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National Tuberculosis Control Plan

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National Tuberculosis Control Plan

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Colophon

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Abstract

National Tuberculosis Control Plan 2011-2015

The National Tuberculosis Control Plan 2011-2015 indicates the changes that are needed in order to achieve optimal tuberculosis control in the Netherlands.

The purpose of this plan is to outline optimal arrangements for tuberculosis control in the Netherlands, given the declining incidence of the disease, resulting in declining expertise amongst professionals; the increasing complexity of treating tuberculosis patients, due e.g. to the increasing prevalence of drug resistance in the Netherlands and other countries; and regional differences in the tuberculosis situation.

The most important goals are:

- By 2013, tuberculosis control is to be subject to efficient and effective national direction, tailored to the structures and responsibilities for infectious disease control.
- Until at least 2015, there is to be a nationwide network for tuberculosis control in the public health sector, for which the municipalities will be responsible and which will be organised by the municipal health services.
- By 2015, each hospital will have a clinical tuberculosis coordinator, who will fit the profile and meet the quality criteria of the Dutch Thoracic Society (NVALT).
- In 2011, only laboratories that operate under BSL3 conditions are to produce *M. tuberculosis* cultures.
- In 2013, a think tank made up of representatives from the RIVM-CIb, GGD-NL, KNCV and NVALT is to prepare a policy document outlining the advantages and disadvantages of various organisation models of tuberculosis control in the period up to 2025.

It was suggested to the Ministry of Health, Welfare and Sport to complement the plan with an implementation plan that is to be developed together with the National Association of Municipal Health Authorities (GGD Nederland) and the Association of Netherlands Municipalities (VNG).

Keywords:

National plan, tuberculosis control, 2011-2015, RIVM-CIb, KNCV
Tuberculosefond, KNCV Tuberculosis Foundation

Rapport in het kort

Nationaal plan tuberculosebestrijding 2011-2015

Het nationaal plan tuberculosebestrijding 2011-2015 geeft aan welke veranderingen nodig zijn om tot een optimale tuberculosebestrijding in Nederland te komen.

Het doel van dit plan is om een optimale tuberculosebestrijding in Nederland te schetsen, gegeven een dalende incidentie resulterend in een afnemende expertise bij professionals, een toenemende complexiteit van de behandeling van tuberculosepatiënten door toenemende resistentieontwikkeling in binnen- en buitenland, en regionale verschillen in de tuberculoseproblematiek.

De belangrijkste doelstellingen zijn de volgende:

- In 2013 is er een efficiënte en effectieve landelijke regie op de tuberculosebestrijding is, passend bij de structuren en verantwoordelijkheden voor de infectieziektebestrijding,
- In de jaren tot aan 2015 blijft er een landelijk dekkend netwerk van tuberculosebestrijding in de publieke gezondheidszorg bestaan, onder verantwoordelijkheid van de gemeenten en georganiseerd door GGD'en. Ook moeten in 2013 vier tot vijf regio's in de publieke tuberculosebestrijding zijn gevormd, met regionale expertisecentra.
- In 2015 heeft elk ziekenhuis een klinische tuberculosecoördinator die voldoet aan het profiel en kwaliteitscriteria van de Nederlandse Vereniging van Artsen voor Longziekten en Tuberculose (NVALT).
- In 2013 verzorgen alleen laboratoria die onder BSL3-condities werken *M. tuberculosis*-kweken.
- In 2013 levert een denktank van RIVM-CIb, GGD Nederland, KNCV Tuberculosefonds en NVALT een notitie waarin voor- en nadelen worden geschetst van verschillende organisatie modellen van de tuberculosebestrijding tot 2025.

Aan het ministerie van VWS is voorgesteld dat het plan gecomplementeerd wordt met een implementatieplan dat samen met GGD Nederland en de Vereniging van Nederlandse Gemeenten wordt uitgewerkt.

Trefwoorden: nationaal plan, tuberculosebestrijding, 2011-2015, RIVM-CIb, KNCV Tuberculosefonds

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1 Introduction

In March 2009, the Ministry of Health, Welfare and Sport (VWS) asked the RIVM's Centre for Infectious Disease Control (RIVM-CIb) and KNCV Tuberculosis Foundation to develop a National Tuberculosis Control Plan (see Appendix 1), incorporating the objectives and recommendations of the KNCV's *Tbc-bestrijdingsplan 2008-2015. Op weg naar eliminatie (TB Control Plan 2008-2015. On the road to elimination)*. In recent years, several documents have been published, which have a bearing on the direction of future tuberculosis control in the Netherlands:

- Framework action plan to fight tuberculosis in the European Union. ECDC Stockholm. 2008 [1].
- Review of the Netherlands Tuberculosis Control Programme 14-18 April 2008. KNCV and Centre for Infectious Disease Control, 2008 [2].
- TB Control Plan 2008-2015. On the road to elimination. KNCV, December 2008 [3].

In the context of the reorganisation of tuberculosis control, the following principles are guiding:

- Tuberculosis control arrangements need to be capable of adaptation in line with epidemiological developments. This implies organisational flexibility, coupled with a recognition that some steps, once taken, cannot be reversed. It is necessary to have doctors and nurses with adequate experience, and the manpower required has to be consistent with the caseload. Resistant tuberculosis warrants particular attention.
- Innovation can make tuberculosis control more efficient and more effective (e.g. relative importance of radiological diagnostics and increasing importance of IGRAs, impact of cost-effectiveness analyses on risk strategies, a national patient registration system).
- Governmental models need to be harmonised (e.g. assurance of national and municipality government responsibilities, administrative translation of functional and organisational developments).

The purpose of this plan is to outline optimal arrangements for tuberculosis control in the Netherlands, taking account of:

1. the declining incidence of the disease, resulting in declining expertise amongst professionals;
2. the increasing complexity of treating tuberculosis patients, due e.g. to the increasing prevalence of drug resistance in the Netherlands and other countries; and
3. regional differences in the tuberculosis situation.

The ultimate goal of optimal tuberculosis control is the further elimination of tuberculosis in the Netherlands.

With a view to facilitating the prevention of tuberculosis transmission, the following aspects of tuberculosis control need to be well-organised:

- **Diagnosis:** the retention of adequate medical and nursing expertise is required, so that tuberculosis can be actively detected by means of risk group screening and contact investigation, and diagnosed by medical specialists in symptomatic patients.
- **Treatment:** the medical treatment of tuberculosis patients and the nursing supervision of detected cases need to be of good quality and to encourage therapy adherence.
- **Prevention:** BCG vaccination, education and infection prevention measures contribute to the prevention of infection and disease.

- Surveillance: the tuberculosis problem in risk groups and activities in the fields of prevention and treatment need to be monitored as a basis for fine-tuning the control arrangements.
- Control: tuberculosis control must be supported by the integration of prevention and cure, the existence of upscaling capability, and administrative, organisational and financial arrangements.
- Research: research can generate insight, thus leading to the enhanced tuberculosis treatment or better organised control systems.

In line with the ultimate goal referred to above, this plan concentrates on practical professional issues. After all, optimal tuberculosis control needs to be based on the epidemiology of tuberculosis and on new developments that may occur in that field. More specifically, this plan sets out the practical parameters for optimal tuberculosis control. Its focus is consistent with the RIVM-CIb's vision, which is characterised by the practical direction of infectious disease control. The corollary of this focus on practical professional issues is that the basis of the administrative structure for and the funding of optimal tuberculosis control are not examined. Once this plan has been submitted to the Ministry of VWS, attention will need to turn to implementation. We accordingly propose that this plan is complemented by an implementation plan, to be worked out in conjunction with the National Association of Municipal Health Services (GGD-NL) and the Association of Netherlands Municipalities.

In the development of this plan, various highly productive discussions were held, in particular with:

- The National Association of Municipal Health Services (GGD-NL), including the TB Regionalisation Steering Committee and representatives of the Managing Board
- Managers, doctors, nurses and some medical technical assistants from the eight municipal health services tuberculosis control back offices
- The Association of Doctors Working in Tuberculosis Control (VvAwT)
- The Dutch Nursing & Care Workers' Association/Public Health Care Nurses' Association (V&VN/VOGZ)
- The Dutch Thoracic Society (NVALT)
- The Dutch Society for Medical Microbiology (NVMM)
- The Committee for Practical Tuberculosis Control (CPT)
- The Association of Netherlands Municipalities (VNG)
- The Ministry of VWS, Public Health Directorate
- Personnel from the KNCV and RIVM-CIb.

Two earlier drafts of this plan were discussed with an ad hoc consultation group (Appendix 2). A third draft was circulated amongst a number of stakeholders, and written and oral feedback was received.

2 Commitment

Globally, tuberculosis is a significant infectious disease. It is estimated that a third of the world's population has a latent infection, and every year roughly 1.8 million people die from tuberculosis. Although tuberculosis has been declining in the Netherlands for some decades, it does not follow that there is less need for tuberculosis control. This was illustrated in the 1970s, when, in response to falling incidence, control measures were scaled back in New York. The result was a threefold increase in the number of new tuberculosis patients by the end of the 1980s, and a doubling of the number of infections involving a resistant bacterium. In the years that followed, enormous effort was required to bring the situation back under control.

Circumstances beyond our borders also make it desirable that the Netherlands continues to pay close attention to tuberculosis control. Infectious disease does not recognise national boundaries: migration and travel result in the frequent import of tuberculosis to the Netherlands. Furthermore, years can pass between tuberculosis infection and the manifestation of illness. Because tuberculosis is not always properly treated, especially in countries where it is highly endemic, but also in Eastern Europe, resistant strains of the bacterium warrant particular attention. In that context, multidrug resistant and extensively drug-resistant (MDR/XDR) tuberculosis are particular sources of concern.

In the Netherlands, tuberculosis, like any other infectious disease, is usually diagnosed and treated within the mainstream health care system, by a pulmonologist or another hospital-based specialist. About 20 per cent of cases are picked up by active case detection activities. Hence, both the mainstream health care system and the public health system need to remain vigilant for tuberculosis, because declining familiarity with the disease, the incidence of tuberculosis in certain risk groups, the importation of (resistant) tuberculosis and the mechanisms by which tuberculosis spreads make the illness a serious ongoing public health challenge. The professional association NVALT is also actively involved in training, expertise promotion and the development of specialist clinical guidelines.

