The WHO Regional Office for Europe

The World Health Organization (WHO) is a specialized agency of the United Nations created in 1948 with the primary responsibility for international health matters and public health. The WHO Regional Office for Europe is one of six regional offices throughout the world, each with its own programme geared to the particular health conditions of the countries it serves.

Member States

Albania
Andorra
Armenia
Austria
Azerbaijan
Belarus
Belgium
Bosnia and Herzegovina
Bulgaria
Croatia
Cyprus
Czech Republic
Denmark
Estonia
Finland
France
Georgia
Germany
Greece
Hungary
Iceland
Ireland
Israel
Italy
Kazakhstan
Kyrgyzstan
Latvia
Lithuania
Luxembourg
Malta
Monaco
Montenegro
Netherlands
Norway
Poland
Portugal
Republic of Moldova
Romania
Russian Federation
San Marino
Serbia
Slovakia
Slovenia
Spain
Sweden
Switzerland
Tajikistan
The former Yugoslav Republic of Macedonia
Turkey
Turkmenistan
Ukraine
United Kingdom
Uzbekistan

Original: English

KNCV TUBERCULOSEFONDS

International Union Against Tuberculosis and Lung Disease
Promoting lung health in low- and middle-income countries

MINISTERUL JUSTIȚIEI
ADMINISTRAȚIA NAȚIONALĂ A PENITENCIARELOR

Unitatea de Implementare a Proiectelor de Control al Tuberculozei

DH Department of Health

Prison Health, London
WHO Collaborating Centre for Health and Prisons

World Health Organization
Regional Office for Europe

Scherfigsvej 8, DK-2100 Copenhagen Ø, Denmark
Tel.: +45 39 17 17 17. Fax: +45 39 17 18 18. E-mail: postmaster@euro.who.int
Web site: www.euro.who.int

WORLD HEALTH ORGANIZATION
EUROPE

Status Paper on Prisons and Tuberculosis

2007

WORLD HEALTH ORGANIZATION
EUROPE

Status Paper on Prisons and Tuberculosis

ABSTRACT

A review of the current position concerning the prevalence of tuberculosis (TB) showed that, despite the progress being made, TB remains a major problem in prisons in parts of Europe and for Europe as a whole. There is an urgent need for all those concerned, including public health policy-makers and prison staff, to understand the nature of the challenge stemming from the characteristics of the disease and from the particular realities of life in prison and among prison populations. This report provides evidence for what must be done, and outlines the well-established ways by which this life-threatening disease can be detected, treated and brought under control in prisons and in the community. With such understanding, and with resources for trained staff, for laboratory testing and for curative medicines, TB programmes in prisons as part of national strategies can bring about major public health gains and contribute towards a world without TB. This status paper was adopted at the WHO International Conference on Prisons and Health in Sinaia, Romania on 26 October 2006. The meeting was organized in cooperation with the Ministry of Justice and Ministry of Health of Romania and the TB Projects Implementation Unit, National Administration of Penitentiaries. The meeting was co-sponsored by the WHO Collaborating Centre on Prison Health at the Department of Health for England and Wales, the Global Fund, the Romanian National Administration of Penitentiaries, and the Institute of Lung Diseases "Marius Nasta".

Keywords

PRISONS
PRISONERS
TUBERCULOSIS – PREVENTION AND CONTROL
EUROPE

EUR/07/5063912

Address requests about publications of the WHO Regional Office for Europe to:
Publications
WHO Regional Office for Europe
Scherfigsvej 8
DK-2100 Copenhagen Ø, Denmark
Alternatively, complete an online request form for documentation, health information, or for permission to quote or translate, on the Regional Office web site (http://www.euro.who.int/pubrequest).

CONTENTS

Page

Foreword

This status paper on prisons and tuberculosis (TB) summarizes the situation on the prevention, diagnosis and treatment of TB in prisons and aims to provide evidence for action that will reduce the spread of TB among prisoners and so reduce risks to the community and to public health in general. It has been produced within the overall objectives of the WHO Health in Prisons Project (HIPP), namely to use a whole-prison approach to protect and promote the health of prisoners, their families and prison staff in the wider interests of public health.

The paper is the result of research evidence and expert opinion derived from various expert sources and from the conclusions of the various bodies working in Europe on TB control, as indicated in the acknowledgements. The document is not intended to be a technical guide.

The public health case for action is strong. Those involved in deciding policies and services for prisons now have the evidence of effectiveness to add to the successful experiences in several countries in Europe and elsewhere. They should conclude that effective TB prevention and DOTS (directly observed treatment, short-course) strategy, together with harm-reduction measures, can be safely introduced into prisons; that such measures can significantly help in preventing the transmission of TB in the wider community; and that action is now required in the interests of public health as a whole.

The primary target groups for this paper include policy-makers in the ministries responsible for prisons and senior prison management. Other audiences considered are prison staff, nongovernmental organizations and community leaders. The paper is written for the WHO European Region, but a large part of the challenges and recommendations may also be relevant for other WHO regions.

It is our intention that this report will form the basis for a more global document at a later stage, thus making a worthwhile contribution to the WHO vision of a world without TB.

Acknowledgements

We thank the following group of experts, who drafted, discussed and commented on this status paper before it was presented at the WHO International Conference on Prisons and Health in Sinaia, Romania on 26 October 2006.

Dr Jonathan Beynon
Coordinator of Health in Detention, International Committee of the Red Cross, Switzerland

Dr Pierpaolo de Colombani
Medical Officer, WHO Regional Office for Europe, Denmark

Dr Masoud Dara
Senior Consultant, KNCV Tuberculosis Foundation, Netherlands

Dr Alex Gatherer
Temporary Adviser, United Kingdom

Mr Paul Hayton
Deputy Director, WHO Collaborating Centre on Prison Health, United Kingdom

Dr Einar Heldal
The UNION, Norway

Dr Michael E. Kimerling
Associate Professor, Department of Medicine, University of Alabama, Birmingham, USA

Dr Hans Kluge
TB and TB/HIV Adviser, WHO Representative's Office, Myanmar

Dr Alexander S. Kononets
Deputy Director, Federal Correctional Service, Russian Federation

Dr Lucia Mihailescu
Coordinator of an Implementation Unit for TB Control Projects, Ministry of Justice, Romania

Dr Lars Møller
Manager, Health in Prisons Project and Illicit Drugs, WHO Regional Office for Europe, Denmark

Dr Hernan Reyes
Medical Coordinator for Detention-related Activities, International Committee of the Red Cross, Switzerland

Executive summary

Despite the valuable progress that has been made, tuberculosis (TB) remains a major health problem in prisons in parts of Europe, and therefore in Europe as a whole. This is despite the fact that TB is largely a curable disease and there is general consensus internationally on how to prevent and control it through the DOTS (directly observed treatment, short-course) strategy, including in prisons.

