pract* 2000; **50**: 532-536.
9. Burnett A, Peel M. Asylum seekers and refugees in Britain: what brings asylum seekers to the United Kingdom? *BMJ* 2001; **321**: 485-488.
10. Burnett A, Peel M. Asylum seekers and refugees in Britain: health needs of asylum seekers and refugees. *BMJ* 2001; **321**: 544-547.
11. Watson JM, Moss F. TB in Leicester: out of control, or just one of those things? [Editorial.] *BMJ* 2001; **322**: 1133-1134.
12. Hargreaves S. System to detect tuberculosis in new arrivals to UK must be improved. [Letter.] *BMJ* 2000; **320**: 870.
13. Asghar RJ. TB screening among overseas students at the University of Bristol. [Letter.] *BMJ* 2000; **320**: 870.
14. Bothamley G. General practitioners are screening for tuberculosis in new arrivals to the UK in Hackney. [Letter.] *BMJ* 2000; **320**: 870.
15. Bowen EF, Rice PS, Cooke N, et al. HIV seroprevalence by anonymous testing in patients with *Mycobacterium tuberculosis* and in tuberculosis contacts. *Lancet* 2000; **356**: 1488-1489.
16. Churchill D, Hannan M, Miller R, et al. HIV associated culture proved tuberculosis has increased in north central London from 1990 to 1996. *Sex Trans Inf* 2000; **76**: 43-45.
17. Public Health Laboratory Service/Department of Health. *Summary of the data to the end of 2000: unlinked anonymous prevalence monitoring programme in the United Kingdom*. London: PHLS/DoH, 2001.
18. Guthrie B, Barton S. HIV at the hospital/general practice interface: bridging the communication divide. *Int J STD AIDS* 1995; **6**: 84-88.
19. Department of Health (Welsh Office), Department of Health (Scottish Office), DHSS (Northern Ireland). Salisbury DM, Begg NT (eds). *Immunisation against infectious disease*. London: HMSO, 1996.
20. Dormandy T. Diathesis. In: *The White Death: a history of tuberculosis*. London: Hambledon Press, 1999.

Address for correspondence

Dr Surinder Singh, Department of Primary Care and Population Sciences, Royal Free Campus, Royal Free and University College Medical School, Rowland Hill Street, London NW3 2PF.