The Public Health Act identifies tuberculosis control as a public health task. The municipalities are responsible for tuberculosis control, which requires close contact to citizens. With a view to preventing people with tuberculosis spreading the disease, the municipal health services screen particular risk groups and conduct contact tracing. Thus, the vast majority of the tuberculosis infections¹ in the Netherlands are identified by municipal health services. These authorities also treat patients (particularly those in risk groups) and people with latent tuberculosis infections, advise clinical doctors on treatment and supervise all tuberculosis patients while they are receiving treatment, in order to promote therapy adherence. These local government activities are backed up by the national government, which provides a national policy framework, a national surveillance system, screening regulations, and funding for some aspects of tuberculosis control and for compulsory hospitalisations; the central government

¹ A (latent) tuberculosis infection involves a person who is infected with the tuberculosis bacterium, but has not yet developed any symptoms of illness.

also participates in the formulation of international policy through bodies such as the World Health Assembly, the EU and ECDC.

At the municipal and regional levels, the municipal health services ensure that professionals, political decision makers and the general public continue to give tuberculosis due attention. At the national level, the KNCV acts as the non-governmental advocate and knowledge centre for tuberculosis and tuberculosis control. Acting on behalf of the Ministry of VWS, the RIVM-CIb directs infectious disease control, including tuberculosis control, in consultation with the KNCV, the municipal health services and medical microbiology laboratories. The RIVM-CIb also acts as the national reference laboratory, and therefore has an important role in the monitoring of resistance and surveillance of this disease.

3 Epidemiology and social developments

In the Netherlands, about a thousand cases of tuberculosis a year are reported under the Public Health Act. In the 1990s, the figure hovered around the 1500 mark. On the basis of trend extrapolation, it was estimated in 2008, that a gradual decline was likely to continue into subsequent decades, so that the Netherlands could expect to see just over 800 new cases of tuberculosis a year by 2030 [4]. However, in 2009, the annual incidence jumped significantly: by 16 per cent to 1158 new cases. This illustrates that forecasts have to be treated with caution.

The clinical picture of tuberculosis and the profile of the patient population has shifted and become more complex in recent decades. Significant factors in that regard include higher incidence amongst HIV positive people and those receiving immunosuppressant therapy (e.g. TNF-alpha inhibitors), the prolonged treatment of (multi-)resistant forms of tuberculosis and the intensive supervision of people in particular risk groups.

The following statistics regarding the tuberculosis patient population in 2008 are illustrative [5]:

- 69 per cent were born outside the Netherlands.
- 60 per cent had pulmonary tuberculosis, almost half of them in an infectious form.
- 3.7 per cent were HIV positive.
- 20 per cent were diagnosed as a result of the active case detection activities among risk groups (screening and contact tracing) by municipal health services.
- 30 per cent lived in the country's four major cities.
- Fourteen cases of MDR tuberculosis were detected in 2008 and twenty in 2009 (2.6 per cent of all bacterial strain classifications).
- One case of XDR tuberculosis was detected in 2008 and three cases were seen in 2009.

The future incidence of tuberculosis is likely to be influenced by immigration from endemic regions and the presence of tuberculosis in first-generation immigrants already settled in the Netherlands. Tuberculosis may also be expected to be more common in the major cities than elsewhere in the Netherlands [4]. Measures aimed at preventing transmission within the first-generation immigrant population should help to bring down the number of tuberculosis patients in the Netherlands [6-7]. However, great uncertainty exists regarding future immigrant numbers and regarding their countries of origin. Consequently, tuberculosis control arrangements need to be sufficiently flexible to cope with temporary fluctuations in the numbers of patients and infected individuals. Migration and international travel will mean that global developments in tuberculosis control (increase or decline in tuberculosis or in MDR/XDR tuberculosis; course of the HIV pandemic) have a direct impact on the tuberculosis situation in the Netherlands.

4 The organisation of tuberculosis control

Tuberculosis control is part of the wider infectious disease control system that exists within the public health sector and in clinical practice. Control needs to be organised so as to ensure that care is accessible to all, including people in risk groups. Obviously, cost-effectiveness considerations also help to shape the tuberculosis control arrangements. The current organisation of tuberculosis control within the Dutch public health sector is described in Appendix 3.

4.1 Structure

The *TB Control Plan 2008-2015* indicates that the basis of tuberculosis control lies within an intensive collaboration between clinical, laboratory and public health personnel, at the local, regional and national levels, combined with vertical links between the levels [3]. The strength of this organisation is the complementary nature of its component parts: the clinic is there primarily for patients with complex clinical conditions and the public health system for patients and infected individuals with social problems and their contacts. Tuberculosis patients have very little involvement in control activities in the Netherlands. It is desirable that such involvement is encouraged where possible, in fields such as publicity, education, and decision making in connection with choices for patient supervision and research.

4.1.1 National direction

The Minister of VWS has given the RIVM-CIb responsibility for directing infectious disease control in the Netherlands. An evaluation by Boer and Croon found that, since the CIb's creation, infectious disease control in the Netherlands has improved a lot. The existence of the CIb has led to more direction, enhanced quality and increased uniformity [8]. As a corollary of its responsibility for infectious disease control, the RIVM-CIb has a number of directing tasks: advising the Ministry of VWS on policy matters, awarding grants, surveillance, representing the Netherlands in discussions on international tuberculosis policy and directing the response to major outbreaks that exceed the local capacities of municipal health services. The KNCV has traditionally maintained practical expertise in tuberculosis control, partly through its international role in this field. The RIVM-CIb accordingly funds some of the KNCV's activities in order to support tuberculosis control in the Netherlands. As the body that represents professionals active in tuberculosis control, the Committee for Practical Tuberculosis Control (CPT) is responsible for formulating professional guidelines.

Approach

Tuberculosis control should be directed via the control chain, with individual organisations taking responsibility for organising their activities on the basis of norms (e.g. on the number of procedures per practitioner, the number of executing organisations), professional quality standards and requirements regarding the quality of insurable care or regarding insurance coverage. The RIVM-CIb should work out its national directing role in collaboration with GGD-NL, the KNCV, the CPT, the professional associations and other partners in the chain.

In addition, task division should be clarified at the national level. The RIVM-CIb and KNCV have formed a working group to discuss how the national tasks

involved in tuberculosis control can best be organised. In its deliberations, this working group will put public health interests first, tuberculosis control interests second, and the interests of the two organisations third.

Objective

- By 2013, tuberculosis control is to be subject to efficient and effective national direction, tailored to the structures and responsibilities for infectious disease control.

4.1.2 *Public health care*

The municipal health services undertake the tuberculosis control activities arising from the municipal responsibilities defined under the Public Health Act. Tuberculosis control is therefore set up close to the public. In public health care, tuberculosis prevention and cure are integrated activities. Municipal health services confine themselves to the treatment of tuberculosis patients whom they diagnose themselves and of patients whose social problems make clinical treatment difficult (safety net function). All patients are supervised by tuberculosis nurses working for municipal health services.

In public health care, there are currently 37 local front offices within 28 municipal health services [9]. These front offices accommodate patient-oriented activities (screening, doctors' consultations and patient supervision). Municipal health services also deliver some public health services – e.g. BCG vaccination – at other sites. The municipal health services tuberculosis departments work together within seven regions, with one municipal health service playing a directing (back office) role in each region (except in the South Holland region, where there are two back offices).

Front office

Each municipal health service is responsible for the organisation of front-office tasks within its assigned region. Those tasks entail tuberculosis control activities directly relating to the prevention of tuberculosis and the treatment of tuberculosis patients. Over the last ten years, the number of front offices has been cut, partly because of the decline in the number of tuberculosis patients, and partly because of the decline in the number of procedures to be performed. Procedure numbers have been falling because of changes in screening policy introduced in line with the findings of cost-effectiveness analyses. Against that background, upscaling is required in order to ensure the retention of professional expertise in the front offices.

Approach

Although the municipal health services are responsible for the front office tasks, not all authorities have to maintain the sites where those tasks are performed. It is however logical for a municipal health service to perform preventive tasks itself; they should ensure with clinical service providers that all patients are diagnosed, treated and supervised. In order to have a nationwide tuberculosis control system of sufficient quality, the municipal health services organise front-office activities in consultation with the regional back office. Front-office tasks organised by municipal health services form part of regions and are inextricably bound up with from the relevant regional back office. The same is true for scaling up activities in case of outbreaks.

Municipal health services are expected to organise front office tasks in accordance with the following criteria:

- Doctors, nurses and medical technical assistants must all be able to perform a sufficiently large number of procedures (some individual professional caseload standards are set out in the TB Control Plan 2008-2015² and have recently been defined for medical technical assistants³).
- Tuberculosis control must be accessible to the public, taking account of the mobility of patients and contacts.
- The arrangements must be sufficiently flexible to respond to changes in the epidemiology of tuberculosis (e.g. outbreaks, MDR/XDR tuberculosis patients).
- It must be clear and recognizable to the municipal executives what responsibilities the municipal health services have in the field of tuberculosis control.

Where appropriate and practicable, changes in the organisation of front-office tasks must be piloted ahead of general implementation and must be guided by research into the implications for quality, effectiveness, efficiency and client-friendliness. The responsibility for these targeted activities remains with the municipal health services. Furthermore, these services remain the first port of call for members of the public with questions about tuberculosis control.

Objective

- Until at least 2015, there is to be a nationwide network for tuberculosis control in the public health sector, for which the municipalities will be responsible and which will be organised by the municipal health services.

Regional office

Following the VISI Project, the municipal health services committed themselves to a strategy of regionalisation and set up back offices. The move towards regionalisation meets the need for upscaling. In some regions, however, the municipal health services have yet to make sufficiently clear arrangements regarding tuberculosis control. Over the last ten years, some regions have become so small (in terms of staff, patients and procedure numbers) that service availability and quality are under threat. If tuberculosis control is to be ready for the challenges that lie ahead, further upscaling, coordination and professionalisation are needed. The report produced by the Tuberculosis Control Regionalisation Working Group distinguished between regions that contain large cities and other regions⁴. In its response to the elimination report, the NVALT also stated that the approach to tuberculosis control taken in the conurbations needed to be different from that taken in other parts of the country.