The WHO Health in Prisons Project (HIPP) therefore developed this status paper to identify major challenges in the implementation of TB control in prisons and to provide recommendations to guide policy-makers and key stakeholders in strengthening its implementation. The paper was written by an expert group and developed through consultation with external partners.

The paper details evidence and experience to explain and justify the need for urgent action. A first step in bringing the current epidemic under better control is to ensure that all those concerned with prisons and prison health, including public health policy-makers and prison staff, have the knowledge and understanding of the basic features of TB as a disease in the particular context of prisons, and particularly: what causes TB, how it spreads and why it is largely a curable disease; how more serious drug-resistant forms of the disease can be produced; the personal and environmental factors that considerably complicate the severity of the disease in certain individuals, and the possibility and severity of an outbreak within prisons; the importance of a treatment programme within prisons to ensure compliance with and completion of a full course of treatment; the features of life in prison that may increase the difficulty in detecting, diagnosing and treating the disease; and the essential need for prison programmes to linked with and be part of a national strategy for TB control.

Without a clear understanding of the disease and what needs to be done, and the consistent provision of adequately trained staff and the necessary support, prisons could remain the worst of all possible environments, in which TB can flourish and create a community reservoir of a fatal disease. Uncontrolled TB in prisons will make the situation worse for everybody by permitting the export of the disease into the general community.

Key points in a TB strategy for prisons

1. Funding for health care and TB control in prisons is inadequate. Political commitment and support is needed, and external funding should ensure TB control in both the prison and civil sectors.
2. No system can successfully be put in place unless sufficient staff are trained and available. An important part of planning must include the recruitment of competent staff and a comprehensive human resource development strategy that includes training, supporting staff where needed, and adequate remuneration so that quality of service and staff retention can be ensured.
3. Systems for proper infection control, combining administrative, engineering and personal measures, have been developed recently in many settings and minimum standards need to be followed.

4. Case detection through quality-assured bacteriology is an essential feature of an effective health programme against TB. An adequate network of smear microscopy services is needed in coordination with the network services outside prison.

5. Continuous detection of prisoners with TB symptoms should be ensured through screening on entry and at regular intervals, usually using chest X-ray and smear microscopy.

6. Testing for drug resistance should be centralized and should be coordinated with the civil sector to ensure adequate quality.

7. Treatment guidelines should be the same as those for the civil sector and should be followed in practice.

8. Treatment should be given under direct supervision in line with national TB programme guidelines. Release of patients still undergoing treatment should be carried out in close coordination with the civil sector.

9. There must be an efficient and adequate supply of the necessary drugs and an established management system for making sure the drugs are used effectively. A regular supply of drugs of assured quality should be procured through the Global Drug Facility (GDF)[1] for first-line drugs and the Green Light Committee (GLC)[2] for second-line drugs.

10. A system of recording and reporting is needed for monitoring and analysing the TB programme. There should be a common system for the prison and civil sectors, and prisons should report to the civil-sector system.

11. There is a need to establish a collaborative scheme for diagnosing and treating those infected with both TB and HIV. HIV testing should be offered to all TB patients and antiretroviral treatment and preventive TB treatment should be provided when indicated.

12. There is also an urgent need to ensure effective and efficient diagnosis and treatment of drug-resistant forms of TB. Treatment of multidrug-resistant TB (MDR-TB) should be expanded, while at the same time ensuring that the TB programme effectively reduces the production of new strains of MDR-TB, both inside and outside prison. MDR-TB treatment should be provided through the GLC.

13. In countries where the civil-sector TB programme is weak, a general improvement both inside and outside prison is needed. If, on the other hand, the civil sector functions well, better coordination with prisons should rapidly ensure adequate control. Close cooperation between national health and prison health services is important in producing effective TB control in prisons. Ideally, prison health should be under the ministry of health.

14. It is essential that prison TB control programmes include adequate linking with community services, so that community follow-up is not only available but is actively supported; in some countries nongovernmental organizations have been successful in this respect. There is a need to involve prisoners' families and nongovernmental organizations more fully as important resources.

15. An important part of any TB programme is the provision of information and further education where needed. It is essential that the "old" idea that TB is a chronic disease without a cure is dispelled. Misconceptions about TB need to be corrected through better information to staff, prisoners and relatives, especially by emphasizing that TB is a curable disease.

---

[1] Global Drug Facility. Geneva, Stop TB Partnership (http://www.stoptb.org/gdf, accessed 8 May 2007).

[2] *GDF and Green Light Committee (GLC) announce convergence*. Geneva, Stop TB Partnership (http://www.stoptb.org/gdf/newsevents/archive/gdfglc.asp, accessed 8 May 2007).

16. An effective TB programme must be concerned with all aspects of life in prison, such as overcrowding, nutrition, fresh air and outdoor exercise. For these reasons, an overall prison approach is important, within the broader context of prison reform and with the involvement of top management.

Introduction

TB is a major global health and public health problem, and there are clear challenges in two regions of the world: Africa (which also has a high prevalence of HIV infection) and eastern Europe.[3] In eastern Europe, the situation is made more serious by the existence of pools of infectious cases with drug-resistant forms of TB, and inadequate health systems leading to poor case management and the production of additional drug-resistant cases. The situation in parts of Europe and central Asia has recently been aggravated by the increasing prevalence of HIV infection in certain populations, which considerably increases the risk of active TB in those infected with both TB and HIV.

> Health in prisons is not just about prisoners. Prisons are small communities in themselves, having custodial staff and health staff entering and leaving every day. Visitors to prisons may also have regular close contact with the prisoners. Any health problem among the prisoner population will inevitably affect those people in close contact with them, and sooner or later these problems will spill out into the general community.

