

Tackling tuberculosis in London's homeless population

London, UK, has one of the highest rates of tuberculosis in western Europe, and the city's homeless population are most at risk and the hardest to treat. Talha Burki reports.

The average homeless person living in the UK will die at the age of 42 years. The cause of death might be a drug overdose, liver failure, or an act of violence. It could be suicide—rough sleepers are 35 times more likely to kill themselves than are the general population—or cancer, which they are twice as likely to die from. Or it could be tuberculosis. London—where 3600 people slept rough last year—has one of the highest rates of tuberculosis in western Europe. It is a disease to which the homeless are particularly prone; indeed, the confluence of factors associated with homelessness offers the ideal environment for the tuberculosis pathogen to thrive.

2009 saw 9040 cases of tuberculosis in the UK: 15 cases per 100 000 individuals. But the disease is concentrated in certain demographics within certain areas. London has a rate of 44 cases per 100 000. In the country's homeless population, the rate is 300 cases per 100 000, an inequality that bears out WHO's assertion that "in many industrialised countries, tuberculosis rates among the homeless can be up to twenty times higher than the general population".

Poor nutrition is one reason for this. A study by UK charity Homeless Link found that almost a third of rough sleepers regularly eat less than two meals a day. Then there is alcohol. 20% of those surveyed admitted to drinking alcohol more than four times per week, and a third of these to consuming ten or more units per session. Whether alcohol is acting to suppress the immune system or whether it is more to do with the social habits of heavy drinkers, excessive consumption doubles the risk of developing tuberculosis. Compounding the problem is a high incidence of mental illness—70%

of rough sleepers report one or more mental health needs—and, by contrast with blood-borne diseases, low awareness of tuberculosis.

Tobacco smoking is widespread; the same survey found a smoking rate of 77%, compared with 21% in the wider populace. "There's a clear correlation

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between smoking and tuberculosis", says Mario Raviglione (WHO, Geneva, Switzerland). Even more vulnerable are the 13% who use crack cocaine. They inhale incredibly hot smoke, which damages the lungs, while cocaine itself has powerful immunosuppressive qualities. Then there is the context in which the drug is taken: poorly ventilated airspaces in which a number of already immunocompromised addicts congregate.

There is a core of chronic rough sleepers who remain permanently outdoors. In which case, they pose little risk of passing on any tuberculosis infection they might be harbouring. But it is more usual for individuals to flit between hostels and the streets. This is the story for 2000–3000 people in London every year. Infection within this group can spread easily. "The majority of tuberculosis cases in urban homeless populations are attributable to ongoing transmissions in shelters", notes WHO.

Alastair Story is Clinical Lead for Find and Treat, a London-based programme, funded by the Department of Health, that uses a digital mobile radiography screening unit to actively search for cases of tuberculosis among the homeless

and those accessing drug and alcohol services. It is the only such programme in the UK, even though other nations, according to Story, consider such proactive measures a vital component of anti-tuberculosis drives.

Story points out that if one was to screen for symptoms of tuberculosis—coughs, night sweats, weight loss, fever, general malaise etc—"everyone in the population we work with would have it". For this reason, and because their health is often the least of a hefty list of concerns, homeless people tend to present for treatment late, after they have potentially infected many others. Furthermore, those who may have been infected are unreachable. "Contact screening won't work", stresses Story, "patients don't know, or they're unwilling to divulge; besides, the chances of locating and persuading these others into screening is very remote".

Ensuring patients comply with treatment throws up significant problems. At a minimum, tuberculosis treatment entails 6 months of daily ingestion of three or four drugs. Homeless people are often disorganised and poorly educated; they might adhere to their regimen for a few weeks before disappearing, returning months later to resume treatment, perhaps with little idea of what they previously took. In such circumstances the onset of drug resistance becomes inevitable. London has about 3500 cases of tuberculosis each year. 15–20% of these have what Story describes as "complicated social factors"—homelessness, drug and alcohol issues, or a criminal history—which renders them exceptionally difficult to treat. This minority make up a third of all the infectious cases of tuberculosis and half the drug-

The printed journal includes an image merely for illustration

Reuters

Treating tuberculosis in homeless populations poses unique challenges

resistant cases. “They stretch the system to the limit”, adds Story.

