

can be achieved. For acute care, the development of emergency physicians is one possibility. This would have to be an attractive proposition for sufficient numbers of doctors and although it is worth exploring further, this solution may not fulfil all the service needs. Nor does it seem likely that enough physicians would be willing to practise "pure" general medicine without developing a subspecialty interest.

It follows that for the immediate future at least we will continue to require some specialists to practise general medicine to meet patients' needs. However, the pressures placed on specialists to practise in their area of expertise are high, and as subspecialties evolve they become more complex and time consuming. This inevitably means that not only will we have to provide enough physicians to deliver all the specialist and generalist care that is required, but we will also have to accept the need for training and continuing education to enable some physicians to maintain their general knowledge and skills. Somewhat surprisingly, this is quite an attractive proposition for many, providing of course that they do not feel that they are being left to carry too heavy a workload.

### Still an interest

Fortunately, there is still considerable interest in general internal medicine among trainees. The Royal

College of Physicians surveyed senior house officers about their career aspirations and found that the largest group wished to continue training in general internal medicine.<sup>5</sup> Dual training in general internal medicine plus a specialty is the most common option taken by specialist trainees in medicine.

We have, therefore, by happy coincidence, doctors who wish to practise general internal medicine at a time when patients continue to require the particular attributes that a general physician brings to an increasingly specialist world. There is a strong case for the general physician to work with specialists, and it is probable that most will practise a specialty as well as their general medicine. However, this desirable form of practice depends critically on the availability of more doctors than the currently very hard pressed numbers practising general medicine.

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## Tuberculosis in prisons in countries with high prevalence

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On any day worldwide about 10 million people are incarcerated, in prisons, remand centres, police stations, jails, detention centres for asylum seekers, penal colonies, and prisoner of war camps. There is an increasing recognition that the high risk of tuberculosis in these settings poses a problem for those imprisoned and for the wider society. The issue now is what to do about what was until very recently "a forgotten plague."<sup>1</sup> The important general measures for tuberculosis control in prisons are improvement of prison conditions, particularly a reduction in overcrowding, improvement of nutrition and hygiene, and guaranteed access to improved prison health services.

Knowledge of the epidemiology of tuberculosis in prisons, appreciation of what makes control different from control in other settings, and understanding of the principles of tuberculosis control are all necessary for governmental and other agencies to contribute to the implementation of effective tuberculosis control programmes in prisons. We have focused here on countries with a high prevalence of tuberculosis, where the problem is most severe and the need for action most pressing, and on the specific measures necessary in the implementation of an effective prison tuberculosis programme.

### Methods

The article is based on information from ongoing clinical work, follow up of ongoing prison pro-

### Summary points

People incarcerated are at high risk for tuberculosis and case rates are among the highest ever recorded in any population

The specific features of prisons and of prisoners necessitate specific approaches to tuberculosis control that are different from those used in the general population

Guarantees are needed to ensure completion of treatment; and this requires political and administrative commitment

Prisons can also provide an opportunity for effective tuberculosis control, which may well lead to improved prison health care

grammes, and reports from prisons, supplemented by literature searches.

### Epidemiology of tuberculosis in prisons

Prisons are closed institutions for prisoners during their period of incarceration. They are not, however, closed to the tuberculosis bacillus, and prisoners are often highly mobile, circulating within the system:

inside the prison, between different prisons, between different institutions of the judiciary system, and between prisons and health centres. Sooner or later, prisoners are released. Often former prisoners re-enter the system after new offences. Prison staff and visitors come and go as well. The prison reservoir thus poses a risk for society. Effective tuberculosis control in prisons is necessary to protect the wellbeing of both prisoners and the wider community.