Resistance to anti-TB drugs develops from inappropriate or insufficient TB therapy. The form of the disease resistant to the two most potent drugs (isoniazid and rifampicin) is MDR-TB, which requires treatment for 18–24 months with second-line anti-TB drugs. Second-line drugs are costly, often less effective and associated with more side-effects. If TB control programmes are not able to manage TB patients appropriately, then the huge costs involved in using second-line drugs will have limited impact or even be counterproductive owing to the creation of additional resistance in TB strains, such as extensively drug-resistant tuberculosis (XDR-TB).[4]

Since the early 1990s, TB outbreaks in prisons have been reported in many countries in eastern Europe, and TB strains transmitted in prisons are more likely to be drug-resistant or associated with HIV coinfection. There has been global agreement on the rationale and approach to the prevention and treatment of TB since the early 1990s. WHO developed guidelines on TB in prisons in 1998[5] and 2000,[6] but the implementation of these recommendations has been very slow in many countries. Many of the issues raised reflect the general conditions present in prisons, especially overcrowding, poor ventilation, poor nutrition, and difficulty of access to effective preventive and curative health services, adequately supervised treatment, preparation for release and post-release follow-up. Deprivation of liberty should be the punishment of last resort, yet the increasing number of prisoners in most European countries is having a direct impact on TB control.

To combat MDR-TB, WHO and its partners have set up the GLC mechanism to facilitate access to high-quality, low-priced second-line drugs for the treatment of MDR-TB. Through this

---

[3] *Actions for life: towards a world free of tuberculosis. The Global Plan to Stop TB 2006–2015*. Geneva, World Health Organization, 2006.

[4] XDR-TB is defined as a form of TB resistant to isoniazid and rifampicin, to any fluoroquinolone, and to one or more of the injectable drugs such as amikacin, capreomycin and kanamycin.

[5] Maher D et al. *Guidelines for the control of tuberculosis in prisons*. Geneva, World Health Organization and International Committee of the Red Cross, 1998 (document WHO/TB/98.250).

[6] Bone A et al. *Tuberculosis control in prisons. A manual for programme managers*. Geneva, World Health Organization and International Committee of the Red Cross, 2000 (document WHO/CDS/TB/2000.281).

mechanism, and with additional funding, a number of eastern European countries already have or will soon have capacities for treating MDR-TB, including in prisons. Many of these countries cover the cost of the drugs from the Global Fund (TGF).

This paper represents a framework for discussing the major challenges in the current implementation of TB control in prisons and provides a number of recommendations to guide policy-makers and key stakeholders in strengthening implementation. It follows the launching of the Global Plan to Stop TB, 2006–2015[7] in March 2006, which is guided by the Millennium Development Goals.[8] This document is the result of the work of an expert group that developed the report between March and December 2006 through a process of consultation with a number of external partners. It was endorsed at the WHO International Conference on Prisons and Health in Sinaia, Romania on 26 October 2006.

[7] *The Global Plan to Stop TB, 2006–2015*. Geneva, Stop TB Partnership (http://www.stoptb.org/globalplan, accessed 8 May 2007).
[8] *UN Millennium Development Goals*. New York, United Nations (http://www.un.org/millenniumgoals, accessed 8 May 2007).

Background and epidemiology

According to the latest WHO data,[9] the TB epidemic in the WHO European Region peaked in 2001 but MDR-TB and HIV coinfection continue seriously to hamper work to control the disease. The TB emergency in the eastern part of the Region continues. In 2004, there were an estimated 444 777 cases of TB in the Region, 80% of them in 18 countries in the newly independent states, the Baltic countries, Romania and Turkey. In the same year, TB also caused an estimated 69 018 deaths. Moreover, among TB cases treated, the European Region reports the highest rate of treatment failure (7%) and the second highest death rate (6%) in the world.

The rates of MDR-TB in these countries are estimated to be among the highest in the world. According to the latest published WHO/IUATLD survey[10] of 20 countries with the highest rates of MDR-TB among previously treated cases, 14 are in the European Region.

In the newly independent states, reports from various prison settings have documented a very high annual rate of reported TB cases of 2000–7000 per 100 000 prisoners over the past decade. A recent survey[11] found a mean TB notification rate of 232 (range 0–17 808) per 100 000 prisoners in Europe, the highest rates being in Kazakhstan (17 808) and Azerbaijan (3944). It is estimated that there are at least 32 000 TB patients in prisons in Europe, 30 000 of them in eastern Europe. A higher proportion of TB patients among prisoners have MDR strains than patients outside prison. Two studies in Russian regions (*oblasts*) showed over 30% MDR strains in new cases and over 50% in previously treated cases.

In the Russian Federation in recent years, there has been a clear tendency towards a reduction in TB incidence among prison inmates, though it remains high. The incidence in 1999 was over 4000 per 100 000, while in 2005 it was 1591 per 100 000. The number of people infected with HIV in the Russian Federation in 2005 (some 35 000) was twice as high as it was in 2000.

Tuberculosis: how it spreads and the prison condition

Despite being infected with *Mycobacterium tuberculosis*, a person can stay healthy and never become sick. However, when a person's immune system is affected (e.g. through HIV infection, chemotherapy for cancer, old age, stress, etc.), the infected person will be more likely to develop active TB disease. TB can affect any organ or part of the body, but especially the lungs. The pulmonary form of TB is that which is infectious through transmission of airborne droplets. Indoors, droplets produced by coughing or sneezing can remain airborne for extended periods of time, especially if room ventilation is poor.[12]

---

[9] *Global tuberculosis control: surveillance, planning, financing*. *WHO Report 2006*. Geneva, World Health Organization, 2006 (document WHO/HTM/TB/2006.362).

[10] *Anti-tuberculosis drug resistance in the world. Third global report. The WHO/IUATLD Global Project on Anti-tuberculosis Drug Resistance Surveillance, 1999–2002*. Geneva, World Health Organization, 2004 (document WHO/HTM/TB/2004.343).

[11] Aerts A et al. Tuberculosis and tuberculosis control in European prisons. *International Journal of Tuberculosis and Lung Disease*, 2006, 10:1215–1223.

[12] For a review of the epidemiological basis of tuberculosis control see: Rieder HL. *Epidemiologic basis of tuberculosis control*. Paris, IUATLD, 1999 (http://www.tbrieder.org, accessed 2 May 2007).