Approach

To begin with, in the period up to 2013, the emphasis in public tuberculosis control needs to be on collaboration amongst professionals on practical matters. Upscaling to four or five regions is recommended, congruent with other regional public health care activities and consistent with policy of (25) safety regions in the Netherlands. The aim of such a strategy would be to achieve alignment with the allocation of administrative responsibilities for infectious disease control (which includes public tuberculosis control). This would also ensure short

² Quantitative standards for TB doctors: familiarity with the details of forty TB patients and forty infected individuals per year (source: RPT 20.610/VvAwT); no formal standards for TB nurses, but informally supervision of twenty TB patients is regarded as necessary for expertise retention.

³ Quality standards for medical-technical assistants: at least eighty THTs, forty BCG vaccinations, forty venapunctures and one hundred chest X-rays per year (source: RPT 20.400).

⁴ Report by the Tuberculosis Control Regionalisation Working Group: Contribution to the regionalisation of TB control. 8 September 2009: The Hague. Endorsed by the VvAwT and V&VN/VOGZ.

pathways, if upscaling to a supraregional system should prove necessary in the event of a major emergency, when the OMT/BAO system has to be implemented.

The eight existing regional consortiums should be cut to four or five, with a view to ensuring the efficient and rational retention of knowledge, expertise and quality. The new regions should be defined on the basis of the number of patients (each region to serve approximately 200-300 patients a year), the number of screening procedures and the ability to guarantee the availability of sufficient professional capacity to comply with the applicable professional quality standards.

Each region is to set out its plans for the year ahead in an annual plan, for approval by the collaborating municipal health services. Regional arrangements will be necessary for deputisation, protocol development, surveillance, research, expertise promotion, exchange of personnel, quality documentation and visitation and, if possible, the sharing of equipment and materials. It is important that the arrangements are consistent with the structure and administrative responsibilities of the wider infectious disease control system. In any case, the regional office is to act as the point of contact for the RIVM-CIb. If a regional office wishes, the RIVM-CIb can – in collaboration with the KNCV and in consultation with GGD-NL – provide practical advice regarding the content of the region's annual plan. This will promote consistent tuberculosis control in the Netherlands.

The regions will be encouraged to develop expertise in relation to particular fields (e.g. large cities, asylum-seekers) or particular activities (e.g. the training of public health physicians, with a tuberculosis profile). In each region, there may be more than one location where regional back-office tasks are performed; this is particularly likely in the geographically larger regions.

In the interests of regional coordination and professionalisation, it is advisable to create Regional Tuberculosis Control Expertise Centres⁵, possibly employing (part-time) regional tuberculosis consultants. National encouragement for the regionalisation process is desirable by facilitating the availability of personnel capacity at the regional level, for example. Each regional tuberculosis consultant would then act as his/her region's link to national bodies, such as the RIVM-CIb, KNCV and CPT, in much the same way as the Regional Infectious Disease Control Medical Consultants. The tasks and competences of a regional tuberculosis consultant have yet to be defined; however, quality monitoring based on the maintenance of contacts with municipal health services, hospitals and laboratories, etc, would certainly form an important aspect.

Objectives

- It is recommended that, by 2013, public tuberculosis control should be organised on the basis of four to five regions.
- By 2013, each region is to have a Regional Tuberculosis Control Expertise Centre (or similar institution) for tuberculosis control in the public health sector.

⁵ This was proposed by the National Association of Municipal Health Services' TB Control Regionalisation Steering Group. Each municipal health service would be affiliated to and make appropriate formal arrangements with a regional centre. It is not yet known what the board and the wider membership of the National Association of Municipal Health Services would think of such a set-up.

Central level

In view of the changes to the policy on the screening of detainees⁶ and asylum-seekers⁷, the fact that tuberculosis control involves the use of expensive equipment (MRUs) and the need to be efficient with public money (provided by the municipalities and the Ministry of Justice), stronger central coordination is required. Furthermore, centralisation can increase the efficiency of planning, purchasing and contracting.

Approach

Certain tasks should be taken care of nationally by GGD-NL or by one of the municipal health services on behalf of the collective municipal health services, in much the same way that GGD-NL already handles contract negotiations for the Judicial Establishments Service (DJI) and the Central Asylum-Seekers' Reception Body (COA), Municipal Health Service Flevoland ensures efficient national planning of MRUs, and Municipal Health Service Groningen manages the screening of asylum-seekers in Ter Apel. Assuming that radiological diagnosis remains the preferred method for screening for tuberculosis, the municipal health services would be well advised to pool resources and invest in the digital transmission of X-ray images, so that images from screening can be viewed efficiently in the existing eight back offices and, after 2013, in the four to five envisaged regions.

Objectives

- By 2015, there is to be central coordination and control of resources, such as ICT and MRUs.
- By 2015, there is to be an adequate system for the digital transmission of X-ray images, to enable viewing of such images in the four to five regions.

4.1.3

Clinical care

In the intramural care sector (hospitals), a symptomatic patient may present him/herself to any pulmonologist or other clinical practitioner for diagnosis of tuberculosis and the pulmonologist may in principle provide appropriate treatment on the basis of the existing guidelines [3]. In the long term, each hospital may be expected to see an average of four to six tuberculosis patients a year. However, because of the concentration of tuberculosis cases in a relatively small number of hospitals, many hospitals will see fewer, if any. This means that clinical expertise in the diagnosis and treatment of tuberculosis is likely to decline further, thus undermining the quality of care.

The treatment of MDR/XDR tuberculosis patients should take place under the supervision of one of the two tuberculosis centres (sanatoria). Almost all such patients will also receive clinical treatment in one of these centres for a time (see section on MDR/XDR tuberculosis).

Approach

It is advisable that pulmonologists make regional arrangements regarding the clinical treatment of tuberculosis patients, while leaving supervision to the municipal health services. In addition, tuberculosis knowledge and its application

⁶ From 1 January 2011, detainees born in the Netherlands who exhibit no risk factors (e.g. drug use, homelessness, persistent cough) will no longer be screened for tuberculosis.

⁷ From 1 July 2010, Ter Apel is the primary reception location for roughly 80 per cent of asylum-seekers. For the remaining 20 per cent, Schiphol is to be the primary reception location from 1 January 2011. The intention is that initial screening will take place almost exclusively at those two locations.

should be concentrated within hospitals by the appointment of a clinical tuberculosis coordinator. This person is to act as an internal reference consultant in the field of tuberculosis and its treatment for all clinical specialists, and as the contact person for the public health sector. The tasks of a clinical tuberculosis coordinator have previously been defined and have been endorsed by the NVALT, subject to the proviso that a pulmonologist is the natural choice for the role. In the context of quality appraisal at teaching hospitals that train pulmonologists, the tuberculosis coordinator is now involved in the visitation arrangements. The expectation is that a training course for clinical tuberculosis coordinators should be operational in 2011.

Objectives

- By 2015, intramural care for tuberculosis patients is to be organised on the basis of regional clustering.
- By 2015, each hospital will have a clinical tuberculosis coordinator, who will fit the profile and meet the NVALT quality criteria.

4.1.4 *Laboratories*

In the laboratory sector, a situation is developing where there are twenty to thirty centres undertaking various types of mycobacterial tests. The reduction of the number of these centres is primarily based on the need to comply with certain safety requirements (level BSL-3) (see section 6 Laboratory diagnostics)

4.2 **Personnel capacity**

In the public health sector, tuberculosis control is provided by tuberculosis doctors, tuberculosis public health nurses and medical technical assistants. In hospitals, it is mainly pulmonologists and internists/infectiologists who diagnose tuberculosis; in the laboratories, the relevant tasks are performed by medical microbiologists and analysts.

The education and training of professionals active in tuberculosis control should be continued. We also advise that basic medical training should cover tuberculosis, so that future generations of doctors are still able to recognise it promptly.

4.2.1 *Doctors*

The doctors who deal with tuberculosis are mainly pulmonologists and public health physicians. In recent years, there has been a considerable reduction in the number of posts for such doctors within the municipal health services; on 1 January 2010, there remained 27.0 FTEs (31 doctors) [9]. It is expected that, between 2011 and 2015, nine tuberculosis doctors (6.4 FTEs) will cease to practise due to retirement.⁸ There have been major changes in the volume and nature of a tuberculosis doctor's activities over the last ten years, due to the declining incidence of tuberculosis, the increasing complexity of many cases (HIV co-infection, use of immunosuppressants, MDR/XDR tuberculosis), changes in screening policy (reduced frequency of radiological examinations, use of IGRAs for LTBI detection) and regionalisation. Furthermore, clinical familiarity with and expertise in tuberculosis is in danger of dwindling due to the declining incidence.

⁸ Source: VvAwT 28-5-2010

Approach

To maintain knowledge and expertise, greater concentration will be required. In the public health sector, tuberculosis control should be concentrated in the four or five proposed regions; in the intramural care sector, control should be concentrated in the hands of the clinical tuberculosis coordinators.

The outflow of doctors from the public health sector makes it necessary to train a number of tuberculosis doctors (pulmonologists or public health physicians).⁹ Moreover, it is desirable – with a view to providing appropriate career prospects and promoting innovation within the discipline – that some tuberculosis doctors have the opportunity to move on to or additionally take up positions outside the municipal health services. The training of tuberculosis public health doctors should specifically address the changing profile of the discipline (e.g. the increasing importance of competences in areas such as consultation, training, research, etc.). Combination of the existing role with international activities (including the possibility of internships abroad during training) would make the job of a tuberculosis doctor more attractive, while also opening the way for greater exchange of tuberculosis control knowledge and expertise with other countries.

As the professional association representing the discipline, the NVALT supports appointment of clinical tuberculosis coordinators in hospitals. Several hospitals already have such a position. Attention should be given to the formalisation of this function within the hospitals, harmonisation of the job descriptions, training, knowledge maintenance, and the development and testing of quality indicators.

Objectives

- By 2015, there are to be at least four tuberculosis doctors with appropriate competences working in each of the four or five regions; the actual number will depend on the region's geographical size, the workload and the complexity of the cases.
- By 2015, clinical tuberculosis coordinator is a formalised position in the clinical care sector, supported by appropriate accreditation/in-service training (see also objective 7, Appendix 4).

4.2.2

Tuberculosis nurses

Tuberculosis nurses perform an important bridging function, connecting the various disciplines involved in caring for and supervising tuberculosis patients and conducting contact tracings [10]. They are the main link between preventive and curative activities. They also advise on infection prevention measures; in a hospital setting, this preventive function ties in with the activities of the infection control practitioners. With falling patient numbers, an increasing complexity of cases and further upscaling of the regions, the need for tuberculosis nurses may be expected to grow and intensify. Tuberculosis nurses acquire their expertise primarily in practical settings.