The table shows published tuberculosis case rates in prisons in countries with a high prevalence. These rates are among the highest ever recorded in any population. Cases of tuberculosis in prison are often not routinely reported as it is usually the ministry of justice or interior that is responsible for reporting prison health data. These data rarely find their way into the ministry of health statistics, which are used for international reporting and for policy decisions. For example, in Azerbaijan the estimated number of cases of tuberculosis in prison in 1995 was 700, but only 1429 cases (excluding these 700) were reported to the World Health Organisation.<sup>8</sup> In some countries the number of tuberculosis cases in prisons constitutes a large proportion of the total number of cases. It is estimated that there will be about 75 000 new cases annually in the Russian civilian population (for a population of 150 million), while in Russian prisons there will be 40 000 new cases for a population of 1 million. Thus more than half the number of new tuberculosis cases will occur in prison.<sup>9</sup>

### Why prisons are different?

Prison society is different from civil society, and this has implications for tuberculosis programmes. Prisoners do not represent a cross section of society, a high proportion is poorly educated and socioeconomically disadvantaged. They therefore bring with them into prison an increased risk of ill health, including a high risk of tuberculosis infection and disease. Prison life is not conducive to good health. Overcrowding and prolonged exposure through long prison sentences (even for seemingly minor offences) promote tuberculosis.<sup>10 11</sup> Illegal drug use, although forbidden, is common, and injecting equipment is used in primitive and unhygienic conditions. Sex between men, voluntary or forced, occurs, and use of condoms is rare. The HIV epidemic further complicates control of tuberculosis in prisons. Prison conditions, tuberculosis, and HIV transmission are thus interconnected.

The mobility of prisoners within the system and between prisons and the wider community often makes it difficult for authorities to ensure prisoners with tuberculosis complete their treatment. The ministry responsible for health care in prisons is usually not the ministry of health—for example, the ministry of justice or the ministry of interior. These ministries have different priorities and often less experience and less skill in providing health care. People working in prison administration, who are responsible for providing health services, are commonly underpaid and the departments understaffed, resulting in poor health services available only for those who pay. Prison health services often fail to implement effective tuberculosis control and guarantee cure of tuberculosis, and prisoners are at high risk of leaving prison with the

Annual case notification rate for all forms of tuberculosis in prisons in countries with high prevalence of tuberculosis

Author	Location	Year	Rate (per 100 000)
Drobniewski <sup>1</sup>	Siberia, Russia	1993	6500
Wares <sup>2</sup>	Tomsk, Russia	1996	7000
Bollini <sup>*</sup>	Chişinău, Moldova	1996	2640
Coninx <sup>3</sup>	Baku, Azerbaijan	1994	4667
Aerts <sup>4</sup>	Tbilisi, Georgia	1998	6500
Koffi et al <sup>5</sup>	Bouaké, Ivory Coast	1992	7200
Auregan et al <sup>6</sup>	Atananarivo, Madagascar	1993	2400
Nyangulu et al <sup>7</sup>	Zomba, Malawi	1996	5100†

<sup>\*</sup>Bollini P. HIV/AIDS prevention in prisons: a policy study in four European countries. Joint WHO/UNAIDS European seminar on HIV/AIDS, sexually transmitted diseases, and tuberculosis in prisons. 14-16 Dec, Warsaw, Poland, 1998.

†Prevalence rate.

disease. Delayed diagnosis and substandard treatment are common, resulting in prolonged transmission. The combination of incomplete, interrupted, and inadequate treatment often leads to drug resistance; the combination of delayed diagnosis, insufficient treatment, and drug resistance results in high case fatality.

Prisoners lose their freedom as punishment, but they also lose free choice in many other matters and especially concerning their health. Often an unofficial internal hierarchy exists within the prison population. The power structures in the prisons of the republics of the former Soviet Union, for example, resemble a caste system and have been described previously.<sup>12</sup> Other different hierarchical systems are always part of the prison "subculture." It is important to be aware of the existence of these systems as they may interfere with medical administrative decisions—for example, there may be discrimination in admission to the hospital ward and unfair selection of prisoners for treatment. Internal hierarchical rules may also result in higher caste inmates denying lower caste room mates access to health services or forcing them to hoard medicines for later use. In other countries, structures of politically motivated groups may remain intact in the prison system, and groups may actually collaborate with the health staff. Hierarchy may also be based on ethnic or religious affiliation. Prisons are always violent societies, and unofficial rules are imposed by force if necessary, with underdog prisoners always losing in the end.