Prisons are often high-risk environments for TB transmission because of severe overcrowding, poor nutrition, poor ventilation, and limited access to often insufficient health care. Moreover, prisoners do not represent a mere cross-section of society in general. Prisoners are overwhelmingly male, are typically aged 15–45 years, and come predominantly from poorly educated and socioeconomically deprived sectors of the population where TB infection and transmission are higher. Offenders often belong to minority or migrant groups and live on the margins of society. Prisoners are also more likely to suffer from other debilitating diseases and have additional health problems such as drug addiction, alcoholism and liver disease.

The five facts of TB spread in prisons

- Prisons receive TB.
- Prisons concentrate TB.
- Prisons disseminate TB.
- Prisons make TB worse.
- Prisons export TB.

Prison health services are often minimal or nonexistent owing to a lack of funding. Prisoners are often admitted to cells without being given a health check and are thereby mixed together in settings ideal for the spread of disease. One infectious prisoner with TB may infect the others very efficiently. The combination of overcrowding, poor nutrition, poor ventilation and lack of screening for TB has turned prisons into breeding grounds and incubators for TB.

Various types of physical and psychological stress may trigger the progression of TB infection to active disease. Malnutrition, abuse of alcohol and other drugs, and infection with HIV promote this progression. Prevalence of HIV infection is much higher among prisoners than in the general population. Ongoing injecting drug use involving the sharing of injecting materials, as well as unprotected sex among prisoners, makes prisons high-risk places for the spread of HIV among inmates. An HIV-negative person infected with *M. tuberculosis* has a 5–10% lifetime risk of developing active TB, whereas an HIV-positive person has a lifetime risk of 50% or more.

Since prisoners have a high risk of having or developing TB, it is recommended that prisoners are screened using methods such as symptomatic questionnaires, sputum microscopy and chest X-ray on admission and at specified intervals. Restrictions on access to health care may be compounded by health service staff who are unmotivated owing to poor salaries, a lack of resources to practise good medicine, or a lack of basic training about TB. Prisoners often do not adhere to prescribed treatments. They may be taking “self-prescribed” erratic treatment or improper doses of drugs. Worse still, prisoners sometimes prefer to resort to “self-medication”, taking drugs brought in by family members or complacent guards. These inadequately treated prisoners are at high risk of developing MDR-TB, which can subsequently spread among their fellow inmates. Also, frequent movement of infectious prisoners between prisons has increased transmission and led to interruptions in treatment.

TB among prisoners may spread to the population outside through infection of prison security and health staff, infection of visiting family members, and prisoners released while they are still infectious. The treatment of released prisoners needs to be supervised at an outside facility, preferably under the national TB programme (NTP), but this often does not happen. In many

countries, prison TB services are not linked or well-coordinated with the NTP. It is often those countries with a high TB burden that have the fewest means of ensuring post-release follow-up. Also, prisoners released often give false names and addresses, or have no registered home address. Often they cannot afford transportation to go and receive treatment or medical supervision. Released prisoners, therefore, often “default” rather than “transfer out”.

The importance of ensuring that a prisoner completes the full course of TB treatment should lead to special consideration being given to prisoners transferred between prisons. TB control in prisons is less complicated when a TB patient starts and completes treatment in the same prison. If this is not possible, the authorities should ensure that a prisoner being treated for TB completes at least the initial phase of treatment before being transferred. When a TB patient in the second (continuation) phase of treatment is transferred to another prison, completion of treatment in the other prison should be guaranteed.

The Stop TB Strategy

Since the early 1990s there has been broad international consensus on how to prevent and treat TB with the so-called DOTS strategy, which has been documented to be very effective in different settings. The elements of the strategy are: political commitment with increased and sustained financing; case detection through quality-assured bacteriology; standardized treatment with supervision and patient support; an effective drug supply and management system; monitoring and evaluation; and impact measurement. The DOTS strategy was expanded in 2006 and given the name The Stop TB Strategy.[13]

The main objectives of The Stop TB Strategy are to:

- achieve universal access to high-quality diagnosis and patient-centred treatment;
- reduce the human suffering and socioeconomic burden associated with TB;
- protect poor and vulnerable populations from TB, TB/HIV infection and MDR-TB; and
- support the development of new tools and enable their timely and effective use.

There is an urgent need to take effective action against TB in prisons because:

- TB transmission is not contained by any boundaries, especially behind prison walls;
- high levels of TB in prisons have a significant impact on the levels of TB in the community, and high levels of TB in the community can have an impact on TB in prisons;
- conditions within prisons facilitate the spread of the disease, and prisons are often a reservoir of the disease;
- the risk of drug-resistant TB in prisons is high, as is the merging of TB and HIV epidemics; and
- governments have a duty to protect prisoners from harm and to provide access to a standard of health care at least equivalent to that in the community.

The six components of The Stop TB Strategy are:

- pursuing high-quality DOTS expansion and enhancement
- addressing TB/HIV infection, MDR-TB and other challenges
- contributing to the strengthening of health systems
- engaging all care providers
- empowering people with TB, and communities
- enabling and promoting research.

The cornerstone of The Stop TB Strategy remains the DOTS strategy. In aiming to reach the TB-related Millennium Development Goals by 2015, however, the Strategy includes additional components of special relevance for TB control in prisons: strengthening of TB/HIV

[13] *The Stop TB Strategy: building on and enhancing DOTS to meet the TB-related Millennium Development Goals*. Geneva, World Health Organization, 2006 (document WHO/HTM/STB/2006.37).

collaborative activities; prevention and control of MDR-TB; addressing the challenges represented by prisoners, refugees and other high-risk groups and special situations; strengthening health systems; engaging all care providers, including ministries of justice and internal affairs; empowering people with TB and communities; and promoting appropriate research in the prison setting.

WHO recently published specific guidelines on the programmatic management of drug-resistant TB.[14] Guidelines have also been developed for TB/HIV.[15,16]

[14] *Guidelines for the programmatic management of drug-resistant tuberculosis*. Geneva, World Health Organization, 2006 (document WHO/HTM/TB/2006.361).
[15] *Interim policy on collaborative TB/HIV activities*. Geneva, World Health Organization, 2004 (document WHO/HTM/TB/2004.330) (http://whqlibdoc.who.int/hq/2004/WHO_HTM_TB_2004.330_eng.pdf, accessed 5 May 2005).
[16] Harries A et al. *TB/HIV: a clinical manual*, 2nd ed. Geneva, World Health Organization, 2004 (document WHO/HTM/TB/2004.329).