Approach

It is desirable that all tuberculosis nurses are trained specifically for the field they work in, and that at least one tuberculosis nurse per region develops further competences in the coordination of patient treatment and in academic research, possibly to the nurse-practitioner level [10]. Tasks, responsibilities, training requirements and preferred caseloads should be clearly specified. It is important that the professional association takes the lead in this regard.

⁹ NB: in 2009, the CBOG created three tuberculosis doctor training places, which were filled in 2010.

Objective

- By 2015, each of the four or five regions is to have at least one tuberculosis nurse with nurse-practitioner competences.

4.2.3

Medical technical assistants

Medical technical assistants are usually the first and often the only professionals to have contact with members of the public who call or visit with questions or are examined for tuberculosis (vaccination, screening, contact tracing). Their communicative skills therefore require constant attention. Medical technical assistants are usually practice assistants or have a comparable educational background. Regionalisation and upscaling mean that they will much more often have to work in front offices without day-to-day direct physical backup from tuberculosis doctors and/or tuberculosis nurses.

Approach

Because of the physical distance between the public and the health authority's regional/back office, medical technical assistants' expertise and competence levels are very important. It is desirable that, in the regions, medical technical assistants develop their expertise and competences further, with the emphasis on knowledge of protocols and procedures, communicative skills (including transcultural communication, dealing with aggression) and knowledge transfer.

Objective

- By 2013, each region will have an annual plan developing the expertise of medical-technical assistants, taking account of the particular regional context and arrangements.

4.3

Funding

The basic principle of the funding system is that the (public health care) tasks covered by the Public Health Act, such as source and contact tracing, are funded by the municipalities. (Market) services that are not directly related to public health care activities, such as testing on behalf of employers and checking travellers, are made available by the public health sector at cost. The cost of screening risk groups within institutes is covered by contractual financial arrangements between GGD-NL and the relevant bodies, such as DJI and COA. The need to screen immigrants arises out of the Aliens Act; the Public Health Act assigns the responsibility to the municipalities, which therefore have to bear the cost. Seeking payment for these tests from the clients is inconsistent with the government's wish to ensure clients' cooperation¹⁰.

In both private and public health care, patient diagnostics should be funded by health insurers. Furthermore, the cost of medication provided through the public health system during the treatment phase should also be borne by the health insurer. DNA fingerprinting is paid for by the national government, because it provides insight into the transmission of tuberculosis in the Netherlands, which is important for the prevention of tuberculosis.

The BCG vaccination of children between the ages of 6 months and 12 years, who have at least one parent from a tuberculosis-endemic country, is currently funded out of the municipal budget.

¹⁰ Health Council of the Netherlands: Population Screening Act Committee. Population Screening Act: tuberculosis. April 1999.

Safety net

Testing for and treating tuberculosis and LTBI should not be restricted to people with medical insurance. It is important that the system covers uninsured groups, such as recent immigrants and illegal immigrants. Since 2009, the cost of treating tuberculosis in illegal immigrants from non-EU countries has been met by the CVZ out of the budget for the Illegal Immigrants Financial Support Programme. The cost of treating other uninsured tuberculosis patients is generally met by the municipalities on the basis of the Public Health Act.

Exceptional costs

The national government has made arrangements with the Beatrixoord Tuberculosis Centre regarding the cost of compulsory admission. It is recommended that the two tuberculosis centres liaise with VWS and seek agreement with the health insurers regarding their provision of prolonged clinical treatment, particularly for MDR/XDR tuberculosis.

National tasks

The national government funds national tuberculosis surveillance, guideline development, quality policy, coordination and support, and the promotion of expertise in particular fields. The KNCV contributes financially to the above-mentioned activities, to the production of educational materials and to special support, e.g. via the Fund serving Special Needs.

Approach

If the diagnosis and treatment of tuberculosis within the care sector are to be paid for by health insurers, tuberculosis doctors working for municipal health services need to have recognised commissioning and prescribing authority, and health insurers must be willing to settle the related claims. To those ends, an overview of the costs associated with the diagnosis and treatment of tuberculosis in the public health sector is needed, using the professional standards for diagnosis and treatment as the yardstick.

Objectives

- Before the end of 2011, tuberculosis doctors working for municipal health services will be able to recover costs of IGRAs, sputum tests and bacterial identification/resistance tests from health insurers.
- By 2013, the RIVM-CIb will be able to recover the cost of diagnostic procedures needed for the treatment of patients (bacterial identification and additional resistance tests (confirmation, MDR/XDR)) from a health insurer, which will act as a central 'clearing desk' for the other health insurers.
- Before the end of 2011, the tuberculosis centres will have made arrangements with the health insurers regarding the treatment of tuberculosis patients, particularly for MDR/XDR tuberculosis.

5 Surveillance

Tuberculosis surveillance is undertaken by the municipal health services, the KNCV and the RIVM-CIb. The surveillance involves gathering data on tuberculosis cases and on the course of tuberculosis treatment. Within the public health sector, data are recorded on:

- The incidence of (resistant) tuberculosis
- Mortality due to tuberculosis
- The results of active case finding among particular risk groups
- The outcomes of source and contact tracing activities
- The risk factors for infections and disease
- The results of (preventive) treatment

To enable the use of surveillance based knowledge for control, a tuberculosis case register – the Netherlands Tuberculosis Register (NTR) – has to be maintained. The NTR contains patients' personal, demographic and medical data. Data are recorded, managed and used in accordance with the applicable legislation and regulations.

Surveillance by municipal health services

Under the Public Health Act, the municipal health services register tuberculosis cases and look out for surges or other unusual developments involving tuberculosis, which they report to the RIVM-CIb.

In addition, the municipal health services analyse and report surveillance data on matters relevant to their fields of activity, for the benefit of the municipalities. At the regional level, surveillance findings are discussed with a view of enabling any necessary adaptations to the control activities. To support national monitoring of the outcome of risk group screening, municipal health services are expected to gather local data on the size of the target group and the number of people screened and to record such data in a central system. In order that the effectiveness of BCG vaccination of particular target groups can be evaluated, municipal health services also need to gather and submit local coverage data.

National surveillance

As well as meeting their statutory surveillance obligations, since 1993, the municipal health services have voluntarily recorded additional patient data in the NTR, which is maintained by the KNCV. The data in question relate to the diagnosis, course and outcome of the treatment of all tuberculosis patients in the Netherlands. The diagnostic information recorded includes the location of the tuberculosis and the results of the resistance tests and bacterial typing results. Data from contact tracing activities are also recorded in the NTR by the municipal health services.

In line with a letter issued by the VWS in 1999, municipal health services monitor the outcomes of tuberculosis screening in particular risk groups as part of the Screening Monitoring Immigrants (MSI) Programme. The municipal health services transfer the data on each new cohort to the KNCV's MSI system at the end of the screening period for use in analysis and reporting.

National surveillance of tuberculosis is undertaken jointly by the KNCV and the RIVM-CIb. The KNCV, which is an NGO, maintains the national tuberculosis

control surveillance systems. Responsibility and ownership lie with the municipal health services. The KNCV processes the data; the NTR Registration Committee supervises the use of the NTR data and other surveillance records, on the basis of the NTR Regulations. The RIVM-CIb works with the KNCV to monitor resistance and DNA patterns in tuberculosis strains. Alongside those activities, the RIVM-CIb monitors numbers and epidemiological trends in the incidence of tuberculosis, for which it draws on the surveillance data that have to be submitted by law.

The division of duties between the RIVM-CIb and the KNCV is currently under discussion. It is important that national surveillance is consistent with national and international obligations¹¹ and that data are recorded, managed and used in accordance with the applicable legislation and regulations.

Approach

In 2010, the RIVM-CIb and KNCV are forming a working group to consider how surveillance can best be organised in the context of the requirements pertaining to the national direction of tuberculosis control. Any arrangements must serve the interests of public health, must support effective and qualitatively sound tuberculosis control, must be consistent with the obligations arising out of national legislation and international regulations and must respect the interests of both organisations.

Objective

- By 2012 there is to be a clear, efficient national system of tuberculosis surveillance, consistent with national and international obligations.

¹¹ Under the Public Health Act, the municipal health services are obliged to carry out surveillance within their designated regions of all infectious diseases that are relevant in the context of public health care, while the RIVM-CIb undertakes national surveillance. In addition, as the national IHR focal point, the RIVM-CIb is responsible for adequate national surveillance of all infectious diseases that are relevant to public health, and is affiliated to the EWRS. Decisions 2119/98/EC and 2003/542/EC of the European Commission place an obligation on the Netherlands to make a proper contribution, via a single national coordination point, to the recognised European surveillance networks. Since 2005, the ECDC has been responsible for the coordination and funding of these European dedicated surveillance networks. The RIVM-CIb is the National Contact Point for European-level surveillance. The RIVM-CIb's Laboratory for Infectious Disease and Screening (LIS) acts as the national microbiology focal point, i.e. as the contact point for laboratory diagnostics matters in the Netherlands.

6 Laboratory diagnostics

Laboratory diagnostics are primarily important for the diagnosis and treatment of tuberculosis, but also for the surveillance of transmission and resistance. The laboratory procedures undertaken are, in the first instance, the microscopic examination of sputum or other clinical material, followed by molecular detection, culture growing and (molecular) resistance testing. All laboratories that offer tuberculosis diagnostics undertake microscopic testing and some of them test for (molecular) resistance to first-line medications [11]. The RIVM-CIb tests all positive cultures for resistance to first-line medications. If resistance to the first-line medications is confirmed (which happens in about 10 per cent of cases), resistance testing is extended to second-line medications. The cultivated *Mycobacterium tuberculosis* strains are typed at the RIVM-CIb in order to identify the (sub)species. In addition, the isolates are typed in order to ascertain the DNA profile and to study transmission. Clustering of cases indicated by DNA fingerprinting is reported to the municipal health services to facilitate source and contact tracing. The cost of resistance tests performed for patient treatment purposes are billed on the basis of the Dutch Healthcare Authority's tariffs.