“This is a prime example of why the present treatments are going to be inadequate”, Mel Spigelman (TB Alliance, New York, USA) told *The Lancet*. “Keeping these homeless populations on months, if not years, of treatment on a daily basis is not doable”. Until the next generation of drugs arrives, though, policy makers do have a few options available. “Providing tuberculosis treatment alongside methadone treatment is hugely effective”, says Story. However, this will not do for crack cocaine addicts, for whom there is no substitution therapy, and who are highly chaotic and resistant to engagement with drug treatment services.

Story regrets the absence of institutions in the UK that provide basic nursing care and treatment supervision, such as those that operate in the USA. “Many clients have very prolonged and expensive hospital admissions”, he explains “when in fact they could probably be managed by an intermediate level of care”. Mandatory screening on entry to shelters is another possibility. More controversial is the issue of forcible quarantine. Certainly there is a debate to be had over whether patients with, say, severe forms of drug-resistant tuberculosis should be compulsorily treated, during which time they would be incarcerated.

Riviglione emphasises the importance of clear records and counselling. He recalls how the New York authorities offered incentives for patients to attend for treatment, guaranteeing them food or paying for their travel. But most crucial, he believes, is political engagement. “If the city Government has no interest in tuberculosis, then you are almost sure that you have lost”. Spigelman agrees: “there has to be the commitment to devote the resources necessary to improve the health-care structures”.

“Peer-to-Peer programmes have proved very successful”, adds Homeless Link’s Helen Mathie. In these, former tuberculosis sufferers who have experienced homelessness and drug and alcohol problems encourage clients to agree to being screened, and offer support and advice. They have credibility with the at-risk population and can also be used to help locate, and persuade to return to treatment, those individuals who have been lost to services before they have completed their course of treatment.

What of the future? There are troubling indications. “There’s good data that, in the face of an economic downturn, increased tuberculosis follows shortly thereafter”, stated Spigelman. He added that even after the economy starts to pick up, it takes much longer for tuberculosis problems to be brought under control. “So the combination of the homeless and the economic situation today does not bode well”.

Mathie worries about the prospects for Find and Treat. “We’ve been hearing that it’s very much at risk”. The programme has been funded until the end of December, 2010. The Health Protection Agency (HPA) is due to report on the overall effect of the service next year, whereupon a decision on its future will be taken. The HPA has already found that active case-finding is cost effective since it averts future cases of tuberculosis by

interrupting the transmission chain.

“There’s a strong public health case for our activities”, argues Story. In fact, he contends that expanding the programme would pay dividends. Once healthcare workers have managed to get face-to-face with this particular client group—which is the tricky bit—he suggests screening them for blood-borne viruses. “We’re missing a trick by focusing solely on tuberculosis. Comorbidity with HIV or hepatitis B and C is huge in this community”. He recounts how the team also regularly encounters people in their 20s and 30s with heavily emphysematous lungs. By providing these individuals with a chance to see first-hand the damage wrought by addiction, especially to crack cocaine, it could encourage them to take up drug services.

Spigelman maintains that neglecting the problem of tuberculosis in homeless people, in the UK and elsewhere, could derail public health campaigns, adding that the extent of the problem, particularly regarding multidrug-resistant tuberculosis, has been enormously underestimated. Addressing this “requires political will on behalf of a people that don’t have a voice that carries with it any political clout”, he said. Mathie is concerned things might even be moving in the opposite direction. The proposed reforms to the UK Healthcare System centre on family doctor-led commissioning; she fears this could easily lead to services for marginal groups falling by the wayside, especially if payment by results assumes primacy; homeless populations are expensive to treat and less likely to have positive outcomes. She reckons the Joint Strategic Needs Assessment, in which Primary Care Trusts and local authorities assess the health needs of the local community, is very important. “It’s crucial that they take into account homeless populations and other excluded groups”, Mathie told *The Lancet*.

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