Challenges in implementing the prevention, diagnosis and treatment of TB in prisons

In many prisons, especially in eastern European countries, the high levels of TB and MDR/XDR-TB are explained by inadequate TB treatment in previous years, overcrowding, inadequate ventilation, poor nutrition, poor hygiene, weak laboratory services and drug shortages, and by the fact that TB control in prisons is poorly integrated with TB control programmes in the civil sector. Based on experiences in different parts of the European Region, the following sections identify and group the major challenges, in line with The Stop TB Strategy and The Global Plan to Stop TB 2006–2015.

The main challenges in implementing the prevention, diagnosis and treatment of TB in prisons

- Political commitment
- Infection control
- Case detection through quality-assured bacteriology
- Standardized treatment with supervision and patient support
- Effective drug supply and management system
- Monitoring and evaluation system, and impact measurement
- Collaborative TB/HIV activities
- Prevention and control of MDR-TB
- Community participation
- Advocacy, communication and social mobilization
- Research

Political commitment

Legal basis and guidelines

As part of building political commitment, it is necessary to ensure that both legislation and national guidelines facilitate TB control in prisons. In particular, the following areas should have a supportive legal basis with minimum standards: guidelines in line with the national TB control programme; enough surface area per inmate to avoid overcrowding; adequate nutrition; comprehensive infection control planning; policies on the release of prisoners with TB and/or their transfer to other facilities; and integration/collaboration with the health care services in the civil sector. TB-relevant policies and guidelines in prisons need to be developed through an interactive process and reviewed through national stakeholder groups to build and maintain consensus.

Programme funding

Many countries provide only a limited budget for health care and TB control in prisons, and implementation of even the most cost-effective DOTS strategy is often seriously lacking in resources. In some settings, TB is seen as a chronic, incurable disease and therefore not worthy of funding. This is why TB control in prisons is an essential component of TB control in each

country. With increasing access to MDR-TB treatment during recent years, greater levels of funding for TB control are justified and even an ethical obligation.

External funding is provided by TGF, the World Bank, bilateral donors, nongovernmental organizations and others. Experience has clearly shown that support to TB programmes should promote and ensure coordination and integration between the civil and prison sectors. When a project does not include both prisons and the civil sector, it may cause inequities and inefficiencies. Projects may ensure an effective TB programme inside prisons while the TB programme outside is very weak. Consequently, released prisoners will have poor outside support, leading to discontinuation of treatment and development of drug-resistant TB. Adequate funding for TB control in prisons that is appropriately linked to the civil sector is an essential condition for intersectoral collaboration and effective management of TB cases among prisoners.

Integration/collaboration with TB control programmes in the civil sector

The main objective should be that prisoners have the same quality of health services as the general population. In some countries, the civil-sector TB programme functions very well and it is simply necessary to ensure close coordination with the prison health services. In other countries, however, the civil-sector programme does not function adequately so that a general improvement in TB control both outside and inside prisons is needed.

Difficulties can arise if prison health services and national TB services are not the responsibility of the same ministry. In the European Region, only in England (since 2005), France and Norway is prison health the responsibility of the ministry of health; in all other countries it comes under the ministry of justice, the ministry of internal affairs or another authority. In the latter countries, coordination of health services, including TB prevention and treatment, is difficult. A few other countries, such as Georgia, are planning to integrate prison health services under the ministry of health. In any case, integration or improved collaboration between the civil-sector and prison health services brings support to the process of strengthening the health system in the country.

An example from England
Between 2000 and 2006, a process of fundamental reform of the prison health services took place in England. At national level, the responsibility for the health of prisoners was transferred from the Prison Service and the Home Office to the Department of Health, including all the funding for services to prisoners. At the same time, at local level, all prison governors began working in partnership with the community health services in their locality (the National Health Service) to assess the health needs of prisoners and develop plans for services to meet those needs. Today, all health services for prisoners are delivered and paid for through the National Health Service to a standard broadly equivalent to what is available in the wider community.

An example from the Russian Federation
In the Arkhangelsk region, the Regional Health Department has collaborated since 1997 with the Northern State Medical University, the Norwegian Lung and Heart Association and the Norwegian Institute of Public Health. Since 1999, this collaboration has also included the regional prison authorities, through a written contract. There is a coordinating body that meets every six months and includes TB specialists. There is a regional TB committee that meets monthly with TB coordinators in the civil sector. There is also a medical commission that meets twice a week with TB doctors from the civil sector, from laboratories and from prisons.

An example from Romania
In Romania, the TB supported by TGF includes both civil-sector and prison systems. The projects in prisons aim at strengthening the prison health system by adopting TB infection control measures, providing education to prisoners, and promoting close collaboration with the national TB programme. In addition, projects in the civil-sector TB network consider addressing TB control in prisons by, inter alia, training medical and paramedical staff at all levels (general practitioners and nurses, lung specialists, laboratory staff), updating the TB surveillance system, and accrediting laboratories for TB diagnosis in prison hospitals.

Human resources

In most prisons, there is a lack of staff qualified to work with TB. Effective plans for human resource development need to be implemented and should cover the entire process, including basic education (in-service and pre-service), retraining, on-the-job-training, supervision, career development, salary scales, job descriptions and infection control measures. Low salaries and fear of infection are among the reasons that health staff may not want to work in prisons. The need to adequately train and motivate medical staff on the difficulties of treating resistant forms of TB over long periods of time, with medicines that have side-effects, should be a high priority for TB control programmes.

Infection control

To reduce the risk of TB transmission to prisoners, prison staff and visitors, it is important to make sure that infection control measures are in place. From a TB infection control perspective, early diagnosis and separation of patients according to their type and category of disease is highly recommended. In general, there are three main elements in infection control:

- administrative measures (separating infectious cases, and rapid detection of cases with immediate initiation of treatment to interrupt transmission and prevent emergence of drug resistance);
- engineering measures (for example negative ventilation); and
- personal protection (respirators for staff and disposable masks for patients).