In the Netherlands, diagnostic tests are performed for about 25,000 patients per year [11]. In 2006, an NVMM Committee drew up guidelines for the laboratory diagnosis of tuberculosis. Patient diagnostic work is undertaken at more than forty laboratories in the Netherlands. However, the declining incidence of tuberculosis means that some of these laboratories no longer handle enough samples to ensure that quality diagnostic and safety standards are upheld. Occasionally, therefore, (reference) patient diagnostics are undertaken at the RIVM-CIb, in accordance with the applicable biosafety standards. As an (inter)nationally WHO-accredited reference laboratory, the RIVM-CIb also tests for resistance to second-line medications. On the basis of the test results, the RIVM-CIb undertakes national resistance surveillance and initiates appropriate responses to MDR and XDR tuberculosis when it is detected.

Approach

In summer 2010, with a view to ensuring the biosafety and quality of the diagnostic activities described above and addressing criticisms made by the Health Care Inspectorate, the NVMM decided in consultation with the RIVM-CIb that laboratories should in future produce *M. tuberculosis* cultures under BSL3 conditions¹². Proposals were also drawn up for the laboratories to participate more frequently in the surveys undertaken by the Foundation for Quality Assurance in Medical Laboratory Diagnostics (SKML). In addition, there are to be (regional) peer group discussions (in the future) regarding the quality of the tests and possible points for improvement in the field of laboratory diagnostics.

Objectives

- In 2011, only laboratories that operate under BSL3 conditions are to produce *M. tuberculosis* cultures.
- From 2011, all laboratories that test for *M. tuberculosis* are to participate in SKML surveys at least once a year.

¹² European Directive 90/679/eeg

7 Improving control

Proper alignment of prevention and cure is essential for effective and efficient tuberculosis control. A direct link between treatment and the screening of risk groups is needed to address the transmission of tuberculosis and, over time, to further reduce the disease. Against that background, the *TB Control Plan 2008-2015. On the road to elimination* identified seven technical objectives for improved tuberculosis control (see Appendix 4). A number of those objectives have already been secured, including the definition of indications for the use of fast molecular tests for MDR tuberculosis (objective 5) [12] and reduction of the duration of treatment in cases of latent tuberculosis infection (objective 7). The IGRA guidelines (objective 6) were adopted by the Committee for Practical Tuberculosis Control (CPT) in December 2010; these guidelines also cover the methods to be used for contact tracing amongst BCG-vaccinated individuals (objective 2). By strengthening regional surveillance, it is hoped that the identification of risk group for tuberculosis and LTBI can be improved (objective 1). Revision of the screening methods used with particular groups (objective 3) has been postponed, pending the results of the ongoing ZonMw-funded studies (TB Perspective). No activities have yet been developed to prevent increase diagnostic delay (late diagnosis) (objective 4).

In the Netherlands, there are two tuberculosis centres (sanatoria) delivering specialist tuberculosis care: Beatrixoord (UMC Groningen) and Dekkerswald (University Centre for Chronic Care, UMC Nijmegen). Although the number of tuberculosis patients has fallen in recent decades, increased use is made of these two centres: in 2008, almost one in five tuberculosis patients was admitted at one of the sanatoria for some time. The pulmonologists attached to these centres also act as national clinical tuberculosis consultants: they advise all clinicians and public health doctors in the Netherlands on matters concerning the diagnosis and treatment of tuberculosis and they promote knowledge and expertise.

Approach

The TB Control Plan 2008-2015 objectives that have not yet been secured must be realised in the coming five-year period. Within the CPT, the results of (evidence-based) studies and cost-effectiveness analyses provide the basis for new policy. Furthermore, Dutch tuberculosis control policy is increasingly being aligned with the policies of neighbouring EU countries. The special knowledge and experience that exists within the Dutch tuberculosis control system should be used to contribute to the development and formulation of a European control policy, through ECDC and in collaboration with other EU states.

Professionals active in tuberculosis control need to continually consider whether new guidelines are needed, whether existing guidelines require revision, and whether the applicable standards are being properly implemented. The vehicle for the development of professional guidelines is the CPT. The review of risk group definitions (see also section 8) should be made a priority, because those definitions form the basis of tuberculosis screening activities. Guideline implementation can be improved by discussing guidelines at the regional level. Furthermore, more attention could, for example, be given to the discussion of cases in which diagnosis was very slow or the outcome of treatment was unfavourable (serious side-effects, death). In the context of such initiatives,

there is a clear role for the previously proposed regional tuberculosis control structure / regional tuberculosis consultants, working in collaboration with the clinical tuberculosis coordinators.

The tuberculosis-related content of basic medical training, specialist medical training in pulmonology (in particular training for clinical tuberculosis coordinators at hospitals) and the training in public health medicine, with specialisation in tuberculosis control could be improved by arranging for more input, particularly from organisations such as KNCV and NVALT.

In 2010, the KNCV is evaluating the clinical tuberculosis consultancy provided by pulmonologists at the tuberculosis centres. The findings will to a significant extent determine the future of the consultancies.

Objectives

- By 2015, the Netherlands is to be making a meaningful contribution to European tuberculosis control policy.
- By 2013, the average rate of diagnostic delay is to be no higher than in 2008 (in that year 31 per cent of pulmonary tuberculosis patients had no cough, 34 per cent had a cough for less than three months, 5 per cent had a cough for more than 3 months and in 30 per cent delay/symptoms were not reported).
- At least every second year, the KNCV, the NVALT and the RIVM-CIB are to organise a joint conference for professionals working in tuberculosis control, with the aim of evaluating progress towards the defined (practical) goals and defining new goals where necessary.
- By 2015, the tuberculosis-related content of basic medical training is to be coordinated and organised to ensure uniformity and acceptable standards.
- By 2015, the tuberculosis-related content of the training given to pulmonologists (including clinical tuberculosis coordinators) and public health physicians (specialising in tuberculosis control) is to have been revised to reflect the changes in the relevant competence profiles.
- By 2015, the tuberculosis-related content of the training given to public health nurses is to have been revised to reflect the changes in the relevant competence profile.
- In the period 2011-2015, each tuberculosis control region is to be visited once by the CPT's Plenary Visitation Committee¹³.
- Before the end of 2011, agreement is to be reached regarding the future position and tasks of the clinical consultants (at the tuberculosis centres).

¹³ The Plenary Visitation Committee is made up of representatives of the professions involved in the control process, as follows: two tuberculosis doctors, twee TB control tuberculosis nurses, two medical technical assistants and the Quality Coordinator of KNCV.

8 MDR/XDR tuberculosis

Multiresistant (MDR) tuberculosis is caused by a strain of *M. tuberculosis* that is resistant to at least isoniazid and rifampicin, the two most powerful drugs currently available for treating the disease. In extensively drug-resistant (XDR) tuberculosis, the pathogen additionally exhibits resistance to at least one aminoglycoside and one fluoroquinolone (second-line medications). MDR/XDR tuberculosis requires a minimum of eighteen months of treatment, using alternative medications that are less effective, have more side-effects, are much more expensive and have to be administered for at least a number of months at a specialist tuberculosis centre. MDR/XDR tuberculosis is regarded as a problem of human creation, resulting from, for example, the inappropriate prescription of medication, the limited availability of medication, the use of poorer-quality medication and failure to take medication as directed (secondary or acquired resistance). However, the transmission of resistant bacteria is now the main reason for the increasing incidence of MDR/XDR tuberculosis (primary resistance). In the decades ahead, resistant tuberculosis is liable to become one of the world's biggest public health challenges [13].

It is estimated that there are 440,000 MDR/XDR tuberculosis cases annually worldwide, of whom only a small proportion are treated in accordance with WHO guidelines. Over the last seventeen years, an average of seven to ten patients a year were diagnosed with MDR/XDR tuberculosis in the Netherlands. The figures for the last two years were up, however: there were fourteen such patients in 2008 and twenty in 2009.¹⁴ Although the vast majority of the people in question were infected in other countries, it appears that a handful of the cases recorded in the last five years were infected in the Netherlands. Furthermore, two cases acquired the MDR/XDR resistance in the Netherlands.

Approach

In the Netherlands, the MDR/XDR problem is controllable through good diagnosis, treatment and supervision. Criteria have recently been defined for the use of new diagnostic tests for the early detection of resistant tuberculosis [12]. The expectation is that, in due course, peripheral laboratories will be able to perform at least some of these tests and that, as the cost of the tests falls, the universal testing of tuberculosis patients for resistant bacteria will become viable. The RIVM-CIb's reference laboratory will concentrate on confirmation and phenotype resistance testing, together with mapping sensitivity to first-line drugs and, where MDR resistance is detected, to test for alternative, second-line medications.

Patients with MDR/XDR tuberculosis should be treated under the supervision of pulmonologists at one of the two tuberculosis centres. Patients with MDR/XDR tuberculosis require intensive and prolonged supervision by nurses with special expertise and competences. The availability of second-line medications for MDR/XDR-patients has to be guaranteed. At the national level, action is needed to register the relevant products and to facilitate their central purchase. Since 2006, there has been a multidisciplinary MDR Working Group, which serves as a forum for discussion of the epidemiological, diagnostic, therapeutic and public

¹⁴ In the first half of 2010 six people were diagnosed with MDR/XDR tuberculosis.

health issues associated with the Netherlands's MDR/XDR tuberculosis patient population. In 2010, the WHO is due to publish guidelines on the systematic monitoring of treatment outcomes in this population.

Objectives

- By 2012, the WHO guidelines on the systematic monitoring of treatment outcomes in MDR/XDR patients are to have been implemented in the Netherlands.
- In the years 2011-2015, the RIVM-CIb is to provide laboratory diagnostic services in connection with MDR/XDR tuberculosis.
- In the years 2011-2015, MDR/XDR tuberculosis patients are to be treated under the supervision of a tuberculosis centre.
- In the years 2011-2015, the training of tuberculosis nurses is to include instruction on the supervision of MDR/XDR-patients.

9 Tuberculosis and HIV

Tuberculosis and HIV are often associated and are mutually aggravating. In many African countries, the number of tuberculosis patients has doubled or trebled in the last twenty years as a result of the HIV pandemic. In the Netherlands, 37 tuberculosis patients (3.7 per cent of the total) were also HIV-positive in 2008. In the Netherlands, HIV occurs mainly in homosexual men, intravenous drug users and immigrants from countries where HIV is endemic. In the first group, the prevalence of (latent) tuberculosis infections is very low, so there is no elevated risk of tuberculosis. In the second group, due to high levels of transmission during previous tuberculosis outbreaks, LTBI and tuberculosis are relatively common in a few cities. However, needle exchange programmes and changing drug use habits mean that the numbers of HIV and tuberculosis patients in this risk group are now reasonably stable or declining. The third group accounts for most HIV-infected tuberculosis patients in the Netherlands.