Where antituberculosis drugs are scarce a black market may develop, controlled by the more influential prisoners. Prisoners may use tricks and bribery to get into the treatment centres and treat themselves if no treatment is available officially. Prisoners may trade antituberculosis drugs, to be saved for later use or to be traded for goods or services or to pay off debts. Even well informed prisoners may choose to discontinue treatment on account of the lack of a supportive environment and fears that the evidence of active tuberculosis may hinder their release. Organisations working in prisons must be aware that prisoners may exchange or purchase samples known to give positive or negative results on smear tests to join a tuberculosis treatment programme or to leave one (for example, to avoid isolation as a non-responder).

The possible consequences of poor tuberculosis control are disastrous in a country with poor resources if the prison reservoir of tuberculosis leads to an epidemic of multidrug resistant disease in the civilian population. This may already be the case in the republic



Inmates at tuberculosis prison in Tula, Russia

IVAN SEKRETAREV/AP PHOTO

lics of the former Soviet Union, which now face difficult choices.<sup>13</sup> Therefore it is crucial that every agency involved in tuberculosis control in prisons must examine the specific features that make control different from that in other settings.

### Implementing tuberculosis control programmes in prisons

In response to the needs of governmental and other agencies that are dealing with this problem in countries with a high prevalence of tuberculosis, the World Health Organisation and the International Committee of the Red Cross have joined forces to produce guidelines for the control of tuberculosis in prisons and similar institutions.<sup>14</sup> The internationally recommended strategy for tuberculosis control relies on the detection and cure of patients, with a priority for infectious cases.<sup>15</sup> Although dependent on the availability of resources, screening of prisoners on entry into prison may have a role in early case detection. The specific features of prisons and prisoners necessitate specific approaches to the implementation of this strategy. For example, direct observation is necessary, not only of treatment to ensure adherence and prevent entry of drugs on to the black market but also when prisoners submit sputum samples because of the trade in these samples.

Political and administrative commitment are vital for success. The ability to ensure completion of treatment is a prerequisite in the establishment of an effective prison control programme. In those countries with an effective national tuberculosis programme, close liaison between the prisons and the programme is necessary to ensure that prisoners with tuberculosis complete treatment after release. In those countries without an effective programme a new or revised prison programme should treat only those prisoners with tuberculosis whose prison sentence is longer than the duration of tuberculosis treatment. This should be an intermediary step until the establishment of an effective national programme.

Commitment to ensuring completion of treatment implies special considerations for those prisoners who are awaiting charge, trial, or sentence. The period of detention in remand custody is unpredictable but is often too short for the completion of tuberculosis treatment. Authorities must ensure completion of treatment of these prisoners whether they are released or sentenced to prison. The authorities responsible for prisoners awaiting sentence therefore need to develop close links with both the health authorities in the community and the prison health authorities. Ensuring completion of treatment of prisoners awaiting sentence is crucial, otherwise the custodial system of such prisoners will be a source of transmission of tuberculosis in prisons and the wider community.

Ensuring completion of treatment also implies special considerations for prisoners transferred within a prison or between prisons. The administration of a tuberculosis control programme is more straightforward when a patient starts and completes treatment at the same centre. Prison authorities should ensure that a patient completes at least the initial phase of treatment without transfer between prisons. When a patient in the continuation phase of treatment

transfers to another prison, the prison authorities must ensure completion of treatment in the other prison.

Agencies seeking to help in this unprecedented crisis must work closely with governments and coordinate their efforts with other agencies. They need to obtain detailed and written agreements on tasks, responsibilities, and policies. Recognition of the key coordinating role of the national tuberculosis programmes is crucial.

### Prisons as an opportunity for effective tuberculosis control

Certain features of the prison environment make tuberculosis control difficult, but other features may provide an opportunity to implement effective control programmes. For example, the captive audience in prisons should facilitate direct observation of treatment, complete coverage, and health education. A well run prison tuberculosis programme may lead to the establishment of an effective national programme, especially in countries where traditional approaches to tuberculosis control run counter to the current international recommendations. This is often the case in the republics of the former Soviet Union.

Effective tuberculosis control in prisons may lead to an improved prison healthcare system by providing the stimulus to raise the profile of prison health care, allocate more funds, and improve coordination between the different ministries and agencies involved. Prison potentially provides an opportunity to provide health care to a group often previously without access to such care, who are at increased risk of illness. The recent surge in interest in tuberculosis control in prisons provides an opportunity for all involved to join forces in tackling this epidemic.

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