An example from the Republic of Moldova
Overcrowding and poor sanitary conditions in police lock-ups and pre-trial detention facilities were of special concern in the Republic of Moldova. The project “Strengthening civil society, health and human rights in prisons in the Republic of Moldova”, implemented jointly by the Moldovan Department of Penitentiary Institutions, the KNCV Tuberculosis Foundation, Penal Reform International and Caritas Luxembourg in close collaboration with the National Tuberculosis Programme, addressed prison overcrowding and the spread of TB infection by introducing alternative methods of punishment that reduced the frequency and length of imprisonment and contributed to improving living conditions and hygiene. TB case finding among inmates was also strengthened.

Case detection through quality-assured bacteriology

Prisoners with TB are detected either by screening on entry, through investigation when they develop symptoms during their prison stay, or by screening at regular intervals. On entry, the prison health services should actively seek information on past or present TB treatment.

Active case finding (screening) is indicated in groups with an especially high risk of contracting TB. In prisons with high levels of TB, all prisoners should be screened at entry, usually by chest X-ray and sputum smear microscopy. Such on-entry screening is not implemented in some settings; this is particularly true in remand prisons, where the intake of prisoners cannot be handled by the few staff available, especially at weekends.

It is essential that prisoners who develop symptoms of TB during their stay in prison (such as cough with expectoration for more than three weeks, fever and weight loss) know that they must inform the health services and that they have easy access to diagnostic facilities. Unfortunately, this is easier said than done for many prisoners. Beyond logistical and security issues, the realities of corruption within the system, and between the prisoners themselves, often lead to prisoners having to pay for access to the medical services. Prison health staff must be trained to recognize TB suspects and to perform adequate examinations.

The usefulness of periodic screening during the stay in prison is much debated, but given the extremely high incidence of TB in prisons in the newly independent states it may well be useful. In the Russian Federation, it is usually carried out every six months with chest X-rays and sputum smear microscopy. Such screening, however, is not done in all settings. Countries such as Georgia find routine screening too expensive. The quality of X-ray examination and reading is also a limitation of such screening.

The basis for diagnosis of infectious TB is microscopy examination of sputum, since it immediately identifies the most infectious patients who can be isolated and started on treatment. Smear microscopy is not done or is of unacceptable quality in many settings. The staff are sometimes inadequately trained, microscopes may be of low quality and poorly maintained, the staining may be inadequate, there may be little staff retraining and few supervisory visits, and quality assurance through exchange of slides is rarely done. This is currently a major problem in TB programmes worldwide, including those in prisons. An adequate network of smear microscopy sites should be set up inside the prison system, so that peripheral prisons/colonies have easy and rapid access and the number of performed tests is still sufficient to ensure adequate quality. The network in the prison system should be coordinated with the network outside, so that collaboration at local level may be achieved.

A special challenge in smear microscopy is that in some prisons there is a market for selling sputum positive for TB, because it leads to transfer to a hospital unit and better conditions. Reliable prison staff must receive training about this issue, and know how to supervise the production of sputum adequately and directly. The ultimate way to counter this problem will be to increase living and working conditions in all prison facilities.

Ideally, all TB suspects should be tested by sputum culture and drug susceptibility testing (DST) in addition to sputum smear microscopy, if the budget allows it. This is currently done in several countries, but does not provide reliable results in many settings since not all laboratories are part

of the Supranational Reference Laboratory Network[17] set up by WHO. Laboratories carrying out sputum culture and DST also need strict safety measures to prevent infection of the staff, and such facilities are expensive to build and to run. Such laboratories should therefore be centralized as much as possible and coordinated with the system in the civil sector.

In many countries, the prison health system has set up its own laboratories for sputum culture and DST in parallel with the civil-sector system. Russian regulations require that the prison health system has its own laboratory system. One city (for example Arkhangelsk) may therefore have two laboratories offering sputum culture and DST. The reason may be economic: the civil sector may charge the prison system for its services and the prison system has found it cheaper to establish its own laboratories. If for any reason there has to be two laboratories, an effective system of quality assurance must be set up. In some settings, the local health authorities allocate funds to cover the costs incurred to the civil sector for quality control and/or laboratory tests for the prison system. In global TB control, expansion and strengthening of laboratory services have been top priorities for many years, but the speed of expansion has been much lower than expected.

> It is essential that TB control programmes include the entire prison system, defining how peripheral units will ensure case finding and participate in treatment monitoring and supervision (of both the intensive and continuation phases). At the periphery, staff can be trained to obtain/receive sputum samples safely and forward them to a more central unit for smear preparation and microscopy. Adequate supervision and a quality assurance programme by the NTP are essential for proper laboratory work inside prisons.

Standardized treatment with supervision and patient support

The principles of treatment and management of TB are exactly the same in prison and in the civil sector. It is highly recommended to have national guidelines applicable to both the prison and civil sectors. The prison sector should participate in the development of such guidelines. One major challenge is ensuring the implementation of the recommended treatment regimens.

Despite the fact that prisoners are in one place, follow-up to treatment is not always as easy as it should be. It is imperative that every dose of drugs to be taken is directly observed in order to ensure adherence and avoid interrupted or incomplete treatment. In some settings, prisoners will prefer not to take medicine in order to remain sick and continue to be in the hospital. There may be a need for a psychologist and/or peers to talk to the patient in order to increase adherence.

Prisoners released while still on treatment are not always followed up. Social workers in prison ideally identify and contact the relevant TB dispensary and local health service in the prisoner's home district well before release, agreeing with the patient how to complete treatment.[18] Often the patient gives a wrong address or does not return to the address given. Ideally, the prison health authorities escort the patient to the regional TB dispensary where future treatment is agreed on. It has proved difficult to make this work, however. Some prisoners are released suddenly, allowing no time for preparation. In some settings, an incentive package (food or

[17] *The WHO/IUATLD Global Project on Drug Resistance Surveillance*. Geneva, World Health Organization (http://www.who.int/tb/dots/dotsplus/surveillance/en/index.html, accessed 8 May 2007).
[18] Fry RS et al. Barriers to completion of tuberculosis treatment among prisoners and former prisoners in St. Petersburg, Russia. *International Journal of Tuberculosis and Lung Disease*, 2005, 9:1027–1033.

clothes) will be given to released prisoners who attend a health centre for follow-up of their treatment. Exchange of information between the civil and penitentiary sectors is of outmost importance. The treatment status of the released prisoner should be communicated to the relevant health centre so that he/she may follow treatment after being released. The prisoner needs to be well-informed about the importance of continuing treatment. It is important that the civil-sector TB dispensary welcomes new clients, protects confidentiality and reinforces the importance of adherence.