Approach

The detection and treatment of people with tuberculosis and HIV is expedited by ensuring that particular attention is paid to immigrants and intravenous drug users within the tuberculosis control system. People who have tuberculosis and are also HIV-positive require proper treatment for both conditions if recurrence is to be avoided. In the Netherlands, guidelines have recently been produced recommending that all tuberculosis patients be tested for HIV [14]. The guidelines also advise HIV treatment providers to check at least all newly diagnosed cases of HIV infection for tuberculosis (infection).

Objective

- By 2013, all tuberculosis patients are to be tested for HIV, and those who are found to be infected must be referred to an HIV treatment centre.

10 Research / innovation

Research has become one of the cornerstones of Dutch tuberculosis control. Many of the studies make use of the large dataset formed by the Netherlands Tuberculosis Register (NTR). Over the last ten years, various important pieces of research have been performed, including studies into the (cost-)effectiveness of immigrant screening following adaptation of the screening policy, the value of IGRAs in contact tracing and the use of DNA fingerprinting in tuberculosis control. The current ZonMw Infectious Disease Control research programme includes two tuberculosis research projects. The first is looking at issues such as associations between different forms of intervention, while the other aims to assess the value and cost-effectiveness of screening immigrants for latent infection.

In April 2010, there was a meeting of researchers, clinical treatment providers, policy makers and other professionals involved in tuberculosis control in the Netherlands, for the purpose of developing an agenda for tuberculosis control research in the Netherlands in the period 2011-2015 [15]. At the meeting, a number of themes were identified as particularly important for the period ahead, including the following:

- The (cost-effective) basis for the screening definition (50/100,000)
- The active detection of LTBI in particular risk groups, instead of screening for disease
- Evaluation of directly observed therapy (a nursing intervention)
- Health system research, looking at issues such as accessibility, quality, and the effectiveness of tuberculosis control with an alternative organisational structure
- Research into best practice models in other EU countries

Various initiatives were proposed and ideas for fundamental research put forward, mostly involving collaboration with centres elsewhere in Europe. Examples included the pharmacokinetics and pharmacodynamics of MDR medication and research into factors that determine the outcome of MDR-treatment.

Approach

Maximising the effectiveness and efficiency of tuberculosis control in the Netherlands depends on the continued existence of a sound research basis. The working relationships that researchers from various institutes have built up in recent years by collaborating both on research projects and on research programming provide a firm footing for scientific study in the years ahead. Collaboration also increases the likelihood of securing funding.

Objective

By 2015 research will have been conducted into:

- The (cost-effective) basis for the screening definition
- Active LTBI detection in particular risk groups
- Evaluation of the DOT nursing intervention
- The accessibility, quality and effectiveness of tuberculosis control with an alternative organisational structure
- How the organisation of Dutch tuberculosis control compares with that seen in neighbouring countries

11 International collaboration

Because tuberculosis is a globally important infectious disease, which is responsible for a great deal of lost productivity, morbidity and mortality, the Netherlands has the responsibility to play a part in international tuberculosis control as well. Furthermore, when the Netherlands signed the Berlin Declaration in 2007, it made a political commitment to help fight (resistant) tuberculosis at the European level. By doing so, the Netherlands is helping not only its neighbours, but also itself: cutting levels of tuberculosis in, for example, Eastern Europe reduces the risk of the disease being imported to this country. Moreover, by working with partner organisations in countries where tuberculosis is much more prevalent, Dutch practitioners active in tuberculosis control have the opportunity to maintain and develop their expertise.

In the field of tuberculosis control, it is therefore most useful to collaborate with partner organisations in regions from which tuberculosis transfer to the Netherlands is particularly likely, and/or in regions where the tuberculosis problem is particularly severe. The KNCV has an important worldwide role in improving tuberculosis control, and the RIVM-CIb undertakes internationally authoritative microbiological research. Consequently, the Netherlands has both a moral obligation to share its knowledge with the wider world, and an opportunity for using control and microbiology to a mutually reinforcing effect. The initiative of the RIVM-CIb and the KNCV to work with the Royal Tropical Institute (KIT) in setting up a Dutch TB Laboratory (DTLab) is a good example of what can be done in this field.

Approach

In the years ahead, international collaboration in the field of tuberculosis will concentrate on the support of tuberculosis programmes in so-called concentration countries, the coordination of international tuberculosis control, development of WHO guidelines and the development of new diagnostic tools (e.g. simple, fast diagnostic tests, vaccines and medications). Through the Ministry of Foreign Affairs, the Netherlands gives support to, for example, the Global Fund to Fight Aids, Tuberculosis and Malaria, the Global Partnership to STOP TB and the WHO.

Furthermore, the KNCV and the RIVM-CIb jointly aim to provide more technical support in the field of tuberculosis control to low-prevalence and medium-prevalence European countries. The two organisations' activities will be aligned with the priorities of the WHO, the ECDC and the EU. The RIVM-CIb will also consider offering its reference laboratory as a WHO Collaborating Centre for Drug Susceptibility Testing.

Objective

- In line with the priorities of the WHO and the ECDC, the 2011-2015 period will be dedicated to efforts by the ECDC, the RIVM-CIb, the KNCV and other institutes are to engage in international tuberculosis-related collaboration and to offer technical support in the field of tuberculosis control in low-prevalence and medium-prevalence European countries.

12 Tuberculosis control in the Netherlands after 2015

Tuberculosis is a difficult disease to fully eradicate or eliminate, even from countries where its incidence is low. Recent estimates suggest that, by 2030, there will still be more than 800 cases of tuberculosis a year in the Netherlands. In the years ahead, the main focus should be on keeping tuberculosis under control. Recent modelling indicates that new effective vaccines are vital if progress towards elimination is to be made [16].

The organisation of tuberculosis control outlined in this National Tuberculosis Control Plan 2011-2015 builds on the existing model. In that model, knowledge and expertise are pooled by regionalisation, thus helping to maintain quality standards. Regionalisation is regarded as a logical development. This plan does not advocate a fundamentally different model for the period up to 2015; it is not suggested, for example, that tuberculosis control should become a decentralised national government service or that tuberculosis treatment should be reserved to clinical specialists. At the present time, there is insufficient need for any such far-reaching change. Furthermore, more radical options require careful evaluation, because changes to the organisational structure can be irreversible. Besides, scenarios such as those referred to above have insufficient support from the field. Making tuberculosis control a decentralised national government service has the obvious advantage of optimising the retention of knowledge and expertise. The disadvantage of such a setup, however, is limited recognizability for citizens and municipalities and thus limited involvement, although in an outbreak the responsibility for the control of this infectious disease would lie with the municipality. The option of confining tuberculosis treatment to clinical settings and therefore removing it from the public health system appears logical at first sight, because of the correlation with what happens in many European countries and what is normal for other infectious diseases. Yet such a scenario would disengage prevention and cure, while the integration of those two processes is central to tackling the transmission of tuberculosis. What's more, there would be little or no cost reduction at the macro level, because only a small proportion of the tuberculosis patients are treated within the public health system and because the cost of treating tuberculosis in the clinical care sector is probably higher than treating it in the community. Finally, tuberculosis patients are often people from particular risk groups and/or people who are picked up by screening; there is a tendency for such people not to receive adequate treatment in hospitals, potentially leading to increased tuberculosis transmission.

Approach

It is desirable that, in the period ahead, a long-term organisational vision of tuberculosis control is developed. This vision needs to be consistent with the independent, international assessment of tuberculosis control in the Netherlands. Is the proposed organisational structure appropriate for the tuberculosis situation that may be expected to prevail in 2015 and the years thereafter? If the threat of tuberculosis seems more likely to decrease than increase, it could make sense to organise tuberculosis control as a decentralised national government service in the period up to 2025, delivered by the public health sector in consultation with clinical specialists. In the formulation of this vision of prevention and cure within the tuberculosis control system, proper account needs to be taken of the interests of the public in general and of (at-

risk) patients in particular. The choice of organisational model for the future will also depend on the nature of any (shorter) treatment regimes that become available. It is clear that, in the coming years, the development of MDR/XDR tuberculosis and the way it is addressed will have a major bearing on the way tuberculosis control is organised.

Objectives

- In 2013, an external review of Dutch tuberculosis control is to be undertaken.
- In 2013, a think tank made up of representatives from the RIVM-CIb, GGD-NL, KNCV and NVALT is to prepare a policy document outlining the advantages and disadvantages of various organisation models of tuberculosis control in the period up to 2025. Possible scenarios include maintenance of the existing model, with municipal responsibility and regionalisation on the basis of cooperation amongst municipalities, and adoption of a model in which the municipal health services and their regional back offices deliver a decentralised national government service in consultation with the other municipal health services in the region, with the option of assigning (parts of) some tasks to clinical specialists or infectious disease doctors.
- In 2014, decisions are to be made regarding the organisation of tuberculosis control on the basis of the findings of the external review and the scenario analysis.

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Appendix 1

Ministerial commission from VWS as a response to the KNCV TB Control Plan 2008-2015

KNCV Tuberculosis Foundation

Attn. of the CEO

PO Box 146

2514 JD THE HAGUE

Date: 18 March 2009

Subject: *TB Control Plan 2008-2015. On the road to elimination*

On 12 December, I received the *TB Control Plan 2008-2015. On the road to elimination* from your predecessor, Professor Borgdorff. I read the document with interest, and believe that it provides a useful basis for the collation of ideas regarding and further discussion of current and future tuberculosis control in the Netherlands.

I am also familiar with the reports of the international review committees that analysed the Netherlands' tuberculosis control arrangements in 2003 and 2008. Some of those committees' recommendations have been incorporated into your report. Section 7 of the plan identifies twelve objectives for the period ahead. You indicate that, if the incidence of tuberculosis continues to fall in the Netherlands, it may be necessary to modify the way tuberculosis control is organised in our country. In your covering letter, you stress the importance of 'upscaling' in the public health sector, and possibly in the laboratory sector.

As you rightly indicate, tuberculosis control is the responsibility of local government. I envisage my ministry playing a part by facilitating debate regarding the organisation of tuberculosis control in the Netherlands and by performing a number of nationally significant tasks. These are likely to include facilitating reference diagnostics, interdepartmental coordination (e.g. on aliens policy), international cooperation and the assurance of facilities for the mandatory hospitalisation of tuberculosis patients.