Many prisoners with MDR-TB are not adequately treated because second-line drugs are not available, not available in full combination, or not administered correctly. Second-line drugs may be available outside the TB programme and not used correctly, creating further resistance. Self-administered remedies smuggled in by families or guards, in lieu of or in addition to the treatment given by the prison medical service, lead to erratic treatment. Even second-line drugs (yet) unavailable to the NTP are sometimes thus self-administered.

> Power hierarchies among prisoners, by which access to the medical services is controlled, may make it impossible for some prisoners to be diagnosed and treated, or only at a high price. Conditions in which there is insufficient treatment for all will more easily create situations whereby prisoners need to pay for treatment.

Effective drug supply and management system

In some settings, first-line drugs may be unavailable or of inadequate quality, and their supply may be irregular. Drugs of guaranteed quality are procured through the GDF in some countries. In many countries, drugs are bought locally with inadequate quality assurance. Planning of drug consumption requires a TB reporting system of reasonable quality and the use of standardized regimens.

Second-line drugs for treatment of MDR-TB are often unavailable, are present in an insufficient quantity or are of uncertain quality. It is strongly recommended that second-line drugs should be procured through the GLC. TGF only provides second-line anti-TB drugs to programmes approved by the GLC. Otherwise it is essential that MDR-TB treatment is provided according to WHO guidelines and with drugs of ensured quality.

Access to first- and even second-line drugs outside the NTP is extremely unfortunate, since it may lead to incorrect treatment and the development of further resistance. The NTP must be made capable of providing adequate drugs to cover the needs of all patients, ensuring delivery of treatment according to the regulations.

An example from the Republic of Moldova
Management Science for Health, a nongovernmental organization, has advised the NTP on drug management for DOTS and DOTS-Plus programmes in the Republic of Moldova. As a result, a new management system for first- and second-line anti-TB drugs is used for planning and drug distribution. Training courses in the management of first- and second-line drugs have been provided to NTP personnel.

Monitoring and evaluation system and impact measurement

The recording and reporting system is weak in many countries, partly because the system does not follow international recommendations or is not implemented adequately. Poor training and supervision and little use of data for analysis lead to a lack of motivation for health staff to report correctly. NTPs should always be actively involved with the prison medical services, not only for training the staff about TB but also for supervision of laboratory work, case-finding, reporting and supplies.

In many settings, the prison and the civil-sector systems do not use the same treatment cards, TB registers and quarterly reports, and prisons do not report regularly to the civil sector.

For epidemiological purposes and better follow-up of patients, it is highly recommended that a unique notification system be used whereby the prison TB programme reports cases and treatment results to the civil-sector TB programme and receives supervisory visits from the civil-sector programme.

An example from the Russian Federation
In the Arkhangelsk region, TB cases among prisoners are nominally reported (by sending a copy of the treatment card) to the TB dispensary (civil-sector TB programme) and entered into a joint TB register (handwritten and computerized). Within the prison system, the units/colonies where treatment is started have a TB register. Prison staff are trained in the same information system as the civil-sector staff. Quarterly reports are sent with lists of names attached to prevent double reporting.

Collaborative TB/HIV activities

In many countries, a significant part of the prison population is composed of injecting drug users who are already infected with HIV before entering prison. Prisoners are also at a higher risk of being infected with HIV because of the practice of injecting drugs in prisons and having unprotected sex with other men. Meanwhile, the prison staff run a higher risk of becoming infected with HIV through accidental exposure and intercourse with HIV-infected prisoners. Harm-reduction programmes in prisons are considered very important and effective in limiting the spread of HIV, as described in WHO's status paper on prisons, drugs and harm reduction.[19]

Infection with HIV, to which prisoners are several times more exposed than people in the outside community, is the most important risk factor in the progression of TB infection to active disease. It is therefore of paramount importance to fully implement in prisons the internationally recommended TB/HIV policy,[20] which includes collaborative interventions aimed at reducing the burden of TB in people living with HIV/AIDS and the burden of HIV in TB patients. This policy has to be adapted to prison settings to ensure equitable access to the complete range of TB and HIV prevention, treatment and care services, while addressing particular challenges such as co-morbidities (e.g. viral hepatitis, alcohol dependence, mental illness), drug interactions (in the

[19] *Status paper on prisons, drugs and harm reduction*. Copenhagen, WHO Regional Office for Europe, 2005 (http://www.euro.who.int/document/e85877.pdf, accessed 5 May 2007).

[20] *Interim policy on collaborative TB/HIV activities*. Geneva, World Health Organization, 2004 2004 (document WHO/HTM/TB/2004.330) (http://whqlibdoc.who.int/hq/2004/WHO_HTM_TB_2004.330_eng.pdf, accessed 5 May 2007).

case of injecting drug users) and the needs of the pregnant women and of children present in the prison population.

Adequate screening and case detection on entry to prison should be ensured in order to detect TB, HIV infection and drug use. Given the increasing availability of antiretroviral therapy, HIV testing should always be offered to prisoners. However, a prisoner's wish not to be tested should be respected and any stigmatization and discrimination should be prevented. Regular screening for TB/HIV should also be ensured throughout the period of imprisonment. Infection control practices should be ensured to minimize the risk of TB and HIV transmission among prisoners, prison staff and visitors. Finally, continuity of care must be ensured following release into the general population of prisoners with TB or HIV infection.

Prevention and control of MDR-TB

As MDR-TB is already a serious problem in most countries of eastern Europe, affected patients are currently not cured of their TB using standard treatment regimens. This seriously undermines the impact and legitimacy of TB control programmes. However, there is little benefit from treating MDR-TB in the context of weak TB programmes, where new MDR-TB cases continue to be created at a high rate. Treatment with second-line drugs must therefore be expanded, ensuring that TB programmes can effectively reduce the generation of new MDR-TB cases.