I expect the closer collaboration currently being developed between KNCV and the Centre for Infectious Disease Control (CIb) to prove very productive. I believe that the collaboration should lead to the strengthening of tuberculosis control in the Netherlands by bringing together the expertise of the KNCV and the responsibility that the CIb has for infectious disease control in our country. I understand that this collaboration will find practical expression with the secondment of the Head of the KNCV's National Unit to the CIb for one day per week with effect from June 2009.

I also expect that the closer collaboration between the CIb and the KNCV will lead to, amongst other things, development of the objectives and recommendations contained in your Tuberculosis Control Plan, thus providing a basis for a National Tuberculosis Control Plan. I expect that, in consultation with your organisation, the CIb will complete this national plan before the end of 2009, presenting a clear picture of the changes that need to be made to the Netherlands' tuberculosis control arrangements in the years ahead.

I wish to thank you for your efforts in developing the *TB Control Plan. On the road to elimination*, and I look forward to witnessing the development of the Dutch tuberculosis control programme in the years ahead.

Kind regards,

[signature]

PHAM Huijts
Director General of Public Health

cc Centre for Infectious Disease Control

Appendix 2

Membership of the consultation group

| | |
|---------------------------------------|---|
| Representing GGD-NL | S de Gouw |
| TB Regionalisation Steering Committee | V Wieërs and J Roorda |
| VvAwT | W Meijer / M Verhagen |
| V&VN/VOGZ | J Reijnders |
| NVALT | J van Loenhout / P van der Valk and C Magis |
| NVMM | B Mulder |
| CPT | H van Deutekom |
| KNCV | P Gondrie / N Kalisvaart |
| RIVM-CIb | R Coutinho |
| Report compilers | G de Vries (KNCV) and A de Boer (RIVM-CIb) |

Appendix 3

TB control in the Netherlands in 2010

J Doosje, National Association of Municipal Health Services (GGD-NL)
G de Vries, KNCV Tuberculosis Foundation
On behalf of the TB Regionalisation Steering Committee

(Translation of Doosje J, De Vries G. Tbc-bestrijding in Nederland anno 2010. Tegen de Tuberculose. 2010; 106(2):3-6.)

The basis of tuberculosis control lies within an intensive collaboration between clinical, laboratory and public health personnel, at the local, regional and national levels, combined with vertical links between the levels (1). This article presents certain key data on regional public health services. The information enables the individual regions to compare themselves with their peers (benchmarking).

The Public Health Act (section 6) states that the municipal executive is responsible for the provision of general infectious disease control within the municipality. This responsibility implies at least implementing general preventive measures in this field (subsection 1a) and controlling tuberculosis, which is deemed to include source and contact tracing (subsection 1b) (2). To discharge its responsibilities in this field, the executive has to establish and maintain a municipal health service (GGD) (section 14, subsection 1). On 1 January 2010, there were 431 municipalities (3) and 28 GGDs in the Netherlands (see Figure 1).

Regional organisation

In view to reinforcing the infectious disease control infrastructure (VISI), and due to developments such as the declining number of patients, there has been increasing regional collaboration in the field of TB control over the last five years. A structure has emerged that is characterised by regions, each with a back office, which undertakes regional tasks such as surveillance, research and expertise promotion, and various front offices, which undertake client-related activities. There are currently seven regions, eight back offices (South Holland has two) and 37 front offices (see Figure 2 and Table 1).

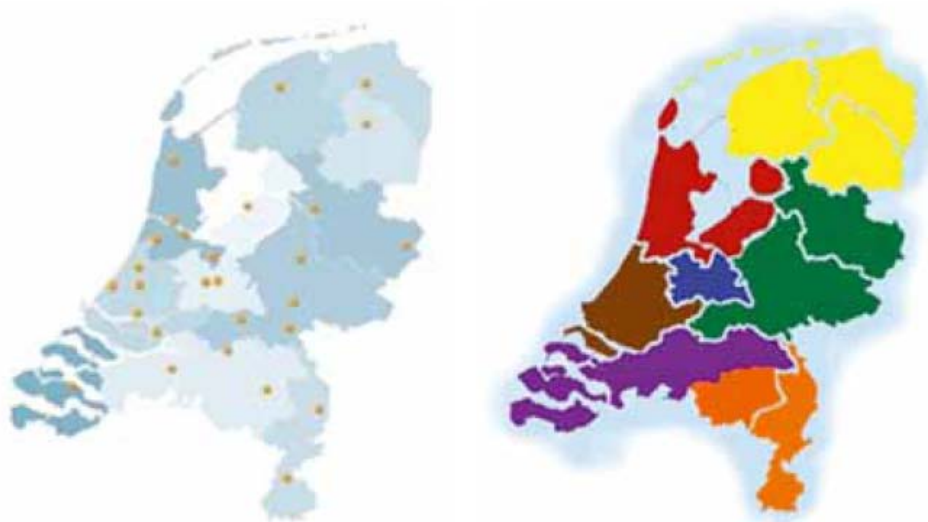


Figure 1 Municipal health services (left) and TB control regions

Table 1 The TB control network on 1 January 2010: regions, the number of GGDs per region, back offices and front offices^{1 2}

| Region | No of GGDs | Back office | Front offices ^{1 2} |
|---------------------------|------------|-------------|---|
| Noord | 3 | Groningen | Assen, Groningen, Leeuwarden |
| Oost | 6 | Enschede | <i>Almelo, Apeldoorn, Arnhem, Deventer, Doetinchem, Ede, Enschede, Harderwijk, Nijmegen, Tiel, Zwolle</i> |
| Utrecht | 2 | Utrecht | Amersfoort, Utrecht |
| Noord-Holland / Flevoland | 6 | Amsterdam | Alkmaar, Amsterdam, Bussum, Hoofddorp, Lelystad, Zaandam |
| Zuid-Holland BO Den Haag | 2 | Den Haag | Delft, Den Haag |
| Zuid-Holland BO Rotterdam | 3 | Rotterdam | Dordrecht, <i>Gouda</i> , Leiden, Rotterdam |
| Zuidwest Nederland | 3 | Tilburg | Breda, <i>Den Bosch</i> , Goes, <i>Roosendaal</i> , Tilburg |
| Zuidoost Nederland | 3 | Venlo | Eindhoven, Heerlen, <i>Roermond</i> , Venlo |

¹ List shows front offices with at least one mobile or fixed radiography unit

² Locations in italics are separate locations from the GGD's main centre

The GGDs' TB Control Departments work closely with specialists at hospitals, including pulmonologists, infectiologists, paediatricians and hospital hygienists, as well as with microbiology laboratories. Other local and regional-level partners in TB control include occupational health services, the Judicial Establishments Service (DJI) and the Central Asylum-Seekers' Reception Body (COA). At the national level there are two centres (sanatoria) delivering specialist TB care: Beatrixoord (UMC Groningen) and Dekkerswald (University Centre for Chronic Care, UMC Radboud). These centres have, respectively, twenty and twelve beds

for TB patients. The RIVM's mycobacteriological reference laboratory performs drug sensitivity analyses and DNA typing on all *M. tuberculosis* isolates in the Netherlands. KNCV Tuberculosis Foundation, the RIVM's Centre for Infectious Disease Control (RIVM-CIb) and the National Association of Municipal Health Services (GGD-NL) all play a part in coordination, surveillance, research and support within the national TB control network.

Personnel

Within the GGDs, TB control activities are carried out by doctors, public health nurses and medical technical assistants (see Table 2). The TB doctors working at GGDs are pulmonologists (eight) or public health physicians with specialist training in TB control (twenty-three); most of the public health nurses are trained to higher vocational level, and many of the medical-technical assistants are qualified practice assistants. On 1 January 2010, 242 people were working in TB control at the Netherlands' GGDs. These personnel are supported by people such as office managers, ICT staff, coordinators and team leaders, who are not included in the information presented here.

Table 2 Personnel working in GGDs' TB departments on 1 January 2010 (absolute numbers and FTEs)

| Region ¹ | Doctors ² | Public health nurses ² | Medical technical assistant ² | Total ² |
|--|-----------------------------|-----------------------------------|--|--------------------|
| Noord | 2.7 (3) | 5.1 (6) | 10.8 (14) | <u>18.6 (23)</u> |
| Oost | <u>3.9 (5)</u> | <u>9.1 (15)</u> | <u>18.4 (24)</u> | <u>31.4 (44)</u> |
| Utrecht | <u>3.1 (4)</u> ³ | <u>2.7 (3)</u> | <u>6.9 (9)</u> | <u>12.7 (16)</u> |
| Noord-Holland / Flevoland | <u>3.7 (4)</u> | <u>8.4 (14)</u> | <u>18.0 (26)</u> | <u>30.1 (44)</u> |
| Zuid-Holland BO Den Haag ¹ | <u>3.3 (4)</u> ³ | <u>6.1 (7)</u> | <u>11.7 (15)</u> | <u>21.1 (26)</u> |
| Zuid-Holland BO Rotterdam ¹ | <u>4.7 (6)</u> | <u>6.8 (9)</u> | <u>15.6 (21)</u> | <u>27.1 (36)</u> |
| Zuidwest Nederland | <u>3.0 (4)</u> ³ | <u>4.8 (6)</u> | <u>10.9 (16)</u> | <u>18.7 (26)</u> |
| Zuidoost Nederland | 2.6 (3) | 4.3 (8) | 9.5 (16) | 17.6 (27) |
| Total The Netherlands | 27.0 (31) | 47.3 (69) | 101.8 (141) | 176.1 (242) |

FTE = full-time equivalent

¹ The region Zuid-Holland has two back offices.

² FTEs and in brackets number of staff

³ One doctor works in three different regions

Table 3 Reported TB cases, TB incidence, number of latent TB infections (LTBI) and number of preventive treatments in 2009

| Region | Population ¹ | TB cases ² | TB incidence | LTBI s ³ | Preventive treatments ⁴ |
|----------------------------------|-------------------------|-----------------------|--------------|---------------------|------------------------------------|
| Noord | 1,711,594 | 134 | <u>7.8</u> | <u>132</u> | <u>99</u> |
| <u>Oost</u> | <u>3,131,366</u> | <u>154</u> | <u>4.9</u> | <u>298</u> | <u>200</u> ⁵ |
| <u>Utrecht</u> | <u>1,215,891</u> | <u>73</u> | <u>6.0</u> | <u>192</u> | <u>110</u> |
| <u>Noord-Holland / Flevoland</u> | <u>3,043,865</u> | <u>257</u> | <u>8.4</u> | <u>235</u> | 224 |
| Zuid-Holland BO Den Haag | 1,012,782 | 107 | <u>10.5</u> | <u>79</u> | <u>71</u> |
| <u>Zuid-Holland BO Rotterdam</u> | <u>2,480,316</u> | <u>234</u> | <u>9.4</u> | <u>293</u> | <u>206</u> |
| <u>Zuidwest Nederland</u> | <u>2,087,072</u> | <u>106</u> | <u>5.1</u> | <u>150</u> | <u>131</u> |
| <u>Zuidoost Nederland</u> | 1,848,817 | 95 | 5.1 | 180 | 138 |
| Total the Netherlands | 16,531,700 | 1,160 | 7.0 | 1,558 | 1,179 |

¹ Population is the mid-year population 2009 based on the reference dates 1 January 2009 and 1 January 2010 (source: www.cbs.nl)

² Source: OSIRIS-NTR (excluding six cases involving *M bovis* BCG)

³ Source: OSIRIS-LTBI.

⁴ Source: information from the regional representatives on the TB Steering Committee

⁵ Estimate based on OSIRIS-NTR

Patients

Table 3 presents data on, amongst other things, the number of reported TB cases and the TB incidence in each region. The TB incidence is higher in regions that include a large city. In the public health system, latent TB infections (LTBIs) are detected mainly through source and contact investigations. The ratio between the number of TB patients and the number of people with LTBIs is therefore a good indicator for inter-regional comparison. However, there is no obligation to report LTBIs and some GGDs report only infections that are medically treated. The regions themselves reported patient numbers (tuberculosis cases and LTBIs) approximately 10-15 per cent higher than those presented in the table. The higher figures may reflect all patients receiving care, including those transferred in.

Procedures

The GGDs' TB Control Departments perform various procedures for the active detection of tuberculosis and LTBI cases. Radiographic pulmonary examinations are performed mainly on people in certain risk groups, in which the levels of tuberculosis are comparatively high (more than 50 cases per 100,000), such as recent immigrants and asylum-seekers, detainees and, in some cities, homeless people and drug users. The aim of radiographic examination is to detect and treat tuberculosis timely. Tuberculin skin tests (TSTs) and interferon-gamma release assays (IGRAs) are used mainly in source and contact tracing and in the testing of contact groups for TB. A contact group is a group of people who are at increased risk of contracting tuberculosis due to occupational exposure, e.g. certain hospital personnel and people working in other institutes where they are

in close contact with people in the risk groups mentioned earlier. TSTs and IGRAs are intended to pick up recent LTBI with a view to providing treatment.

Table 4 Procedures performed by GGDs' TB Control Departments in 2009

| Region | Chest X-rays | | | | TSTs | IGRAs | BCGs |
|---------------------------|--------------------|--------------------------------|----------------------|----------------|--------------------|--------------|---------------|
| | GGD | COA 1st screening ² | MRU DJI ⁴ | Total | | | |
| Noord | 13.465 | 10.444 | 4.382 | 28.291 | 4.287 | 102 | 1.311 |
| Oost | 12.965 | 295 | 3.941 | 17.201 | 9.040 | 530 | 1.412 |
| Utrecht | 9.578 | 265 ³ | 3.383 | 13.226 | 4.713 | 110 | 1.397 |
| Noord-Holland / Flevoland | 19.024 | 635 | 9.958 | 29.617 | 6.374 | 204 | 3.613 |
| Zuid-Holland BO Den Haag | 8.422 ¹ | 12 ³ | 999 | 9.433 | 2.352 ¹ | 615 | 1.417 |
| Zuid-Holland BO Rotterdam | 14.068 | 46 | 8.592 | 22.706 | 6.402 | 316 | 2.567 |
| Zuidwest Nederland | 8.065 | 395 | 5.924 | 14.384 | 3.884 | 161 | 1.419 |
| Zuidoost Nederland | 7.570 | 146 | 1.893 | 9.609 | 5.668 | 305 | 772 |
| The Netherlands | 93.157 | 12.238 | 39.072 | 144.467 | 42.720 | 2.343 | 13.908 |

Abbreviations: BCG = Bacille Calmette-Guérin; COA = Central Asylum-Seekers' Reception Body; DJI = Judicial Establishments Service; IGRA = Interferon-Gamma Release Assay; MRU = Mobile Radiography Unit; TST = Tuberculin Skin Test

¹ Number for GGD Delft is estimated

² Source: GGD Flevoland

³ Correction via regional representatives on the TB Steering Committee (no information from GGD Flevoland)

⁴ Source: National Association of Municipal Health Services (GGD-NL)

The GGDs also provide BCG vaccination for children who have at least one parent from a country where tuberculosis is endemic. BCG vaccination is also provided to people who will be spending a prolonged period in a country where TB is endemic. The number of procedures performed varies from region to region (see Table 4 on the previous page), depending partly on the size of the regional population and partly on other factors, such as the number of DJI and COA centres in the region, the number of large source and contact investigations performed in the course of the year and the implementation of national policy. For example, GGD Den Haag performed IGRA tests entirely on the preliminary guideline (4,5), resulting in the high number of such tests.

Benchmarking

The information presented here enables the individual regions to compare themselves with their peers (benchmarking). When making inter-region comparisons, it is necessary to take account of factors such as the geographical distribution of the population. It is also possible to make comparisons with other countries, where TB control is organised along very different lines. Professional groups can use benchmarking data to check that the applicable standards are being met. TB control activities are subject to fluctuations and can be influenced considerably by the need to perform a major contact investigation. However, to the best of our knowledge, there were no major incidents in 2009. Similar data were also collected in previous years, but are not presented here because the

quality of the data cannot be assured to the same degree. The raw data are nevertheless available from the authors on request.

We recommend the continued monitoring of trends over the years ahead and the publishing of data, possibly every three to five years.

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5. Oudshoorn N Pilotproject. Toepassen van Interferongamma testen (QuantiFERON-TB Gold in Tube®) in de algemene praktijk van de tuberculosebestrijding (Pilot Project to investigate the use of interferon gamma testing (QuantiFERON-TB Gold in Tube®) in general tuberculosis control practice). Graduation thesis produced in the context of public health physician training. 2008, NSPOH, Amsterdam.

Membership of the TB Regionalisation Steering Committee, National Association of Municipal Health Services (GGD-NL):

| Region | Steering Group representative |
|------------------------------|--------------------------------------|
| Noord | T Klimp |
| Oost | J Roorda |
| Utrecht | A van der Putten |
| Noord-Holland / Flevoland | C Morée |
| Zuid-Holland BO Den Haag | A van Bellen |
| Zuid-Holland BO Rotterdam | V Wieërs |
| Zuidwest Nederland | J van de Sande |
| Zuidoost Nederland | M Verhagen |
| GGD Flevoland | H Fortuin, R Jonker |
| KNCV Tuberculosis Foundation | G de Vries |
| National Association of GGDs | J Doosje, M Linthorst |

Appendix 4

Objectives of TB Control Plan 2008-2015

Technical and practical improvements:

- Objective 1 Improved identification of risk groups for tuberculosis and LTBI and reinforced surveillance
- Objective 2 Improved screening method for BCG vaccinated people/immigrants in contact investigations
- Objective 3 Review of the screening methods for particular groups ('stable risk groups')
- Objective 4 No increase in diagnostic delay
- Objective 5 Defined indications for the use of a fast molecular test for MDR-TB
- Objective 6 IGRA guideline for the diagnosis of and screening for LTBI.
- Objective 7 Less prolonged LTBI treatment.

Organisational improvements:

- Objective 8 Improved peer coordination of TB policy in hospitals or groups of hospitals.
- Objective 9 A tiered structure for the diagnosis of tuberculosis in laboratories.
- Objective 10 Public TB control organised from the back offices in 5-7 regions.

Improvements to the parameters for national TB control:

- Objective 11 Clarity regarding the performance of national government TB control tasks.
- Objective 12 A clearer funding structure for the four-year training course for public health physicians (specialising in TB control) and the training course for public health nurses specialising in TB control.

Appendix 5

Glossary of abbreviations

| | |
|-----------|---|
| BCG | Bacille Calmette-Guérin |
| BSL | Biosafety Level |
| COA | Central Asylum-Seekers' Reception Body |
| CPT | Committee for Practical Tuberculosis Control |
| CVZ | Health Care Insurance Board |
| DJI | Judicial Establishments Service |
| DOT | Directly Observed Therapy |
| ECDC | European Centre for Disease Prevention and Control |
| EU | European Union |
| GGD | Municipal Health Service (Gemeentelijke Gezondheidsdienst) |
| GGD-NL | National Association of Municipal Health Services |
| HIV | Human Immunodeficiency Virus |
| HKZ | Harmonisation of Quality Assessment in the Care Sector |
| IGRA | Interferon Gamma Release Assay |
| KNCV | Royal Netherlands Tuberculosis Association (KNCV) |
| LTBI | Latent tuberculosis infection |
| MDR | Multi-drug resistance |
| MRU | Mobile Radiography Unit |
| MSI | Monitoring Screening Immigrants |
| MTM | Medical technical assistant |
| NGO | Non-Governmental Organisation |
| NTR | Netherlands Tuberculosis Register |
| NVALT | Dutch Thoracic Society |
| NVMM | Dutch Society of Medical Microbiology |
| NZa | Dutch Healthcare Authority |
| OMT/BAO | Outbreak Management Team / Governmental Coordination Forum |
| RIVM-Cib | National Institute of Public Health and the Environment. Centre for Infectious Disease Control |
| SKML | Foundation for Quality Assurance in Medical Laboratory Diagnostics |
| TB | Tuberculosis |
| TNF | Tumour necrosis factor |
| VvAwT | The Association of Doctors Working in Tuberculosis Control |
| V&VN/VOGZ | The Dutch Nursing & Care Workers' Association/Public Health Care Nurses' Association (V&VN/VOGZ) |
| VNG | Association of Netherlands Municipalities |
| VWS | Health, Welfare and Sport |
| WHO | World Health Organization |
| WPG | Public Health Act |
| XDR | Extensive drug-resistance |

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