GLC approval for MDR-TB treatment is given on the condition that the involved programme can demonstrate effective TB control. Based on this principle, TGF will approve proposals for MDR-TB treatment only where the conditions set by the GLC are met. This task is not easy in many settings, because second-line drugs are used on a wide scale outside the NTP. A joint effort by ministries of health and the penal system authorities must therefore be made to ensure the correct use of these drugs both inside and outside prison. Ministries of health should offer free second-line drugs to the prison system, provided that TB control is implemented according to national guidelines and international standards and that adequate follow-up is provided to MDR-TB patients released from prison before the end of their treatment. WHO has recently published updated guidelines on the programmatic management of drug-resistant TB.[21]

Community participation

Community participation in TB care implies establishing a working partnership between the health services and the community –TB patients and the local population. Among prisoners, former TB patients may help fellow patients to cope better with their illness and guide the prison administration in delivering services responsive to patients' needs. The community outside the prison should also be involved, starting with the family of the released prisoner. Equivalent TB prevention, treatment and care services inside and outside prison, in line with the main recommended international standards,[22,23] can be better ensured through committees from the community. These committees have access to prisons and participate in planning for TB services

[21] *Guidelines for the programmatic management of drug-resistant tuberculosis*. Geneva, World Health Organization, 2006 (document WHO/HTM/TB/2006.361).

[22] *International standards for tuberculosis care*. Geneva, World Health Organization, 2006 (http://www.stoptb.org/resource_center/assets/documents/istc_report.pdf, accessed 5 May 2007).

[23] *The Patients' Charter for Tuberculosis Care. Patients' rights and responsibilities*. Geneva, World Health Organization, 2006 (http://www.stoptb.org/resource_center/assets/documents/istc_charter.pdf, accessed 5 May 2007).

inside prisons, ensuring the link to the outside and monitoring their implementation by means of routine visits to prisons. Community participation in managing TB services inside prison is even more important in those countries, currently the majority, where they are delivered independently from the ministry of health.

Examples from Kazakhstan
In 2004, an educational video on TB in prisons was developed within the project entitled "Human rights in prison management: alternatives to imprisonment and TB treatment in Kazakh prisons" implemented jointly by the KNCV Tuberculosis Foundation and Penal Reform International. The main idea in developing the film was to strengthen the educational component of TB control programmes in prisons. The 30-minute video consists of three parts (drama, animation and interviews) and targets prisoners and health workers in the whole country. Several training sessions on using the video have been run in various regions of the country. Since 2005, the video has been widely used for educational purposes within the prison system.

Since 2003, local nongovernmental organizations (Monitoring Committees) have been involved in prison TB control programmes in three regions. The Monitoring Committees comprise doctors from TB hospitals in the civil sector, human rights lawyers, psychologists, teachers, journalists and others. The main objectives of the Committees are: (*a*) to strengthen links between prisons and civil society; (*b*) to strengthen cooperation between prison and civil-sector health services to improve TB control; and (*c*) to involve civil society in supporting prisoners. Major activities have been undertaken, such as monitoring human rights records and anti-TB interventions in prisons, and organizing social support and follow-up for TB patients released from prison. Through this support, the percentage of patients continuing their TB treatment after release from prison increased from 30% in 2003 to 80% in 2005.

Advocacy, communication and social mobilization

Advocacy, communication and social mobilization can make an important contribution to TB control in prisons.

Advocacy is intended to secure political and financial support in local, national and international settings and to promote accountability from all institutions and organizations involved in the delivery of TB services in prisons. Advocacy initiatives may help speed up the process of reforming the penal system and addressing determinants of health, such as overcrowding, hygiene and nutrition.

Communication is important in increasing awareness and knowledge of TB among prison staff, the prisoners and their family and visitors. Very often prison administrators consider TB only as a medical issue, the management of which should be delegated to medical staff, instead of demanding a comprehensive approach to organizing services for TB prevention, treatment and care. The common belief is that TB is an incurable chronic disease. Better understanding of the disease will produce more effective collaboration between prisoners and prison staff in reducing TB transmission. During screening on entry to prison, it is crucial that medical staff provide prisoners with general information on TB, as well as information on the main signs and symptoms to facilitate early diagnosis at a later stage and the availability of TB diagnostic and treatment services in the prison.

Social mobilization aims at engaging society at large, building partnerships and greater commitment, and fighting against social stigma and discrimination related to TB, especially after release from detention.

Research

It is important to encourage careful operational research in the prison setting to appropriately guide further improvement in service delivery. Major areas of operational research are:

- underlying social or cultural factors associated with the spread of TB in prisons;
- TB control and eradication strategies, including novel and coordinated approaches that involve the public health services and diverse types of provider;
- health-care-seeking behaviour, such as delays in seeking health care related to stigma and length of treatment;
- patient-related issues of adherence to treatment, including barriers to and facilitators of adherence identified by patients;
- provider-related issues of adherence, such as delays in diagnosis and treatment; and
- health education strategies, such as culturally appropriate interventions to increase accurate TB knowledge and reduce TB-related prejudices.

Ethical issues and potential for abuse call for very careful design, implementation, analysis and documentation of any research made in prisons. Complete information should be provided to enrolled prisoners, who must be able to freely agree or disagree to taking part in the research. Confidentiality should be preserved and any form of stigmatization prevented.

TB control programmes in prisons: what would be a minimum standard?

The ideal TB control programme in a prison would include the following:

- government structures supporting TB programmes in both the civil-sector and penitentiary systems;
- written agreement on collaboration and coordination between prison and civil-sector TB programmes;
- prevention through the early detection of infectious cases; avoidance of overcrowding; good nutrition, ventilation and light; clear definition of infectious zones with clear policies on how to reduce transmission; and the use of masks and/or personal respirators;
- complete access to TB diagnosis and treatment for all prisoners entering the prison system;
- adequate treatment in line with national TB programme guidelines, including those for prisoners with MDR-TB and TB-HIV coinfection, using DOTS and an uninterrupted supply of drugs of guaranteed quality; and
- a guarantee by prison and civil medical personnel of continued treatment for infected individuals following their release from prison.

The penitentiary system must have:

- continuing human resource development that ensures an adequate number of staff with satisfactory background education and continuous training;
- a mechanism in place for timely investigation of TB suspects and early detection of individuals with active TB and their treatment;
- a network of laboratories carrying our quality-assured smear microscopy;
- drug susceptibility testing in a centralized laboratory of ensured quality, either in the civil sector or in the prison;
- a supply of quality second-line drugs for prisoners suffering from MDR-TB once the capacity to test prisoners for drug resistance is in place; and
- recording and reporting in close coordination with the civil sector.